BSBI NEWS

April 2004

No. 96

Edited by
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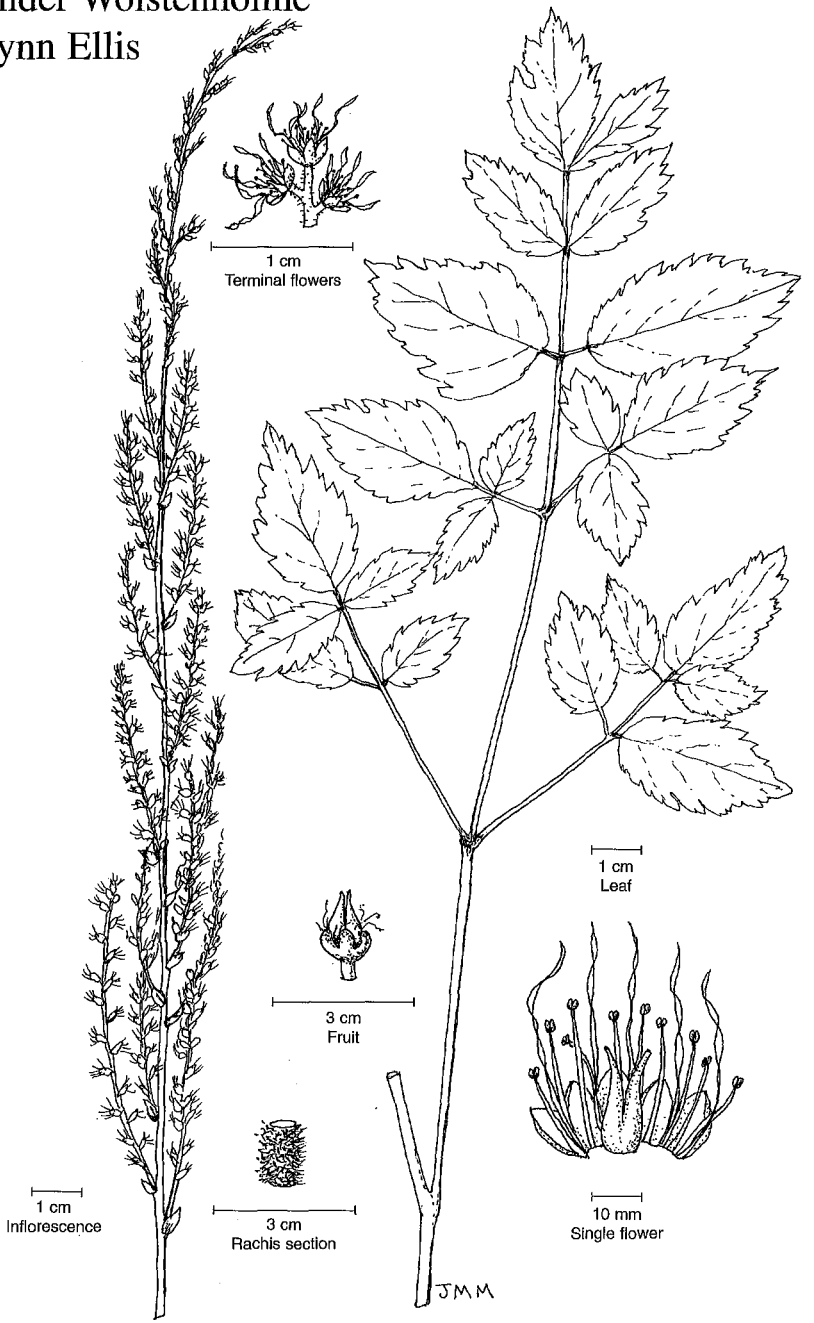
Gwynn Ellis



Astilbe rubra x *A. chinensis* del. Mrs J.M. Millar © 2004 (see page 48)

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CONTRIBUTIONS INTENDED FOR *BSBI NEWS* 97 should reach the Receiving Editor before AUGUST 1st 2004

IMPORTANT NOTICES

FROM THE PRESIDENT

It's all systems go for the *Local Change* scheme. Bob Ellis is now well settled into his Volunteers' Officer role and is now on top of things. He continues to press for last year's outstanding records to be submitted, where possible using *MapMate*, but records in any form are just as acceptable. This season sees the final push to complete recording in all the sample tetrads and Bob asks that records are submitted regularly so that a logjam does not build-up at the end of the season, as funding for his post runs-out at the end of the year. I am very grateful to Martin Rand for his invaluable assistance in back-room computer duties. Among other tasks, he has been undertaking development of the BSBI *MapMate* hub so that the *Local Change* records received are able to be processed with a minimum of manual intervention. But I anticipate that the assessment of the *change in status* of each taxon, between the 1986 Monitoring Scheme and the current scheme, which is a vital aspect of *Local Change*, will still require a considerable amount of manpower in collating the county returns to produce a national picture.

And please don't forget that every member can participate in the scheme, whether at home or especially if you are planning a holiday to a remote area. You can visit the BSBI web site (www.bsbi.org.uk) to download up-to-date lists of records for the relevant *Local Change* tetrad. Better still, contact the appropriate Vice-County Recorder, who will be able to direct you to those areas most in need of attention. You will then be able to send your additions to him/her or submit them over the web. Of course, there is much else of interest on the web-site, such as access to the BSBI Database and the Threatened Plants Database and links to plant identification sites and herbaria, as well as general information on the Society.

I hope you will be able to take full advantage of the varied programme of field meetings during the year and I particularly extend this wish to new members who may feel nervous about attending their first meeting. I am certain that you will be made very welcome and I'm sure that you will have fun, as well as learning a good-deal into the bargain. John Swindells has volunteered to co-ordinate the wishes and aspirations of new members to ensure that membership is rewarding both to them and to the Society. I imagine that he will also seek the assistance of established members locally, who might be in a position to assist new members with plant identification – in my experience this is one of the greatest pleasures of attending BSBI field meetings. I also hope that the new slot planned for future editions of *BSBI News* dealing with identification hints and tips, will also be of value in this respect. On a personal note, I hope that the Carmarthenshire recording week will be fine and not coincide, as in 2003, with the only soaking week of the summer!

Finally, let me wish you a rewarding start to the field season and that you are soon able to complete your *Local Change* recording as well as all the other botanical activities you have planned. But above all, enjoy your botanising and I look forward to seeing you at the AGM in Kew or at other meetings during the year.

RICHARD PRYCE, President

DEVELOPMENT OFFICER

The Society has been involved in further discussions with the Country Agencies over the need for this post, and for their support.

We have reached the stage (late March 2004), when they all say that are budgeting to support this, but nothing has yet been signed with any of them. Nonetheless, since this is the last chance to contact members before the autumn, and we are told that an agreement is meant to be concluded this very soon, we are risking asking any member who is interested to register with me, since the post will be nationally advertised! I would prefer a letter, rather than more emails!

We are well aware that we circulated an earlier attempt to the membership (around 18 months ago) and can only apologise that that did not lead to anything. This round is more solidly based, but who knows what will finally evolve?

We have drafted a job description, as follows. The heart of it is to set up a Rare Plant Unit, supported, we hope, by a local officer in each country, and working with BRC Monkswood and with our own Threatened Plants database and the records collecting procedures we already have with the V.c. Recorders and Local Change. We have a draft of how this might evolve, that we have put together with the help of English Nature, but of course that is only a draft.

Development Officer: draft job description

The Executive Secretary and Development Officer will initially be a three-year post designed to provide the Society with a full-time officer who will be responsible to the Society's Executive Committee, and answerable to a joint Steering Committee of the Society's officers and representatives of its sponsors.

The principal tasks for this post will be:

- To take forward, implement and review the Society's adopted general Development Plan in agreement with the Society and its funders.
- To work in liaison with key BSBI voluntary officers and potential funding bodies to produce an agreed plan to maintain and enhance the Society's Data Management activities, including the development of a Rare Plant Unit, and to seek funding for its implementation.
- To work with the Society's developing Education Committee and its Executive Committee to produce a costed Project Plan in support of the Society's educational, publicity and outreach activities; and to seek funding for its implementation.
- To assist the Society's voluntary Officers to integrate the work of the Society and improve its operational capability, especially through assisting the Hon. Gen. Secretary in the fulfilment of his/her duties, and through proactively harnessing the assistance of other volunteers within the Society.
- To assist in activities in support of membership involvement with the Society and its activities, especially with arrangements for conferences, exhibitions and publicity.
- To work with outside agencies and other organisations in support of the Society's work, through attending meetings and representing the Society as necessary and in liaison with its voluntary Officers.
- To report on progress against agreed objectives to the Society's Executive Committee and Council; and to the Development Plan Steering Committee as required.

We have not decided where the post might be based, but there has been talk of an offer from English Nature for space in one of their offices.

DAVID PEARMAN, Algiers, Feock, Truro, Cornwall, TR3 6RA

INTERACTIVE FLORA OF THE BRITISH ISLES – INVITATION TO LAUNCH

The Linnean Society of London, ETI (Amsterdam) and the authors have much pleasure in inviting all members of the BSBI to the official launch of the *Interactive Flora of the British Isles*, which will take place at the Linnean Society, Burlington House, Piccadilly, London on Thursday 27 May at 15.30 hr.

The *Interactive Flora of the British Isles* has been a joint project of the BSBI and ETI (Amsterdam) along with the vital co-operation of over 100 individuals and the support of several institutions. Thanks to the hard work of our Dutch colleagues it has been completed on time. The final product is a unique electronic publication, presenting a wealth of information on nearly 3800 plant species on a single compact disc.

The DVD-ROM is based on the *New Flora of the British Isles* (Cambridge University Press) and *New Atlas of the British and Irish Flora* (Oxford University Press), extended and updated in the past

two years by the authors: Clive Stace, University of Leicester, Ruud van der Meijden, National Herbarium of the Netherlands (University of Leiden) and Ingrid de Kort, ETI (University of Amsterdam). The BSBI, CUP, DEFRA and Crown Copyrights, OUP, CEH and NHN and over one hundred individuals have been extremely helpful in making this e-publication possible.

The *Interactive Flora of the British Isles* includes:

- Complete taxonomic inventory: hierarchy, scientific and common names
- Species descriptions
- About 8000 drawings and colour photographs
- Computer guided identification system to families, genera and species
- Interactive geographic information system with searchable distribution information
- Hyperlinked reference and glossary sections

The DVD-ROM holds almost one gigabite of information and truly breaks new ground in the field of plant identification and information provision. It is an encyclopedic work of importance for scientists, students and laymen alike. We are convinced that this is the main way forward for aids to plant and animal identification, and are excited to be in the vanguard.

The programme on 27th May will include a brief welcome and introduction, a demonstration of the DVD-ROM, and the presentation of copies to the President of the BSBI and to a DEFRA representative. Refreshments will be provided. We are inviting representatives of all the bodies involved and also those from many other agencies and organizations.

We do hope that we may welcome you at the Linnean Society on the 27th of May, 2004. In order to cater for the correct numbers, if you are able to come could you please inform Clive Stace: cas7@le.ac.uk; 0116-252-3382 (please leave message on Voicemail); Dept of Biology, University of Leicester LE1 7RH? We look forward to seeing you.

EDITORS

NEW BSBI POSTCARDS

We have produced a **NEW** set of 16 views, again from photographs kindly made available from Dr Bob Gibbons. These are the same thick card and from the same producers, Abacus of Cumbria, and reports from our recent Exhibition Meeting have been very enthusiastic!!

They are available from: Mrs Margot Godfrey, 3 Castleton Avenue, Barnehurst, Kent DA7 6QT and cheques must be made payable to **HER, NOT** BSBI.

Prices: for 1 pack	£2.90 + 60p p&p	= £3.50
2 packs	£5.60 + 80p p&p	= £6.40
3 packs	£8.00 + £1 p&p	= £9.00

DAVID PEARMAN

DIARY

N.B. These dates are supplementary to those in the 2004 Calendar in BSBI Year Book 2004 and include dates of the BSBI's Permanent Working Committees.

10 June	Publications Committee, London (to be confirmed)
8 July	Executive Committee, London
27-30 Aug	Irish Members' Weekend at Derrygonnelly Field Centre, Co Fermanagh (v.c. H33)
15 Sept	Meetings Committee, London
13 Oct	Records Committee, London
21 Oct	Publications Committee, London (to be confirmed)
6 Nov	Scottish AGM, Royal Botanic Garden, Edinburgh
17 Nov	Council, London

EDITORIAL

Congratulations: to our President, Richard Pryce, and his new bride Kath who were married just after Easter at – where other than the venue of the Carmarthenshire Recording Weekends. It's a wonder they didn't wait until the end of July and kill two birds with one stone!

Colour section (centre pages): Plate 1: J.E. Bicheno (see p. 24); *Arctostaphylos alpinus* (see p. 64); *Dactylorhiza maculata* (hyperchromic form) (see p. 28); *Convolvulus tricolor* 'Minor' in three colour forms (see p. 44). Plate 2: *Gunnera tinctoria* & *G. manicata* inflorescences & petioles (see p. 51); *Geranium maderense* & *G. palmatum* (see p. 47). Plate 3: *Vaccinium ×intermedium* inflorescences (see p. 18); aberrant *Ranunculus ficaria* (see p. 28); *Lemna mosaics* & Water Snails (see p. 31). Plate 4: *Phacelia divaricata*, *Gilia tricolor* (2 colour forms), *Trifolium alexandrium*, *Collinsia heterophylla*, *Legousia pentagonia*, *Consolida ajacis* (all see pp. 44-46).

Members email addresses are now included in the Membership List in BSBI Year Book and elsewhere, if they agree. Please let me know (by email) if you would like your address included.

Submission of articles: All contributions to *BSBI News* are extremely welcome. If you have the option of supplying an electronic version of your article (e-mail or disc) please do so. If you don't have that option we will, as always, be delighted to receive your hand written or typed material.

Similarly with colour photographs; if you have them in digital form then please send them as jpegs, if not, then slides and prints are just as welcome; but please try not to send any illustrations or maps that are 'embedded' in documents. *BSBI News* is still produced using Lotus WordPro not Microsoft Word and it is often impossible to extract the embedded illustrations when converting files. If sending illustrations in electronic form, please send them as separate files. Hard copy of all types of illustrations, maps, drawings, etc., are perfectly acceptable, and if in doubt, send both types. While on the subject of illustrations, please use scale bars to indicate relative size and not '×2' or '1/3 life size'. These latter phrases become meaningless when the Printer reduces the A4 Camera-Ready copy to A5!

Hybrid names: Charles Nelson has pointed out that the latest edition (St Louis) of the International code recommends that when hybrid binomials are printed using a multiplication sign × (as distinct from the letter x), the sign should be placed adjacent to the epithet (i.e. without a space); this recommendation is followed in *BSBI News*. Thus *Vaccinium* × *intermedium* becomes *Vaccinium ×intermedium* or *Vaccinium* x *intermedium*, but not *Vaccinium* x*intermedium*.

Atlas dots: It seems a number of members have noticed that 'their dots' don't appear in the *New Atlas*; if you feel your dot is missing then make sure you let your vice-county recorder know.

***Rubus* Atlas and *Watsonia* index**: Many thanks to all who have ordered either or both of these new publications; they are now with the Printers and should be published shortly.

***BSBI News* free** to a good home if there are any takers. The volumes concerned are: **26-53** (December 1980 - December 1989); **55-58** (September 1990 - September 1991); **60, 63, 66** (April 92, 93, 94); **69-78** (April 95-April 98); **83** (January 2000). Also Indices: Volume **1** (**1-16**) Jan 72 - Sept 77), Volume **3** (**32-48**) (December 82 - April 88), **49-60** (September 88 - April 92); **61-70** (September 92 - September 95). And *BSBI Yearbooks*: **96, 97, 98** and *Annual Report and Accounts* - 1996.

If anyone would like these, please contact Sarah.webster@defra.gsi.gov.uk. First come, first served.

EDITORS

BSBI VOLUNTEERS OFFICER

Local Change

I am pleased to report that the Local Change project is progressing well. At the time of writing, the quantity of 2003 data received at the BSBI hub database was already over 40% of the Monitoring Scheme levels. More data from last season is still to be entered and there is a whole season to come, so Local Change will most likely result in more records than the Monitoring Scheme. This is borne out by the tetrads already completed (or nearly so). I have extracted the data from 139 tetrads that fall into this category and the figures for these also suggest that the number of records will surpass that for the Monitoring Scheme (see Table 1). This is partly explained simply by the fact that more taxa are being recorded, particularly garden escapes, crops and planted trees. It is worth remembering that the first edition of Stace was not published until 1991, after the date of the Monitoring Scheme. Part may be explained by real increases in diversity – again mostly aliens. There may be an increase in recording skills (not necessarily identification skills) – many of us are more practised in tetrad recording than we were in 1987/88, after involvement the Monitoring Scheme itself, the production of many tetrad-based local floras and, of course, the Atlas project. There is also an advantage in having a previous list to work from; there is an incentive to re-find previously recorded species and there is less likelihood of omissions, which I know from experience are easily made:

Hands over a card: 'Thanks ... ah, what about *Fraxinus*?'
'Er, yes, I must have seen it'
'You're standing under one!'

Table 1. A sample of completed or near-completed LC tetrads

No. of tetrads	139
Average taxa 1987/88	204
Average taxa 2003	266
Average taxa 'lost'	43
Average taxa re-found	161
Average taxa 'gained'	105
Average taxa both surveys	308

Although this sample of tetrads serves as an interesting illustration, it is obviously early days yet and it is full of inherent bias. Also there is an effect from a number of taxa that were recorded at different taxonomic levels in the two surveys (e.g. *Epilobium tetragonum* was mostly entered as ssp. *tetragonum* in the Monitoring Scheme but is being entered at species level in Local Change). This leads to artificial 'losses' and 'gains' which will need to be corrected during the analysis process.

I've also found it intriguing to look at some individual taxa, as these illustrate some of the elements of the project. Several of the higher 'gains' in the sample are shown in Table 2 and a few of the higher 'losses' in Table 3. Some of these are what might be expected, several I find surprising, but I think each has a story to tell.

Table 2. Some of the higher 'gains' in the sample

Taxon	'Losses'	Re-finds	'Gains'	Total	Net 'gain'	Relative net 'gain'	Atlas change factor
Narcissus aggregate	1	7	60	68	59	0.87	-
Cerastium glomeratum	5	57	52	114	47	0.41	+1.44
Triticum aestivum	0	0	43	43	43	1.00	-
Lactuca serriola	0	8	41	49	41	0.84	+2.70
Epilobium parviflorum	10	17	49	76	39	0.51	-0.41
Lunaria annua	2	8	41	51	39	0.76	-
Prunus avium	5	37	43	85	38	0.45	+1.29

Veronica arvensis	7	59	44	110	37	0.34	+0.48
Galanthus nivalis	5	15	42	62	37	0.60	+3.01
Buddleja davidii	2	10	38	50	36	0.72	+3.73
Coronopus didymus	1	14	35	50	34	0.68	+1.77
Epilobium ciliatum	9	34	43	86	34	0.40	+3.88
Vinca major	1	10	35	46	34	0.74	+1.49
Papaver somniferum	4	3	37	44	33	0.75	+2.54
Euphorbia peplus	5	31	36	72	31	0.43	-0.17
Festuca arundinacea	7	26	38	71	31	0.44	+1.71
Taxus baccata	5	28	35	68	30	0.44	+0.86

Table 3. Some of the higher 'losses' in the sample

Taxon	'Losses'	Re-finds	'Gains'	Total	Net 'gain'	Relative net 'gain'	Atlas change factor
Equisetum fluviatile	19	16	10	45	-9	-0.20	0.42
Galium saxatile	13	54	4	71	-9	-0.13	-0.15
Centaurea scabiosa	13	14	4	31	-9	-0.29	-0.49
Melampyrum pratense	11	8	3	22	-8	-0.36	-0.88
Silene latifolia	19	35	13	67	-6	-0.11	-0.88
Lamium amplexicaule	14	7	8	29	-6	-0.21	-0.22
Gymnocarpium dryopteris	7	1	1	9	-6	-0.67	-0.21
Elodea canadensis	11	7	6	24	-5	-0.21	0.37

If you haven't joined in the project yet, and would like to do so, please get in touch with me or with your vice-county recorder.

Plantlife Poppy Survey

You should have received a leaflet in this mailing for Plantlife's poppy survey this coming summer. May I urge you to take part. Last year's bluebell survey was a great success and I hope the poppy one will be too.

Reference:

PRESTON C.D., PEARMAN D.A. & DINES T.D. 2002 *New Atlas of the British & Irish Flora.* Oxford University Press, Oxford, UK.

BOB ELLIS, BSBI Volunteers Officer, 11 Havelock Road, Norwich, NR2 3HQ; Tel: 01603 662260. Email: VolunteersOfficer@bsbi.org.uk

CO-ORDINATOR'S CORNER

Boniface Notebooks

A couple of long term projects on the Threatened Plants Database have just reached important stages in their development. One of these is the Boniface Notebooks project. Ron Boniface (1913-1985) was a highly active and skilled amateur botanist who for over half a century kept beautifully detailed notebooks and compiled a large herbarium. After he died Mary Briggs passed all this on to the National Museum of Wales, where his collection could be catalogued and properly curated.

At Tim Rich's recommendation we started computerising the Boniface materials in 1999. One of the dangers faced by the TPDB project is a problem encountered by many database projects, that it is difficult to find discrete end points – databases often just rumble on until, half-completed, they are shelved or run out of cash. So the idea of having a fixed set of data to work on until it was finished was very appealing, and potentially represented good value for money for our funders.

The problem with the Boniface materials was that a lot of it was not of Threatened Plants, and therefore we had to examine closely the costs and benefits. No-one would have been very impressed if we spent our time collecting records of common species. The alternative would have been simply to rifle through the collections looking for the records we wanted. This delivers short term benefit at the expense of long-term inefficiency, because if we didn't do the job properly now someone else would eventually have to do it all over again. Roughly speaking, it would have cost twice as much to extract all the records than just the rarities, but it would have delivered twenty times as many records in total. After a heated committee meeting, we decided to opt for "Plan B" and do the job properly.

Five years later we have a finished report containing just over 15,000 records of which 616 are of TPDB species. Almost every one of these records has a species, vice-county, site, grid reference, date, recorder and a paper source – either a herbarium sheet or a notebook – from which it was extracted. In addition, many records have detailed comments, altitudes, abundance figures and the name of a determiner. Almost all the grid references are given to 1km square unless there is an original 6-figure one, and we have been consulting with v.c. recorders to attempt to get this right.

I always feel uncomfortable with exaggerated claims of originality, but it would be fair to say that the Boniface Notebooks project represents a model that could with some advantage be used by other databasing projects in future. We have produced a printed report (available from the National Museum of Wales) that contains a summary of all the records. Some 100 pages of fine print, and not exactly easy reading, but hopefully a permanent record of the work done. All the records are also freely available to anyone via the Hull University web site and of course from the TPDB. We've looked at the costs of the project and suggest that the investment of about £10,000 from our budget has yielded data worth ten times as much. This does not include the costs incurred by the National Museum of Wales, which we estimate amounts to £500 per annum in looking after the collection.

We still have work to do. There are specimens that have not been properly determined, and I dare say we will have made mistakes in reading labels. But once the data is on computer it is far easier to sort it and rearrange it in various ways to help highlight any such errors. Give us a year or two and a second report will be even more thorough. I am particularly indebted to Tim Rich and Margaret Cole, who have done so much work on the project, and to David Pearman and Paul Rose who supported it politically and financially. If the wider biological recording community can learn from this exercise, the potential benefits to nature conservation and ecology could be significant.

Birmingham Herbarium

The second TPDB project that is now reaching the 'results' stage is the computerisation of the University of Birmingham herbarium. This is also innovative in some ways. The Hull University herbarium and the Perth Museum herbarium have both been databased already and are available to the natural history community for free, but our work on the Birmingham herbarium is the first time anyone has compiled a complete and checked database for the whole of the British Isles. As with the Boniface materials, each record is complete in biological recording terms – species, site, grid ref., v.c., recorder, date, determiner and date of determination, curation, sex/stage, abundance, comment and record type (e.g. type specimen, photograph, etc.). To do this for many species across Britain & Ireland is a very complex task, and has involved an enormous amount of input from taxonomic referees and vice-county recorders.

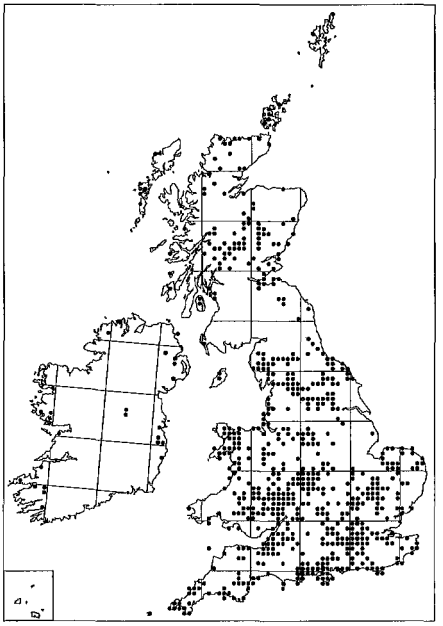
To give an example of this, we spotted a rather interesting specimen of Deergrass *Trichophorum cespitosum* from Somerset. With help from Michael Braithwaite and Paul Green it transpired that it was the first record of the northern subspecies *T. cespitosum* ssp. *cespitosum* in Somerset and only the second known record for Britain. We now have what we consider a fairly good locality for it (the herbarium sheet said, simply, Turf Moor!) based on other records by the same collector and known sites in Somerset for Deergrass. It can take hours of work to sort out the details of even one record this way, and it is fortunate for the BSBI that we have so many dedicated experts who are willing to lend their time for free. The reward is, of course, that it sheds light on the historical ecology of Britain and contributes enormously to our understanding of site ecology.

As with the Boniface work, the **BIRM** catalogue is now printed and available as a bound volume. It is still a work in progress: just 2,000 records have been extracted so far, but these are mostly of

rarities. Having it available in print is enormously valuable in enabling people to check through the data and spot errors or features of significance. One of the most valuable collections at Birmingham is that of hawkweeds, many collected by Augustin Ley, and these have just been sent to David McCosh for determination – many more days hard work, I dare say.

Again, I can only thank BSBI members and staff of the University of Birmingham for all their help on this project, which has received no funding whatsoever. All the work has been undertaken voluntarily. Most particularly I would like to thank Tim Rich, Margaret Cole, David McCosh, Ian Bennallick, Richard Lester, Sarah Whild, Chris Preston, Dick Middleton and Michael Braithwaite. By taking this project forward to a series of definable stages, and ensuring that all the records are fully available to those who can best make use of them, we can ensure that the full value of this work is achieved. In the modern world there is always a temptation to exploit a resource such as this, at least for funding for the institution that houses it, but in reality such attempts to turn knowledge into cash usually end up delivering very little. Perhaps the most useful outcome of this project could be that it shows funding bodies what they should be receiving for the cash they put into this sector, and it helps to put an end to the 'databases never yielding anything' syndrome.

Maps showing the data from both these projects are given below (Boniface, left & Birmingham, right), and v.c. recorders and taxonomic experts are invited to contact me to collaborate on the data relating to their area of expertise. The Birmingham Herbarium report is available from me, and the Boniface Notebooks report from Tim Rich. There may be a small charge for copying and postage.



Alex Lockton, 66 North Street, Shrewsbury, Shropshire, SY1 2JL; email: coordinator@bsbi.org.uk

RECORDERS AND RECORDING

PANEL OF REFEREES AND SPECIALISTS

Roy Vickery has agreed to take over advising members on Popular Names; his address is already in the Referees Section of the Yearbook.

There is a change of address for Jon Marshall, referee for arable weeds:

Dr Jon Marshall, Editor, Journal of Applied Ecology, Marshall Agroecology Ltd, 2 Nut Tree Cottages, Barton, Winscombe, Somerset BS25 1DU; email: jon.marshall@agroecol.co.uk

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PANEL OF VICE-COUNTY RECORDERS

Recent changes since *Year Book 2004*

V.c. 2 E. Cornwall: Mr I. Bennallick to become sole recorder.
Miss Rose Murphy has been our recorder since 1984 and has been a complete tower of strength in Cornwall. She will be greatly missed.

V.c. 7 N. Wilts: Miss S.L. Pilkington, 5 Gainsborough Rise, Trowbridge, Wilts. BA14 9HX, to become recorder.

V.c. 8 S. Wilts. Miss S.L. Pilkington, address as above, to take over from Ann Hutchison who has been our recorder since 1976 and we thank her very much for her work.

V.c. 38 Warwick Dr J.W. Partridge, 85 Willes Road, Leamington Spa, Warwicks CV31 1BS to become recorder.

V.c. 49 Caerns Mrs W. McCarthy 5 Tyn-y-Coed Road, Great Orme, Llandudno, Conwy LL30 2QA. Mrs McCarthy replaces Mr G. Battershall, recorder since 1996, who did so much to help record this large and important county for the *New Atlas*.

V.c. 66 Durham Vacant.
Mr A. Coles, who, again, helped us so much in preparing the data for the *New Atlas* has resigned.

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AUGMENTED FIELD-RECORDING

Good for Angus Hannah! At the risk of sounding contentious or patronising, I am tempted to add 'about time, too'! I refer to the article in the 'Recorders and Recording' Section, *BSBI News* **95**, about expanding field-work data-collection to include a fuller description of species-occurrence, beyond records of mere presence/absence. I agree entirely with the first sentence in Mr Hannah's second paragraph, and indeed, in principle, with most of his suggestions.

It is worth reiterating, for those not familiar with the system, that abundance scales work on a **relative basis** within the **prescribed site**. Each species described as 'frequent' is more numerically common than those considered 'occasional', and each of the 'occasionals' is *ipso facto* more numerous than those treated as 'rare'. This is the chief rule, and implies careful observing and allocation of the 'grades', but not statistical exactness, which is usually impractical anyway.

In my experience — perhaps this is another way of explaining how I use the scheme — 'rare' species may in fact, by virtue of a scattered but recurrent presence, add up to a quite large number of individual plants. As long as this population is fewer than those of species deemed 'occasional', the designation 'rare' is appropriate. Recently, I have sometimes used 'VR' ('very rare') to indicate those species within the given site whose numbers are notably and extremely limited.

It pleases me that Angus Hannah's suggested 'AFOR' scheme does not include 'D' for 'dominant'. Though such a phenomenon may exist in nature, on a local scale such as a nettle (*Urtica dioica*) patch or an infestation of bracken (*Pteridium aquilinum*), the term 'dominant' is often carelessly used, and better avoided. Likewise, it is in my estimation wrong to have many 'abundant' species in a site: there simply is not room to accommodate large numbers of taxa each of which is accorded an 'abundant' label. To me, 'abundant' means 'Everywhere I look I see lots of it', whereas 'frequent' is 'Everywhere I look I see some'.

I am not, however, fully convinced that Angus Hannah's codes are a necessary innovation. As an alternative method, the prefix 'L' for 'locally' helps to specify the clumped distribution of certain species. Thus, wood anemones (*Anemone nemorosa*) or ramsons (*Allium ursinum*) can be defined as 'O, LA' to show that they are only moderately widespread, covering only a proportion of the woodland floor, but that where they do occur they are distinctly numerous in terms of individual plants.

The 'AFOR' scale can be elaborated to incorporate intermediate points. Thus, 'R/O' signifies those species whose populations are definitely above the level of rarity within the site, but whose individuals are still somewhat few and far between. Discussion of this refinement with other botanists led to the conclusion that its use probably said more about the personality of the surveyor concerned rather than the nature of the flora! I am happy to recognise that I prefer the more detailed scheme, but that others may not. Be that as it may, I often find that the more complex series of designations allows a helpful discrimination between, say, creeping thistle (*Cirsium arvense*) as 'O' and spear thistle (*C. vulgare*) as 'R/O' in a neglected pasture; and a strongly represented dog's mercury (*Mercurialis perennis*) population in a woodland may be most aptly described as 'F/A, LD'.

Whichever system is adopted, the main point, as Angus Hannah correctly states, is that we produce a clearer picture of the ambient vegetation, not simply for the sake of the particular survey being undertaken, but also for comparisons over time and from site to site. I am all in favour.

My final point concerns his title. Do not be too hard on train-spotters. It was never one of my more avid pursuits, but I know several enthusiasts whose train-spotting led to valuable destinations: a career in transport economics; a senior post in BR; a quite comprehensive amateur knowledge of locomotive engineering; a voluntary role with youth groups. Botanical expertise in separating subspecies of *Hieracium* may seem eccentric and without practical application, but sooner or later such skills should assist the very significant task of conserving our environment. 'Think naught a trifle, though it small appear'.

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TRANSFER OF CARTWRIGHT HERBARIUM (CMM) TO CLIFFE CASTLE MUSEUM, KEIGHLEY

Members may be interested to learn that the Cartwright Herbarium (**CMM**) has been transferred from Cartwright Hall in Bradford to Cliffe Castle Museum in Keighley. The collection is more easily accessible in its new premises and the facilities for study of material more comfortable. Anyone wishing to visit the herbarium, which holds a number of nationally important collections, including those of F.A. Lees and W.A. Sledge, should contact Alison Armstrong at the address given below. Access is currently available from 9am to 5pm on weekdays although there will be additional access on Saturdays following the appointment of new staff. For those travelling from far afield Cliffe Castle is close to Keighley town centre and easily accessible by road from either Skipton or Bradford. There is a frequent rail service from Leeds to Keighley station which is only a short walk from the museum.

To arrange visits or for further information on the collection please contact Alison Armstrong, Museum Officer (Natural Sciences), Bradford Museums Galleries and Heritage, Cliffe Castle Museum, Spring Gardens Lane, Keighley, West Yorkshire, BD20 6LH (Tel.01535 618241/31; Fax 01535 610536).

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NOTES AND ARTICLES

THE HISTORY AND PRESENT STATUS OF *SOLIDAGO VIRGAUREA* IN EAST NORFOLK – RESULTS OF A SURVEY BY THE NORFOLK FLORA SURVEY GROUP

The native goldenrod *Solidago virgaurea* has always been a scarce plant in Norfolk, mainly confined to the east of the county (v.c. 27). In West Norfolk (v.c. 28) it was always a rarity. Trist records a colony on a hedge bank at West Tofts before 1979 (Trist 1979), and Petch and Swann further colonies at Derby Fen, East Winch, Beetley and Gressenhall (Petch & Swann 1968). More recently it has only been found at Tottenhill Row and Gressenhall, and the species now appears to be extinct in west Norfolk (Pers.comm. G. Beckett).

In v.c. 27 it has also been scarce, but with a few dozen colonies and a fairly wide distribution, stretching from Sheringham and Holt down to the heathy area to the north-west of Norwich, with a few colonies, mainly old records, just south-east of Norwich, and a very few mostly even older records across to Yarmouth or to the south (Beckett & Bull 1999).

Unfortunately the range of *Solidago virgaurea* in the east also seems to have been contracting rapidly, with virtually all colonies seen in the last few years confined to the north west corner of the vice county, in the Holt and Sheringham areas.

It was therefore decided that the Norfolk Flora Survey Group would survey the distribution of *Solidago virgaurea* in vice county 27. We started off with the intention only of re-finding and counting as many of the historical records that seemed feasible or worthwhile, but in the course of the survey we realised that it should be possible to use the results to come to some sort of tentative conclusions as to the reasons for the loss, and even to arrive at some advice for conservation. It is hoped that a fuller account of the history of this species in Norfolk, and of the survey findings, will appear later this year in the Transactions of the Norfolk and Norwich Naturalists' Society. Here only the conclusions will be given.

The 53 past records for goldenrod in Norfolk relate to a minimum of 39 colonies since 1780, and although this amount of colonies have probably never been present at any one time, 33 seem to have been present 30 years ago in 1973. This number has now declined to 15, of which 9 are on two heath sites in the Holt-Cromer ridge area. All the 6 non-heath colonies are small (max. 46 plants) and only two seem to be safe at present without conservation measures. Even the heath sites may need management to survive in the longer term, but this should be easier to arrange.

The past distribution of goldenrod in the county is similar to that of Lime-Ash-Hazel-Elm woodland in Atlantic times (Rackham 1990), and it is possible that the species was confined to this climax community at that time, denser woodland in the rest of the county being unsuitable. Certainly it would seem more recently to have been confined by its poor competitive ability and intolerance of heavy shade to the poorest soils, which are able to provide similar habitat conditions to the rocky substrates in the uplands.

Virtually all records of *Solidago virgaurea* occur either on the very poor Corbett's type 11 or type 7 soils (Beckett & Bull 1999). Heathland on the former soil supports 72 per cent of the county population and the only two large colonies (of 237 and 336 plant). Past records from heath or from areas where heath is known to have existed have been recorded repeatedly, over periods of up to 125 years, and surrounding non-heath records have disappeared shortly after heathland has been forested or ploughed up. Non-heath sites have never been recorded more than once and have not been known to survive for more than a decade or two.

All this suggests that heathland colonies may be primary and that they may have acted as reservoirs of population, from which the transient non-heath colonies have been derived, but it is not possible to rule out the possibility that all colonies are secondary but that heathland ones just survive much longer. Whichever is the case, the fact that 44 out of 53 past records have been for transient

colonies points to a much greater vulnerability than would be expected from the atlas recording, where records have appeared stable.

The national atlas maps show goldenrod in 13 Norfolk hectads in 1976 (Perring & Walters 1976) and 17 in 2002 (Preston, Pearman & Dines 2002), but our survey in 2003 found it in only 3 hectads. Such an unexpected decline seems to be due to sudden unsuitability of potential sites, due mainly to shading by secondary woodland.

Vulnerability to such unexpected declines might be expected in other apparently stable scarce perennial species with poor colonising ability that have a high population of 'one-off' to persistent records. The exact timing of a decline in a particular species could of course only be forecast by identifying the potential sites for colonisation, and by forecasting changes that would render them unsuitable.

Presuming that such an 'index of vulnerability' is tenable, one wonders if it could be one way of choosing a scarce species for a county survey. Though of course a hunch that a rapid decline is occurring will usually be the initial impulse, a high proportion of transient past records would confirm that a species was susceptible to rapid decline if new colonies were to stop being recruited.

Now that we have confirmed the rapid loss of goldenrod in Norfolk we will be contacting those in charge of management of the 9 heathland sites, and of 2 other sites where conservation measures are feasible, to try and ensure that they at least survive.

Thanks are due to Gillian Beckett and Bob Ellis, recorders of v.c. 27 & v.c. 28, who suggested the survey, and to all members of the Norfolk Flora Recording Group who took part.

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ALDER POX, NATURAL CYCLES AND BEYOND TRAINSPOTTING !

I read the articles by Alex Lockton and Angus Hannah (*BSBI News* **95**: 8 & 10) with particular interest as they bear on matters that I have long held have been neglected by recorders.

First, natural cycles and the current disease of Alders. The disease which is currently killing off Alders by the thousand is not actually due to *Phytophthora cambivora* which does not attack them but to an, as yet, unnamed group of polyploid hybrids between *P. cambivora* and *P. fragariae* var. *rubi*, normally a pathogen of *Rubus* spp. not known to attack alders. Hybridization between these fungi has taken place recently at various sites in the UK and northern mainland Europe and the hybrids' cytology is not yet stabilized. They are, therefore, a novel group of new pathogens with new properties rather than an established species which has responded to the rapid increase of alders by increased virulence. At present they look as if they will be as efficient in killing of alders as was Dutch Elm disease to Elms. This situation is very different to that often associated with some increase in numbers of either well established hosts or one of their pathogens resulting, most obviously, in apparently cyclical changes over time of the host.

Of course, cyclical changes of living organisms and, indeed communities can be due to a variety of causes and are not uncommon. I agree with Alex, that too often we neglect them, indeed, often fail to recognize them. This is a pity since the investigation of such cyclic phenomena can often provide valuable insights into the response of plants to a variety of intrinsic or external ecological causes. While presence or absence of a plant at a particular site can provide valuable information, as demonstrated so magnificently in the use that has already been made of such information summarized

in the recent BSBI Atlas, so much more could be provided by a slight additional increase in recording, namely, a record of their local abundance.

This naturally leads to the useful suggestions made by Angus. By adopting the very simple, unsophisticated proposals that he makes the value of every record could be greatly increased. Moreover, if such observations were to be regularly repeated at identical sites over months, years or both, we could soon amass a simple but informative stock of data for interpreting the dynamics of plant populations – a subject that currently suffers from too much theory and not enough data! Of course, more sophisticated and numerical measures could be adopted to determine abundance but they are inevitably more time consuming. I believe it far more important to acquire enough data by minimal methods to determine whether plants are in decline, increasing or undergoing cycles of increase and decline. Then we can start to look for the causes of such changes which, undoubtedly, are going on around us all the time.

At a period when the environment is undergoing fairly drastic changes whether it be due to pollution, climatic changes or alterations in farming and conservation practices we need to know with as much precision as we can muster how different species are being affected.

There are two ways in which we could assist in measuring such effects. First, every recorder could add a simple symbol for abundance to the tick for presence or absence. Of course, it would suffer from personal bias to some extent but this could be overcome by recorders sharing opinions and practice and, eventually, a consensus could be achieved. Looking to recording software and databases, almost all are capable of recording, or could easily be adapted to record, these modest extra measures of abundance. Second, once the current Local Change program has been completed perhaps our Society should further lead the recording community by a carefully planned programme to monitor *quantitative* changes in plant numbers of a range of species over appreciable periods of time at a range of selected sites using either the simple measures suggested by the Scottish recorders or, preferably, slightly more sophisticated measures. Such data would provide a simple yet effective measure of dynamic change in plant numbers or even plant assemblages in communities. Then it might be possible to seek for the causes of such change more rationally than is presently possible when, at best, we can only investigate the most obviously drastic changes. Indeed, it is precisely this kind of information that we badly need if we are ever to understand natural change and even attempt to regulate it through conservation. Too often, at present, conservationists play God without His knowledge or understanding!

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HAIRY BILBERRIES

Cowberry, *Vaccinium vitis-idaea*, is poorly represented in v.c. 81, Berwickshire, with only a few good colonies at 450–500m and some smaller ones at lower levels. In need of a target for some winter walks, I decided to revisit several of them to learn more of their extent and in the hope of finding the hybrid with bilberry, *Vaccinium ×intermedium*, as bilberry, *Vaccinium myrtillus*, almost invariably accompanies the cowberry and the hybrid, retaining most of its leaves, should stand out in winter. I have enjoyed landscape and mountain hares and have made some new cowberry records but the hybrid I have not found, an interesting negative result.

I was confused to find that, where there had been muirburn, colonies of bilberry could be found that retained their leaves. My confusion was increased when I examined the shoots and found that many of them had stems that were to some degree hairy, a character normally associated with cowberry. The hairs were short, whitish and crisped and thus similar to those of cowberry. However I found that where stems of the same plants had dropped their leaves, these stems were glabrous. All the stems, young and old, were angled in contrast to the round stems of cowberry and their leaves were typical of bilberry. I then realised that the hairy shoots were hairy because they were young and an examination of bilberry that had not suffered muirburn soon confirmed this, as the mainly leafless clumps typically had a few young shoots with hairs and winter leaves.

So I am confident that these hairy plants are bilberry and not the hybrid, *Vaccinium ×intermedium*, and are not even evidence of introgression. As so often, the more we look at our plants, the more we find that they are not quite in agreement with the books!

Reference

RICH, T.C.G., & JERMY, A.C. 1998. *Plant Crib 1998* (*Vaccinium* after Ritchie, J.C., 1955), The Botanical Society of the British Isles, London.

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THE RESTORATION OF HOWITT'S WILLOW COLLECTION

R.C.L. and B.M. Howitt the authors of the last County Flora for Nottinghamshire (1963) had by the late 1950s established a notable collection of willows at Farndon, near Newark, Notts. Details of the collection are provided in Table 1 (p.17), sourced from R.C.L. Howitt's diaries of the late 1950s, held by Nottinghamshire Biological and Geological Records Centre (NB&GRC).

The site was already in a neglected state by the time of purchase by Nottinghamshire Wildlife Trust (NWT) and many of the specimens were in a poor condition or dead. Unfortunately the location of specimens was also unknown, as no reference literature or illustrations have been found to date.

The concern of a number of NWT members as to the future of the collection prompted a collaboration to rescue and restore the collection. Cuttings from specimens, both known and unknown were propagated at Nottingham Trent University, Brackenhurst and established at two locations on the estate. After five years of effort more than half of the collection had reached sufficient maturity during 2003 to enable identification and cross-reference with Howitt's notes.

Of particular note is the male *Salix ×forbyana,* described by Meikle, 1984 as very rare indeed. The collection also contains many varieties favoured in the past by osier growers in Nottinghamshire and is therefore of cultural as well as biological importance. However it is obvious that Nottinghamshire is not the origin of many of the specimens and it would be desirable to locate the original source of the specimens. Some specimens can be traced from notes, diaries and the County Flora but there are lots of gaps.

Restoration work has proved to be rewarding, as initial fears of high losses have not been realised, aside from the loss of the dwarf willows. Specimens have been identified with the help of David Wood (v.c. 56 County Recorder) and a number of other experienced botanists. R.D. Meikle provided verification (many thanks for the rapid, informative and enthusiastic response to my queries), for the following specimens, *Salix* f. 'Lambertiana' (♀), *S. ×forbyana* (♂ & ♀), S. *purpurea* var. 'Nana' (♀), *S. purpurea* var. 'Helix' (♂) and *Salix ×latifolia* (♂). The remainder of the willows at Brackenhurst will be identified over the next two growing seasons and voucher specimens will be given to NB&GRC. Table 1 (p. 17) summarises the results so far.

Members of the project team would be grateful for any information regarding the collection and origins of the specimens (address supplied). Further details of the project can be supplied upon request.

References:

HOWITT, R.C.L & HOWITT, B.M. (1963). *A Flora of Nottinghamshire.* Derry & Sons Ltd, Nottingham.
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Table 1 Comparison of Howitt's Notes With Brackenhurst Specimens

Howitt's Plants	Sex	Collected	Notes
S. ×*pentandra*	M	?	Potential specimens to be identified 2004
S. triandra var. *hoffmanniana*	X	?	Potential specimens to be identified 2004
S. ×*mollissima* var. *hippophaifolia*	M	?	Potential specimens to be identified 2004
S. ×*mollissima* var. *undulata*	F	Yes	Recorded as var. '*Lanceolata*'
S. fragilis f. *latifolia*	M	?	NOW S. *fragilis* var. 'Furcata'. Potential specimens to be identified 2004
S. fragilis var. decipiens	M	Yes	
S. ×*rubens* nothovar. *basfordiana* f. *basfordiana*	F	Yes	
S. ×*rubens* nothovar. *basfordiana* f. *sanguinea*	X	No	
S. ×*cuspidata*	M	?	NOW *S.* ×*meyeriana.* Potential specimens to be identified 2004
S. alba var. *caerulea*	F	Yes	All collected specimens died after planting
S. alba var. *vitellina*, cv 'britzensis'	X	Yes	
S. ×*viridis* Fries	X	No	Mentioned by Meikle, 1984 but somewhat of a mystery species and not mentioned by Stace, 1992.
S. acutifolia	M/F	Yes	
S. purpurea f. *lambertiana*	M/F	Yes	
S. ×*latifolia*	M	Yes	Not recorded in the diary notes
S. purpurea var. 'Nana'	F	Yes	Not recorded in the diary notes
S. purpurea var. *helix*	M	Yes	
S. purpurea × *S. triandra*	M	?	Stace, 1992: ' = S. x leiophylla auct. non Camus & A. Camus is known only as a male from an osier bed in Notts.' Potential specimens to be identified 2004
S. ×*rubra*	M/F	Yes	Male only
S. ×*forbyana*	M/F	Yes	
S. viminalis var. *intricata*	F	?	Potential specimens to be identified 2004
S. viminalis var. *linearifolia*	F	?	Potential specimens to be identified 2004
S. ×*stipularis*	F	?	Potential specimens to be identified 2004
S. ×*calodendron*	F	Yes	Recorded by Howitt as '*dasyclaydos*'
S. ×*aurita* var. *pseudhermaphroditica*	?	No	Cannot find any mention of this type
S. ×*multinervis*	M	Yes	
S. ×*ambigua*	F	?	Presumed lost
S. ×*sericans*	M/F	Yes	
S. ×*geminata*	M/F	No	NOW *S.* ×*smithiana*
S. ×*repens* var. *argentea*	X	No	Presumed lost
S. ×*repens* var. *fusca*	F	No	Presumed lost
S. ×*friesiana*	M	No	Presumed lost
S. ×*gillotii*	X	No	Presumed lost
S. lapponum	X	No	Presumed lost
S. ×*grahamii*	X	No	Presumed lost
S. ×*chrysocoma*	X	No	*S.* ×*sepulcralis* notho. *chrysocoma* Presumed lost
S. ×*sepulcralis*	X	Yes	*S.* ×*pendulina* var. *elegantissima* collected

Notes

X = not recorded in Howitt's Notes

? = Might have been collected, awaiting verification

VACCINIUM ×INTERMEDIUM – HYBRID BILBERRY

Vaccinium myrtillus ♀ × *V. vitis-ideae* ♂ — referred to in text as Bilberry (♀) and Cowberry (♂)

DETAILED VEGETATIVE MORPHOLOGY: an illustrated guide to identification, including notes on relevant parental characteristics and morphological variants. Why a morphology? — are the Floras not in general agreement on its main characteristics? Not at all — many rely on the reputation of more recent authors/editors, or are selective in detail from those appearing in the last quarter of the 20th Century, and cardinal errors occur in some major characteristics. This account of the vegetative and reproductive morphology is designed by reference to definitive characteristics to facilitate identification of the hybrid and expand knowledge of its distribution and habitats.

HEIGHT: 15-30cm – 65cm in heavy canopy woodland.

GROWTH HABIT: Sympodial in discrete stands, branching early with erect stems and few side-shoots; within hosts some lateral growth; terminal shoots in some colonies show arching over. Rhizomes on colony periphery initially produce monopodial stems. Described in Floras as 'semi-evergreen' or evergreen, it suffers almost complete leaf-loss every 2-4 years, according to habitat and exposure.

LEAVES: **Shape**. Generally elliptic: L:W proportion usually 2:1; often rounded at 3:2 or broader; less often 3:1 (Fig A); variant proportions often found on the same stem, especially towards the obovate form in lower leaves; (Bell[1], 30; Leaf Morphology). **Length**. 12-30mm (44) excluding petiole. **Colour**: Mid-green to dark green in growing season, often bronzed over-wintering; under-surfaces much paler; juvenile leaves invariably paler still. **Tip & base profiles**: (Nos. in brackets from figs. 23 & 24, Stearn[8]): Where L:W proportions are the usual 2:1, tip and base profiles are generally acute (149) and cuneate (175). In the more rounded outline of L:W 3:2, tip profiles are most likely obtuse (153) or even rounder, and base profiles more truncate (171). In narrow-leaved forms the tip profile may be acute and the base attenuate (176). **Apex**: The leaf-tip, regardless of profile, is an elongation of the midrib – uniform in thickness with extended glandular tip 1-2mm long; either acute apex form (149) applies. Where, however, the leaf-plane resembles that of the cowberry, with convex blade, the apex may assume a tip profile almost retuse (155), disguising the gland. Juvenile leaves often show cuspidate tip (141) and attenuate base profile. **Lamina**: From 0.05mm in early juvenile leaves (papery and lax in substance and often translucent) to 0.24mm in mature samples – firm to coriaceous – variable according to edaphic and canopy conditions. Averages for each exsiccate are from 5 to 6 mature leaves. **Surface texture:** Variable from dull to silky; glabrous; or rugose (reflecting pronounced reticulation). Underside lustrous, often with a distinct coruscation. **Venation**: Generally reticulate (Fig B), with midrib depressed from upper surface, and outstanding from lower. Lateral ribs may also reflect prominence – closer to the simple venation of cowberry. At the other extreme, venation may be so intense as to eliminate laterals. **Glands**: As in the cowberry, their function is likely to control transpiration. They are described by Ruthe[2] as stipitate; occurring in some degree up to profuse, the stipe less frequently, or shrunken.

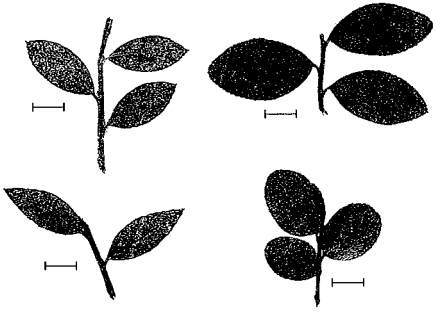


Fig A: Variation in leaf shape

Fig B: Reticulate venation

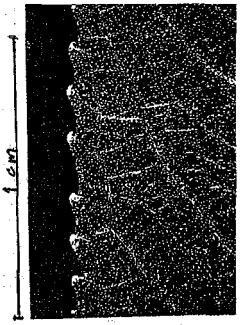


Fig C: Serrations

LEAF MARGINS: **Serrations**: These average 18-30 (40); single margin, unrelated to leaf size. Though variously described in Floras as dentate, denticulate, serrate, or serrulate, margin profile illustration (47) 'sinuately dentate' (glandular) in Godet[6] is an accurate representation (Fig C). From the petiole, the marginal distance between teeth is greater than at the leaf-tip – more crowded towards the tip. Additionally, the lower one-third to a quarter of the leaf margin is often sinuate, as well as revolute, both features serving to complicate accurate assessment of serrations. As in the Godet illustration, the teeth have a rounded tip or gland. A characteristic in some clones (prominent in cowberry, *q.v.*) is: **Anastomosis**: The margin may show a uniform thickening, including the gullet or throat of the tooth itself. Its cytological form closely resembles that of the centre rib (and where appropriate, prominent laterals) so that, viewed with backlight, the ribs and margins present a distinct framework. **Cilia**: Intact and distinct in juvenile leaves. Their position is just on the inside of the tooth, with a clear gullet before the margin continues. Observation of basal juvenile leaves on newly-formed side-shoots, with the earlier upper leaves, reveals progressive growth stages: a succession of leaves showing, from a newly-opened 5mm leaf, with 25-28 cilia on each margin, projecting radially (no evidence of serrations); the larger leaves above on the same stem (with a suggestion of teeth); and more mature leaves having serrations fully-formed, some retaining cilia, up to 1mm entire, or their remnants (Fig. E). In cases of a sinuate lower margin, the cilia give the only indication of serrations before the revolute feature disappears; their function, like that of glands, would also be to control transpiration.

LEAF FORM & DISPOSITION: On the stem, viewed laterally, leaves will display a profile varying from 'in plane' to a convex upper surface (reflecting a distinctive cowberry characteristic – *epinasty*); (*q.v.* under 'Cowberry'). **Phyllotaxis**: The near-120° spread of leaves in whorls around the stem reflects that encountered in cowberry (⅓ phyllotaxis[4] – 'tristichous' in Bell[1]); angles may vary slightly according to the nature of canopy and light source, with diatropic adjustment of both leaves and stem. A bird's-eye view of this feature is best had in the erect stem before buds appear. In heavy canopy bilberry leaves (with greater facility owing to the alternate leaf disposition) may spread to assume the same plane – the distichous form in other species; the hybrid similarly may assume a planar aspect.

STEM: Terete, up to a woody 4mm at the base of samples growing to 40-50cm, but averaging 2-2.5mm; thinner in juvenile side-shoots; stouter in shallower soils, or under competition with associated species. **Colour**: Mid- or bright green, in contrast to the darker green of the bilberry.

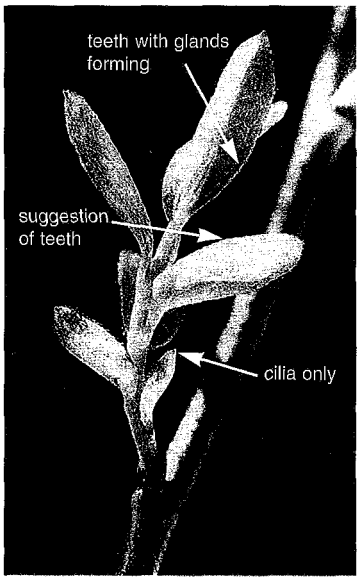


Fig E: Margin growth cilia→teeth

Fig D: 5mm leaf (inset) enlarged to show CILIA

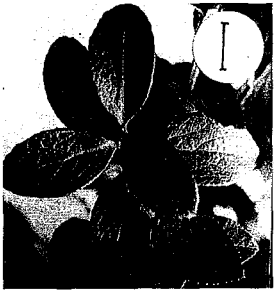
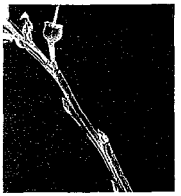


Fig F: Leaf ⅓ phyllotaxis

Normal form



sharp - as bilberry

Fig G: Stem ridging

Texture: Matt to glabrous, puberulent, occasionally pubescent; superficially shiny, but often showing very fine downy puberulence, which may persist into the leaf petiole, and even into leaf margins. **Ridging**: Though resembling ridging in the bilberry parent, where it is continuous throughout the stem, with sharply-keeled edges and deep furrows, and a slight anti-clockwise twist, there are distinct differences. In the hybrid it is often limited to upper stems, is not always continuous, more in the nature of an internodal sheath, swelling uniformly to the node above, which encloses the leaf petiole with stipule(s) – providing a stable, protective joint; its edges may be distinct or rounded, making a shallow furrow with the stem (Fig G). With short internodes the sheath may be absent, with just a node-swelling. Variations are not unusual – such as an adventitious bilberry form throughout, independent of regular leaf-node positions. Successive nodes approximate to 120° anticlockwise (viewed from above) round the stem. **Angled stem profile**: Some Floras use the term 'angled stem' to describe, in terms of cross-section, the distinctive ridged characteristic of bilberry, and its appearance largely in the upper stems of the hybrid, as described by Ruthe and Brown[2]. It will be noticed, however, when comparing *vertical* stem continuity between bilberry and the hybrid, that the alternating nodes of bilberry cause a distinctive 'zig-zag' profile even where internodal distances are considerable (Fig H). Such an 'angled' effect may appear in the hybrid in samples with crowded internodes; the author prefers to include both 'ridged' and 'angled', each as quite distinctive features useful in separating the hybrid from its bilberry parent.

INFLORESCENCE & PIGMENTATION: The inflorescence is a pendulous raceme of up to 10 corollae, confined to terminal axil(s); occasionally solitary in an upper axil, rarely on a late-branching side-shoot. The corollae are 4-5mm long, 5-lobed, infrequently 4-lobed; the corolla shape is urceolate-campanulate, with the style faintly exserted (much less prominently than in the campanulate cowberry) (Fig J). In sizeable Cannock Chase colonies in open areas in recent early-flowering seasons examples of up to 15 corollae have been encountered, and on the same three sites the pigmentation has intensified through rose-pink to a deep rose-red, and even to crimson. An explanation of this may be that high light intensity combined with relatively low overnight temperatures produces anthocyanins with an intense coloration governed by the pH factor – acidic. In shaded habitats with closely-packed colonies (areas of 'under-dispersal') aggregates for the hybrid are good despite fewer corollae, 3-5 in each terminal. **Fruit**: Globose berry, reddish-purple, 6-8mm. Flowers well, but rarely produces fruit; despite heavy inflorescences mentioned above, berries have been rare.

Fig H: Bilberry zig-zag stem profile

Fig J: Hybrid inflorescence

PARENTAL CHARACTERISTICS, and observations on MORPHOLOGICAL VARIANTS: This section is included to show features originating within the parents which are regularly seen in hybrid samples. **Juvenile forms**: early in both spring and autumnal growth all three vaccinia share these characteristics: elliptic leaf, acute tip with minute gland, and ⅓ phyllotaxis in the first whorls arising from the apical meristem.

BILBERRY – whortleberry, whimberry, huckleberry, blaeberry: This parent's features are clear: sharply ridged stem, and 'angled stem profile' (*q.v.* above); leaves alternate and ovate, varying to elliptic (ovate-elliptic has been used); margins coarsely serrate at 20 to finely serrulate at 35 (50); rib tapering to a bristle smaller than in the hybrid; venation reticulate, but not impressed. **Fruit**: Globose, purple-black, glaucous berry, 6-9mm. *Bilberry Dimorph*: On at least 7 sites, both woodland and moorland, in Staffs., Derbys. and W. Yorks. the author has encountered on the periphery of mature bilberry stands a dimorph with these characteristics: a) only 10-15cm in height; b) monopodial form arising from a lengthy stolon, terete in section, extending below ground 30-50cm from rhizome; c) leaves in upper whorls ⅓ phyllotactic and elliptic, lower ones alternate and variable in shape between elliptic and obovate; L:W leaf proportions closer to 3:2; length 15-20mm; colour often lighter, yellowish, sometimes dappled; ribs darker, midrib tapering uniformly to the cuspidate tip and bristle; lamina < 0.1mm; serrations fewer – 10-20. Species association various – hybrid not necessarily local. In plantation fringes, where larch/pine needle-litter facilitates tracing the stolon back beyond the rhizome, stems within the stand show the definitive bilberry characteristics – ridged stem and ovate leaf. As isolated stems, the form may easily be recorded as the hybrid. An herbarium sample should be taken with date and distances from hybrid and parent stands, associated species, etc.

COWBERRY – Staffs, 'bunch-berry'; Derbys. 'cluster-berry': 10-25cm (50): monopodial. **Leaf disposition**: ⅓ phyllotactic[4], dark green, obovate, coriaceous leaf, profuse u/side glands, blade shows degrees of *epinasty*, the more active growth on the upper surface causing convexity, along with the midrib, producing the characteristic retuse[8] tip profile, the gland apparent only from the underside when the curvature is appreciable (Fig K, M). **N.B.** in pressed samples loss of cell-tissue and flattening of the blade may show the gland extended – likely to be mistaken for the hybrid. **Margin**: Inrolled (revolute), it often disguises the true serrations; epinastic growth may also extend laterally to effect a 'crinkly' margin, deeply sinuate between serrations. **Anastomosis**, not to be confused with inrolling, has origins in the cowberry; it is most likely this feature which leads some Floras to describe the margin as 'entire' (Fig L). Other features deserve emphasis: veining simple, just 4-6 laterals from the main rib; marginal cilia often present – less prominent (up to 0.6mm) than in the hybrid, but distinct and entire in the juvenile form; stem terete, pubescent, usually tinged brown/red, without ridging. (**N.B.** sometimes exsiccate pressings seem to show 'ridging', but is the stem epidermis squeezed to the sides); leaf-nodes simple. **Inflorescence**: pendulous terminal raceme, up to 15 corollae carried on a single peduncle (Fig M); white/pink to pale rose; corollae 5-7 mm long, campanulate, with 4-5 revolute lobes. **Fruit**: Globose red berry, 5-7mm. Fruits well, as shown by nicknames in both counties; up to the 1950s on Cannock Chase it was gathered into late autumn for a more acerbic jelly.

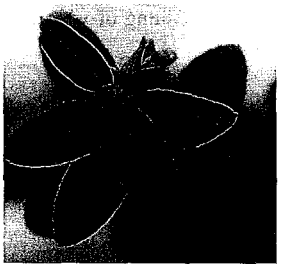


Fig K: Leaf 1/3 phyllotaxis; tip glands visible on juvenile leaves before curvature

Fig L: Margin anastomosis: simple

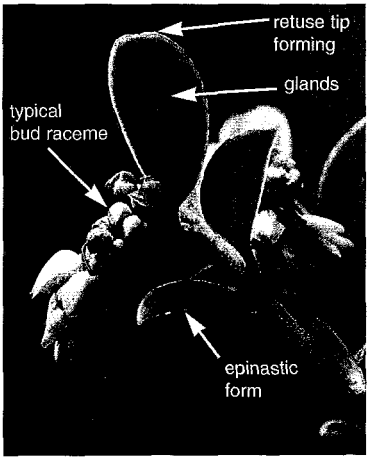


Fig M: Cowberry: bud raceme; leaf epinasty; underside glands; retuse tip and gland

Having conclusively established the intermediacy of the hybrid, Ritchie[7] in Paper I, p.50 sets out all three vaccinia in a comparative Table ascribing to the hybrid more or less equally features specific to the parents. From annotation of exsiccates, the author adds a preponderance of intrusive cowberry leaf characteristics: scatter of underside glands; marginal anastomosis; blade epinasty; obovate leaf-shape often in hybrid lower-stem – all features emphasising the closer affinity of the hybrid to cowberry on the bilberry/cowberry continuum.

On the basis of the vast numbers of vaccinia leaves examined, from 5 vice-counties, within the British Ecological Society Research Project No. 1281, adjustments might be made to characteristics in Ritchie's Table 1, as follows:

	V. myrtillus	*V.* × *intermedium*	*V. vitis-idaea*
Leaf: serration	20-35	18-30	7-16
shape	ovate	elliptic	obovate
tip	cuspidate	acute	retuse
thickness-mm	0.08-0.13	0.09-0.24	0.25-0.41

Since the publication of the first distribution map of the taxon by Ritchie, additional sites in N.W. Europe have been reported: from Poland (Danielewitcz and Malinski, 2002), Finland, Sweden and Germany (Ponikierska, 2003, *pers. comm.*); Wales (Chater, 2000 (*pers. comm.*); and England (Tregale, 1996; Dupree, 1997 (both *pers. comm.*); Thorne, 2003; Cavalôt, 2003*).

Following the discovery of this plant in Germany in 1826 by J.F.Ruthe[2], it was found in Britain in 1870 on the Maer Hills in N. Staffordshire, and later on Cannock Chase, as described in Ritchie[7],1955a, *New Phyt.* **54**. The first illustration came with a description by R. Garner[5] in 1872, followed by an anatomy and description by N.E. Brown of Kew herbarium. Further investigations were made in 1919 and 1929 by W. Balfour Gourlay, who presented papers to the Botanical Society of Edinburgh. In 1951 the late Professor A.R. Clapham[3] suggested that this putative hybrid, common near Sheffield, should be investigated to establish its true status and explore the factors that might control its occurrence and performance. The resulting investigation confirmed its status (Ritchie[7] 1955 a, b) and later cytological analyses in Sweden by Rousi (1967) extended understanding of the basis of its low pollen viability and fruit production. Botanists such as W. Arthur Sledge and C.B. Waite (Clapham[3],1969) in the last 50 years or so have made a significant contribution to knowledge of the plant and additions to its recorded locations.

* The many new locations and sites identified between 1996 and 2000 have been specified and summarised in British Ecological Research Project No. 1281, 2003, in process of publication.

Acknowledgement:
The support and advice of Professor J.C. Ritchie has been invaluable in the re-editing of what is a modest vignette of an aspect of his earlier pioneer investigations of the hybrid.

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[1]Bell, A.D. 1991. *Plant Form, an Illustrated Guide.* O.U.P.

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[3]Clapham, A.R. (ed). 'Flora of Derbyshire', Derby.

[4]Fitter, A. 1987. *New Generation Guide.* Collins, pp. 210-211.

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[6]Godet, J-D. 1993. *Mosaik's Photographic Key.* Geocenter Int. UK, Basingstoke, p.14.

[7]Ritchie, J.C. 1955a. A natural hybrid in *Vaccinium,* 1. The structure, performance and chorology of the cross *Vaccinium intermedium* Ruthe, *New Phytologist* **54**: 49-67.

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[8]Stearn, W.T. 1991. *Botanical Latin.* David & Charles, Newton Abbot, pp. 328-330.

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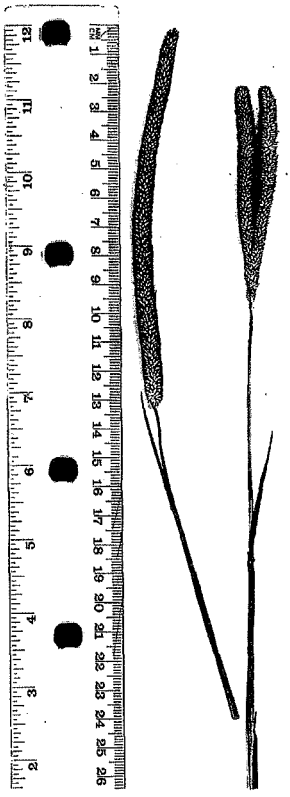
YET MORE PLANTS AT VARIANCE WITH FLORAS

Luzula pilosa (Hairy Wood-rush)
Two Floras in my possession give the maximum width of basal leaves as 10mm, a third gives 6mm. But plants in King's Wood, Studland, Dorset have leaves up to 12mm wide at flowering time, and 14mm wide by the autumn. However when dried the latter shrink to 11mm.

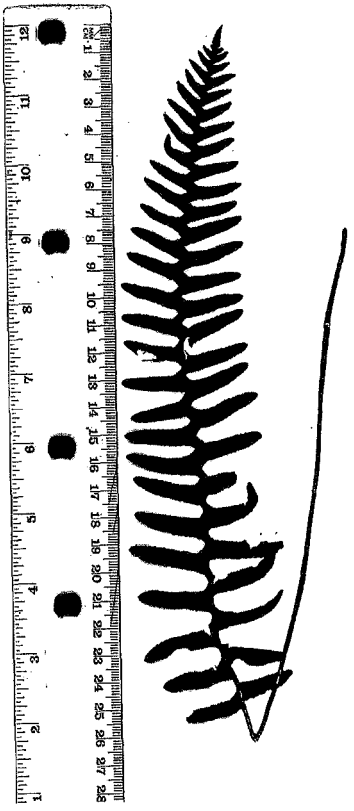
Polypodium vulgare (Polypody)
The maximum length of a leaf including stalk is given as 25cm in Floras. However as the enclosed silhouette shows they can be 45cm. I have found a good number over 25cm.

Leontodon saxatilis (Lesser Hawkbit)
The outer row of achenes is stated as having a crown of scales, rather than a pappus like the other achenes. However this not always so. Some late season outer achenes in Purbeck, Dorset have pappi. I have also found a plant with a glabrous stem.

Phleum bertolonii (Smaller Cat's-tail)
Floras give the maximum length of a flowering spike as 8cm. The enclosed silhouette shows it can be over 13cm. An interesting aberration with a divided spike is also shown.



Phleum bertolonii



Polypodium vulgare

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MAGNIFICENT BEE ORCHIDS IN THE CITY OF OXFORD

I thought I should draw the attention of our members to the outstanding work of Dr Judy Webb (BSBI Member), at Milham Ford School, Marston Road, Oxford, (GR SP530073), where areas of the School Grounds and Playing-fields have been roped off as Nature Conservation Areas to protect the orchids (Bee, Butterfly, Common-spotted and Pyramidal) and other plants which grow there. Richard Mabey, in *Flora Britannica*, mentions the site, but not by name.

It is really the Bee Orchids (*Ophrys apifera*) which are so striking that even a non orchid-lover could not fail to be impressed.

From a single plant spotted by Judy in 1990, the Bee Orchid plants have been carefully nurtured, protected, and sometimes transplanted from inconvenient areas, e.g. running tracks, so that the numbers have steadily increased to a staggering 800 (2003). And this in several small areas totalling less than 1 acre in all.

Even more remarkable than the numbers, is the sheer quality of the plants. The smallest measure perhaps 25cm with 4-5 florets, which is very good by ordinary Bee Orchid standards, with the largest measuring over 50cm with up to 15 florets, making them one of the finest colonies, and certainly the finest plants I have seen.

In Michelin Guide terminology, they are 'worth a detour' for most or us, and certainly 'worth a journey' for orchid-lovers.

In addition to careful management as above, with late summer cutting, removal of mowings, etc., there is clearly some favourable geology at work here with mention of Corallian Limestone deposits and seepages at pH 8 or more.

But there are some sinister and serious political threats to add a 'bittersweet' poignancy to the beauty of the plants. Last year, the School buildings were sold to Oxford Brookes University, but that area of the Grounds currently under discussion has been retained as a protected area ('ecology park') by Oxfordshire County Council, to be managed by the Oxford City Council with advice from Judy Webb and the New Marston Wildlife Group, (a local community conservation body). I wish them every success.

By writing to *BSBI News* in this way, I hope to interest those within reach of Oxford to visit and enjoy this site, and perhaps become involved with New Marston Wildlife Group, with a view to increasing public awareness and ultimately, helping to protect the site.

I should add that this note has been entirely unsolicited, and voluntarily offered, since I have been so impressed by what I have seen at Milham Ford.

For up-to-date information about the site, access arrangements, and further details of the New Marston Wildlife Group, please contact: Curt Lamberth (NMWG Chairman), 53 William Street, Oxford OX3 OES. Tel: 01865 247609 E-mail: curt@oxfordenvironment.co. uk

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JAMES EBENEZER BICHENO: A DOUBLE DISCOVERY AT SWANSEA MUSEUM

Further to recent accounts of the herbaria at Swansea Museum (Davies, 2002, 2003), two interesting and important discoveries relating to James Ebenezer Bicheno have been made at that establishment, formerly The Royal Institution of South Wales (RISW), and the author is indebted to the museum staff for drawing his attention to them.

The first is a pencil and watercolour portrait of Bicheno, measuring some 23.5 × 17.5cm and signed 'T. Woolnoth 1834' and bound into a volume entitled 'REPORT OF THE COMMITTEE appointed to REVISE THE SEVERAL RATES for the purpose of MAKING A GENERAL COUNTY RATE for GLAMORGANSHIRE' (Accession N° SM 1896·119). This volume had been presented to the Honorary Librarian of the RISW, George Grant Francis by Bicheno himself. The volume is inscribed:

This volume was presented to me by Mr. Bicheno just before he left Wales for VandiemansLand as Colonial Secretary.- Mr. B informed me that it was a copy he had made by the deputy Clerk of the Peace: the portions in black ink are evidence on oath, whilst those in red contain information pertinent to the subject of County Rates – Infuturo, this Book will prove of considerable interest to the inhabitants of Glamorganshire in many ways, as containing notices of things. AD 1842

Swansea Geo Grant Francis

21 Oct. 42.

Moreover, the volume contains press cuttings relating to Bicheno's office as a magistrate, his departure to Van Diemen's Land (Tasmania), his death and probate of will. It was subsequently presented to the RISW in December 1895 by John Richardson Francis, son of the aforementioned Lt. Col. George Grant Francis.

The second discovery has greater relevance to field botanists. It is Bicheno's personal copy of the three-volume work *Flora Britannica* by J.E. Smith and is inscribed:

'Ex libris J.E. Bicheno 1802'

A plate attached to the inside of the front cover of the first volume states that the work was:

'Presented to the library by George G. Francis Esq. Honorary Librarian, February 1843'.

An identical plate occurs on the cover of the second volume but not the third. All three volumes are generally in remarkably good condition although the rear cover of the first volume had probably already been replaced prior to its presentation to the RISW.

Francis must have communicated his intention to present the three volumes to the library of the RISW to Lewis Weston Dillwyn. Dillwyn's reply, bound into the first volume reads:

My Dear Sir,

In answer to your query, I know not how to recommend you to part with the interleaved copy of the *Flora Britannica* which you received as a keepsake from my old Friend Mr. Bicheno & on the other hand, as you say that a work on Botany can be of no use to you I cannot dissuade you from presenting it to our Institution. It contains in MS several useful extracts & references of numerous original observations which my Friend has made particularly on the soil & situation which each species prefers & on the habitats in which several of the Rariores are to be found. Those of the latter with such short descriptions as "Ham Marsh" or "Dowies Mill" or "Mr. Somebody's Farm" could only have been intended to assist his own recollection and I take it that they mostly refer to the neighbourhood of Reading where he resided several years before he removed to London.

All the loose memoranda are now in the place in which they ought to be fixed with the exception of that on *Zea* in Vol. II p.569 which has no relation to the British Flora and I take to have been accidentally placed there!

Yours truly

L.W. Dillwyn

Sketty Hall

Jan^{y}. 15. 1843

In response to this letter, the first volume bears the following inscription:

'Memorandum -

These 3 volumes were presented to me by my highly valued and estimable friend Mr. Bicheno in May 1842 but being myself no Botanist, I wrote a note to Mr Dillwyn respecting their being been placed in the Library of the Royal Institution, where they would advantage those interested in the science and do credit to the talent and industry of my Friend.'

Geo. Grant Francis

Swansea

15 Feb^{y}

1843

As mentioned in Dillwyn's letter, these are interleaved volumes containing numerous plant records both in ink and pencil, some barely legible but others quite clear. Presumably, most were written by Bicheno but other annotations were made by Dillwyn and probably Joseph Woods. They include records from Wales (mainly Glamorgan and Monmouthshire), Southern England and the Isle of Wight but also Yorkshire, Cumberland and Westmorland as well as some records from Scotland and Ireland. Furthermore, where a species has been introduced to the British Isles, its global distribution and place of origin is often given. Reference to monographs and other descriptive and taxonomic works occur throughout in English, but often with Latin diagnoses. Examples of such annotations are:

Salicornia herbacea – 'on coast adjoining Brean Down Somerset Aug 1813

S. radicans EB 1691. 'Mr Forster says it is nothing but *fruticosa* 1826'

S. procumbens 'XXXV 2475 stamens two seems to be nothing but a diandrous *herbacea*.'

Also, as stated in Dillwyn's letter, reference is frequently made to the conditions favoured by a particular species thus:

Hippuris vulgaris 'prefers clear quick waters whether ditches, ponds or lakes in mud. Between Bampton Oxon and Tadpole July 1812'

Particularly important is that a significant number of these entries refer to specimens that still exist in Bicheno's herbarium at Swansea.

Quotations from poetry and other extracts from English literature occur throughout the work. Occasionally, entries relate to the traditional use of plants and British folklore. For example, an entry by Dillwyn reads:

> I have always understood that the Panzy is the old English Forget-me-not and that this Veronica (*V. chamaedrys*) which is the German Forget-me-not was in England first used in its stead as an ornament for tokens of regard by the late Queen Charlotte

Similarly, other entries in Bicheno's hand read:

Carduus marianus 'Evelyn praises this a salad, or boiled or baked in pies like the Artichoke.'

Eupatorium cannabinum 'The leaves and root are purgative Lin.'

Gnaphalium margaritaceum 'It is doubtful whether it be wild on the Rhumney . . . . . a favourite plant with the Welsh to plant over graves of their departed friends.'

Carex recurva 'This plant is very frequently found in "Fairy Rings" but is no more the cause of that fabulous production than the *Agaricus oreades* which is found with it. The more probable opinion is that they are the effects of Lightning which changes the nature of the soil . . . .'

Despite its excellent provenance, the work is rather disappointingly devoid of Welsh records and the few that it contains are largely on a note bearing the name Mrs Edward Hawkins bound into the second volume. These have been transcribed, together with other Welsh records and forwarded to Dr George Hutchinson at the National Museum and Gallery Cardiff so that information can be disseminated to interested parties.

One interesting Welsh record reads:

'*Coch. Draba* is a ballast plant found nr. Dillwyn's Pottery at Swansea.'

Owing to the small, barely legible handwriting and the numerous plant records contained within these 3 volumes, it is likely that the thorough extraction of locality details would take a year or so to accomplish successfully and would form the basis of an interesting and most rewarding project for a suitably motivated student.

Apart from the invaluable records and historical data it contains, the work also contains a number of well-executed pencil drawings of spikelets of *Agrostis* spp., rose hips, fruit of *Tilia* spp. and achenes of aquatic *Ranunculus* spp. as well as a large number of drawings of moss leaves and capsules.

An excellent account and insight into the work of a nineteenth century plant recorder/verifier is to be found in L.W. Dillwyn's letter to Bicheno. This is bound into the third volume and refers to the alleged discovery of *Erica vagans* at Newton. Written from Sketty Hall on September 11th 1840, it reads:

> My dear Sir
>
> "*Erica vagans* – near Newton" rests wholly on the authority of a Tourist named Evans & on his accuracy, I have abundantly ascertained that not the smallest

> iota of reliance can be placed – The variety you have sent me is curious & Evans is equally likely to have called it either *vagans* or *Dabeoci* – At Keswick last year, Wright a friend of Woods's acted as my Guide & showed me a *Lycopodium* from Skiddaw which I thought I had never seen before – I sent some specimens to Hooker, but a long series of domestic calamities prevented him from noticing my query till a few days ago & he now tells me that it is unquestionably the Linnean *L. complanatum*. Now whether implicit Faith is to be placed in Woods's friend is more than I know, for he assured me, among other marvels, that he had found a plant which he shewed me in his Garden & which was *Gilia tricolor* growing in vast profusion all over the Island of Pomona & Dr. Pat. Neill who knows the Orkenies well declares that this can be nothing short of an absolute fudge – The *Lycopodium* had however been gathered by his much more dependable daughter who occasionally acts as a botanical Guide for Ladies & she offered to take Miss D. to the habitat altho' the [exceptional?] badness of the weather prevented it. It could not have been procured from any Garden & I have on [revising?] all circumstances no doubt that *L. complanatum* may be added to the British Flora . . . .'

Finally, although this brief account can do little justice to these two remarkable discoveries, it is hoped that it will at least alert plant recorders and botanical historians to their existence. Unfortunately, however, it will be necessary for researchers to visit the museum at Swansea and examine Bicheno's *Flora Britannica* for themselves as the volumes are too fragile and bulky and the pencilled entries too faint to photocopy. Moreover, the museum has no botanists on its staff. Nevertheless, readers are invited to contact the author directly if they have any specific queries regarding this new source of botanical records.

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DAVIES K.L. 2003. A reappraisal of the herbaria at Swansea Museum. *Minerva – The Journal of Swansea History* **XI**: 66-69.

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REINTRODUCTION OF AN EXTINCT ENGLISH ENDEMIC *BROMUS INTERRUPTUS* INTO THE WILD

Bromus interruptus (Interrupted Brome) has the dubious honour of being classified as 'extinct in the wild'. Fortunately, however, botanists long ago took this grass into cultivation before it completely disappeared from the English countryside, probably as a result of improved seed cleaning techniques and changes in agricultural regimes. The material offers us an excellent opportunity to reinstate this enigmatic grass back into the wild. Seed is held within the Millennium Seedbank and by other institutions and individuals. The true origin of *B. interruptus* is speculative, but is unknown elsewhere in the world (there was an introduced population in Holland). DNA analysis has shown it to be close to *B. hordeaceus* (Soft-brome), and it may have arisen as a mutation of that species but further work on this question is desirable.

Bromus interruptus is on the UK Biodiversity Action Plan, and Kew and English Nature together with other partners are working to reintroduce it within its former range in south-east England. Kew has undertaken genetic fingerprinting studies and revealed that the grass has retained a higher than expected level of variability given the history of this plant (see Rich & Lockton, 2002, for a summary of its history), and Kew have also conducted a small-scale introduction on a farm in Cambridgeshire to provide data on germination characteristics (to be assessed later this year). In 2004 we plan to establish an introduction site at Aston Rowant National Nature Reserve in Oxfordshire, on arable land owned by English Nature. This will enable us to monitor its progress closely and develop protocols for its wider dissemination, ideally through the agri-environmental schemes that are currently being developed.

Reference:
RICH, T.C.G. & LOCKTON, A.J. 2002. *Bromus interruptus* (Hack.) Druce (Poaceae) – an extinct English endemic. *Watsonia* **24**: 69-80.

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RANUNCULUS FICARIA ABERRATION

The short notes on various floral aberrations in recent editions of *BSBI News* has prompted me to put finger to keyboard and report an unusual plant form which I first found in 2002. My interest in within-species variation was first sparked by Dr John Savage and his greenhouses of celandines and sea campions, in my days as an undergraduate at Aberystwyth University, almost four decades ago. I still cannot pass a patch of Lesser Celandines (*Ranunculus ficaria*) without at least a cursory petal count and examination of leaf shape and markings. Although I know that some nurseries can supply double, orange or white petalled forms, a lifetime of searching has turned up no out of the ordinary celandine plants — until 2002 that is! On an almost sunless, north-west facing bank near Newbridge-on-Wye in mid-Wales, amongst a mossy matrix, I spotted a single *R. ficaria* plant with at least ten mainly green petals. A bulbil from the plant produced, in spring 2003, the flower shown in the photograph (see Colour Section, pl. 3). It may not win at Chelsea but it is an aberration I'm quite proud of finding!

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HYPERCHROMIC FORM OF *DACTYLORHIZA MACULATA* FOUND IN THE NEW FOREST

Hyperchromic variants occur rarely in the flowers of some *Dactylorhiza* species of orchid, whereby the usual dashes, dots and lines on the labellum are replaced with a solid blotch marking, or even the whole labellum is a dark purple colour. In extreme forms, stems and leaves are also stained with anthocyanins.

Bateman & Denholm (1989, p. 339) describe four species of Dactylorchid which possess this feature: *D. fuchsii*, *D. incarnata*, *D. maculata* and *D. purpurella*. At that time only one of them had a varietal name, i.e. *D. maculata* var. *concolor*. In a later article, Turner Ettlinger (1991) names two more of the above hyperchromic forms as varieties, i.e. *D. fuchsii* var. *rhodochila* and *D. purpurella* var. *atrata*. Further, he illustrates (1998) all these forms except *D. maculata* and includes two more, *D. ebudensis* and *D. occidentalis*. In this country, blotch marked variants seem to be most common in *D. fuchsii*, and in addition to the sites quoted by Bateman & Denholm (1989) and Turner Ettlinger (1991 & 1998), more have come to be known in the intervening years. The corresponding blotch marked form of *D. maculata* seems to be very rare and no recent records can be found for it. Bateman & Denholm (1989, p. 347) quote from a 1921 publication which refers to a blotch marked form found in this country, but no location is given. It is also reported to occur on the Continent. The 1921 record seems to be the only evidence for its existence in this country.

In an open heathy area of the New Forest, a large colony of *D. maculata* was examined by R.L. on June 14th 2003, and amongst many normal plants a single pure albino specimen was found. The only other type of orchid found was a single specimen of *Gymnadenia borealis*. On the following day the site was examined by Michael and Lauraine Chalk and a single *D. maculata* plant was found on which the labella were an all over dark purple colour with no trace of patterning as is usual with this species. Only the edges were devoid of colouring, exhibiting a very attractive contrasting pure white margin. The stem and leaves as well as being spotted were also stained with anthocyanins, as is the case with some of the similarly blotch marked var. *rhodochila* forms of *D. fuchsii*. It was a very small weak plant, only 9cm tall, with seven flowers, four of which were open at the time.

Shortly after this date, it was seen by Sidney Clarke and Barry Tattersall, both of whom have had wide experience of travelling around the British Isles looking at and photographing orchids and orchid variants, and neither had seen this form before.

Apart from this extreme form, two *D. maculata* plants have been seen by R.L. on the Mendip Hills in Somerset which had a broad central swathe of colouring covering the labellum, but not to the extent of the New Forest plant.

A close up photograph taken by Michael Chalk can be seen in the Colour Section, pl. 1.

References:

BATEMAN, R.M. & DENHOLM, I.1989. A reappraisal of the British and Irish dactylorchids, 3. The spotted-orchids. *Watsonia* **17**: 319-349

ETTLINGER, D.M.T. 1991. Two new varieties of British *Dactylorhiza. Watsonia* **18**: 307-309

TURNER ETTLINGER, D.M. 1998. *Illustrations of British and Irish Orchids*. Published by the author

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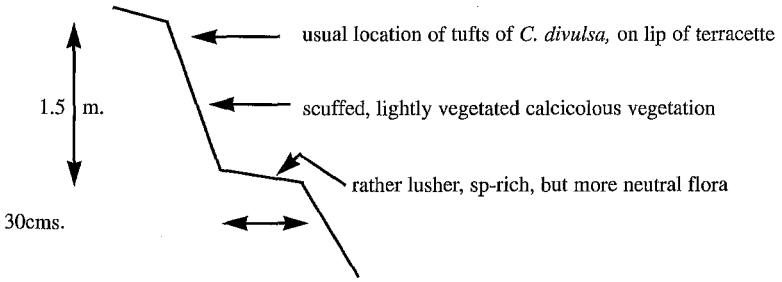
CAREX DIVULSA IN NORTH YORKSHIRE

The biggest botanical discovery in my local area has been grey sedge *Carex divulsa* ssp. *divulsa.* The first plant went almost unnoticed, as I was not aware of its significance so far north. That particular site has not been re-located. Two other populations, however, have been monitored for several years now.

Both are within the parish of Hutton Rudby, which lies south of the Teesside conurbation, east of the A19, and north-west of the North Yorkshire Moors. The River Leven, a tributary of the Tees, flows past less than 150m away. Altitude of the *Carex* sites is about 60m A.S.L.

One of these sites is a grassy verge alongside a dead-end lane. The *Carex* colony is about a metre in length, and occupies much of the 'depth' of the steep bank, underneath sycamore trees and an ivy covered hawthorn hedge. The stand survives mowing or strimming as a regular management, often showing up as a compact bright green patch even when the stalks and flowering heads have been removed. Associated species are Hairy Brome (*Bromopsis ramosus*), Cocksfoot (*Dactylis glomerata*), Ivy (*Hedera helix*), Cleavers (*Galium aparine*), and Common Dog-violet (*Viola riviniana*).

The other *Carex divulsa* population is larger but more diffuse. It occupies south-facing, terracetted slopes within sheep-grazed pasture, about 150m from the laneside locality already described. The preferred situation for *C. divulsa* in this relatively complex topography is shown on the accompanying diagram:



This hillside supports a manifestly semi-natural sward, whose unimproved or even neglected condition is exemplified by scattered spriggy Hawthorn (*Crataegus monogyna*) bushes and, in some years, profuse Creeping Thistle (*Cirsium arvense*). These features attracted attention in the first instance, but further examination promptly revealed that the vegetation was distinctly species-rich, and included some plants of calcicolous affinity, both of which characters are unusual in the local agricultural environment.

In particular, this *Carex divulsa* site is the only locality within the parish, and probably within 'our' 10-km square (NZ40) for that matter, that can boast Small Scabious (*Scabiosa columbaria*) and Hoary Plantain (*Plantago media*), albeit in small amounts. Quaking Grass (*Briza media*), Wild Thyme (*Thymus polytrichus*) and Burnet Saxifrage (*Pimpinella saxifraga*) also occur. This suite occupies the steeply-sloping, lightly vegetated elements of the site, where instability is fostered by the grazing or scuffing activities of sheep and rabbits as well as gravity.

The flatter, grassier parts have a generally lusher and more established vegetation, of a similar semi-natural appearance but lacking, in the main, the calcicoles described above. The chief components here are listed in the table. These are clearly more typical of mesotrophic swards, and in particular form a snapshot of 'MG5', *Cynosurus cristatus* — *Centaurea nigra* grassland, often the most diverse of the neutral swards. *Carex divulsa* itself does not figure in any of the NVC categories defined in Rodwell.

Scientific Name	English Name	DAFOR
Agrostis sp.(p)	bent-grasses	R/O
Cynosurus cristatus	crested dog's-tail	F
Festuca arundinacea	tall fescue	R/O
F. rubra	red fescue	O
Lolium perenne	perennial rye-grass	O,LF
Trisetum flavescens	yellow oat-grass	O/F
Galium verum	lady's bedstraw	O/F
Leontodon sp.	hawkbit	O
Lotus corniculatus	bird's-foot trefoil	F
Potentilla reptans	creeping cinquefoil	R/O
Trifolium repens	white clover	O

These data were collected on 15th June, 2003, specifically to describe the communities in which *Carex divulsa* grows. The localities have also been entered on to my 'Single Species Site Register' (see *BSBI News* **79**: 17).

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LEMNA MINUTA V. GREEN ROOTS — CORRECTION AND ADDITIONAL EXPLANATION

In the 3rd paragraph of the above article (*BSBI News* **95**: 31 (Jan. 2004)), microns should have read as $\frac{1}{1000}$mm (millionth of a metre). More importantly, the measures for the green bodies within *Fig. 2* of colour plate 4 were wrongly given, by me, as 3–5μ (microns) in diameter, whereas they were in reality 8 or more times this size, and clearly different from the green bodies in *Figs 3 & 4*. I was sampling from different populations of different ages, and was puzzled by the different microscopic appearances. The green bodies in *Figs 3 & 4* do seem to be intracellular, regular in distribution and typical of chloroplasts in size, shape and appearance. What are the larger, intensely green, round, ovoid or sometimes unevenly-shaped bodies, irregularly organised, within the *Lemna* root-tips shown in *Fig. 2*?

Malcolm Storey has written to query the possibility of *endophytic algae* within these *Lemna* roots. Such algae have been described as sometimes occurring as green spots in dying *Lemna* fronds, or in *Elodea* and *Ceratophyllum* (*Chlorochytrium lemnae*, 40–100μ (microns) in size, cells 'spherical, oblong, ellipsoidal or irregularly shaped' — as in *Fig. 2*!). Possible explanations for the *Fig. 2* green bodies include dividing *Lemna* meristematic cells (but why so green?), unexplained microscopy artefacts, and Malcolm's suggestion of endophytic algae. There are many new worlds in amateur microscopy!

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LEMNA MOSAICS AND WATER SNAILS

There are hundreds of species of organisms in dozens of genera associated with Duckweed (*Lemna*) populations (Landolt 1986). Landolt divides these into several categories: Herbivores, Parasites, Mutualists, Commensalists, Amensalists and Competitors. His Gastropoda section reviews three earlier papers. Ten species of Water Snail are associated with *Lemna* ecosystems in N. Germany, but few or none of these eat fresh fronds, perhaps on account of raphides (needle-shaped crystals, usually oxalates) and tannins. However snails of the *Limnaea* (or *Lymnaea*) genus graze green *Lemna* fronds in Kashmir, and the Great Pond Snail (*Lymnaea stagnalis*) can completely eliminate *Lemna* coverage from artificially created ponds.

The top picture in the Colour Section, p. 3, shows a mosaic of Common & Least Duckweed (*Lemna minor & L. minuta*) maintained with minimal rainwater topping-up over 10 years. The container, in a greenhouse, holds 45 litres, but with a surface area of 800 sq cms. The initial population also consisted of Great & Fat Duckweed (*Spirodela polyrhiza & Lemna gibba*), but the Great flourished briefly in the first two Augusts before dying out, and the Fat barely lasted the initial summer, never to reappear. Since the 3rd year, fluctuating equilibria have been maintained with Least Duckweed mostly dominant but Common Duckweed reaching 50% cover from July to September. No nutrients have ever been added, but dead spiders and insects falling in, and the rainwater receptacles, would have supplied the necessary trace elements.

The lower picture (Colour Section, p. 3) shows the grazing water snails let loose on the *Lemna* mosaic transferred to the experimental container. There were the 50:50 proportions of fresh green Common & Least Duckweed. After 10 days with the snails, some of the fronds were yellow or white because of epidermal damage (see below). The breeding population of water snails were all *Lymnaea palustris*, the Marsh Pond Snail, but grazing individuals varied from 1–15mm. Observing the rasping radulae of the largest snails through a strong lens, these creatures fed on the *Lemna* colonies in five ways, four of which are illustrated on the lower picture.

I. Floating upside-down at the surface, partly by water surface tension to graze the epidermal cells on the *underside* of the fronds, which then turned white or yellow on their upper surfaces.
II. Variable buoyancy, allowing some snails to reach and eat the rootlets and either sever them, or climb up them to the under surfaces of the fronds.
III. Herbivory at frond margins, wherever the snails can gain purchase from edges, floating objects, or intertwined *Lemna* mats. The hard shiny slightly domed upper epidermis seems more resistant to the snails' grazing than the epidermal under-surfaces, or the very vulnerable rootlets.
IV. Herbivory on fronds at sloping edges, or grounded on mud when water levels fall (fitting in with the snails' name).
V. Scavenging on severed rootlets and sunken fronds amongst the basal detritus. Some snails sink with the living fronds attached, to finish them off at the bottom.

Four separate introductions of the *Lemna minor/L. minuta* mosaic were made to the experimental container with the breeding water snails. Each time, the *Lemna* colonies were totally eliminated within two weeks, with a flush of new tiny snails and rapid increase in growth of the existing ones, (although the shells became soft if no hard (chalk-rich) water was used). The *L. minor* fronds went faster than the tiny *L. minuta* ones, because the snails could get a better purchase on the relatively more stable larger fronds. Once the fronds and severed rootlets had gone, most of the snails then migrated out of the container to die on the dry surfaces; only a small number survived on the bottom debris. Renewals of the breeding snail populations and enlargement of the individuals clearly required **fresh** green *Lemna* fronds.

The fifth and sixth experimental introductions were of tangled mats of Ivy-leaved Duckweed (*Lemna trisulca*) which came from a rootless colony in Swindon. Here the snails had much more difficulty, as the *L. trisulca* linked-leaf networks float just under the water surface. Techniques 1 & 2 above, hardly work at all, and 3 is clearly difficult. Three weeks after each of these last two experimental introductions, each time numbers of the leafy fronds had frayed, crenellated and serrated margins, and some had been severed from their neighbours; but the snails were already starting to migrate. However, some healthy green sub-surface networks remained, even after eight weeks.

In summary, *Lymnaea palustris* (Marsh Pond Snail), very easily decimates populations of Common Duckweed, easily decimates Least Duckweed, but only makes inroads on networks of Ivy-leaved Duckweed, which persist as damaged but viable fronds. The snails continue to breed in all three situations. If raphides were present, the snails were not inhibited by them to any important degree.

Reference:

Landolt, E. 1986. The Family of Lemnaceae (Monograph, pp. 192–203, The relationship of Lemnaceae to other organisms). Veroff. Geobot.Inst. E.T.H. Stiftung Ruebel. Zurich [English translation]

Acknowledgement – Appreciation is given to Brian and Joan Davies for their help and expertise in selecting and processing the digital photographs, and to Piers Mobsby for identification of the *Lymnaea* species.

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PERSONAL OBSERVATIONS ON POLLEN ALLERGY

Pollen Allergy or 'Hay Fever' must rank alongside colour blindness and the lack of a sense of smell as one of the great inconveniences of the botanical world. I have suffered from this condition since the age of 23 and the cause might well be genetic since one of my three brothers is also a sufferer. The onset of the condition in 1988 coincided with my employment with a small chemical company. I was handling some of the irritant chemicals used in the manufacture of paint strippers, detergents and water treatments on a daily basis at that time and this might be a factor too. Furthermore I suspect a link between my pollen allergy and the fumes from modern traffic. I have often noticed that I suffer more of the all too familiar 'hay fever' symptoms when visiting grasslands close to motorways or trunk roads. A prime example of this was my outing to Pepperbox Hill in Wiltshire on 4th June 1988. This site, close to the A36 (Southampton to Salisbury road), was where pollen allergy first entered my life.

As a curious botanist it has always been my intention to work out links between certain species of flowering plant and my pollen allergy. I suspect that I am sensitive to the pollen of a very wide range of species although I have discovered certain recurring coincidences involving specific taxa. In the early 1990s I discovered that I am allergic to both tree pollen and grass pollen. This was courtesy of skin tests carried out by researchers from the University of Southampton. At that time I was involved as a volunteer in several projects designed to test treatments for pollen allergies and other asthmatic conditions. Eventually I became 'over-challenged' and the researchers couldn't continue using me. At that stage I only had a vague idea of what species may be involved in my pollen allergy and so I decided to research the episodes of 'hay fever' recorded in my nature notes.

In terms of dates, most of my episodes of 'hay fever' have occurred between 22nd May and 14th July. This date range is in line with what might be expected if grass pollen is an important factor in my condition. However I have experienced problems as early as 18th April and as late as the 21st August. These dates are outside the flowering season of the majority of Poaceae in southern England so there might be other factors involved here. I will return to these anomalies later.

Since my 'hay fever' seems to occur mostly between mid May and mid July, with a distinct peak sometime in June, I suspect that grass pollen is the main factor in my pollen allergy. In answering the question of what species may be involved, an important clue may be obtained when considering the kind of habitat visited either during, or prior to, my 'hay fever' episodes.

I have discovered that I rarely suffer serious 'hay fever' following visits to dense woodlands, coastal locations or acid heathlands. In the case of woodland there is usually a low density of flowering grass in this habitat, whilst the dominant grasses in coastal saltmarsh habitats often flower after my main pollen allergy season has finished. Heathland locations, at least in the New Forest area, tend to provide me with relief from my symptoms. Admittedly this is partly due to the heavy grazing of flowering grasses here. However I have visited the more grassy heathlands of Dorset, Surrey and

Sussex during the main 'hay fever' season and have experienced only occasional or slight problems during warm, still weather. Any pollen allergy symptoms experienced following visits to woodland, coastal or heathland locations is thus likely to be due to general elevated pollen counts in the air and I suspect that I am not especially allergic so certain grasses of the genera *Agrostis*, *Festuca*, *Puccinellia*, *Spartina*, *Molinia caerulea*, etc.

I have found far more serious problems following visits to chalk grasslands, meadows, marshlands or certain habitats where acid grassland and open woodland combine. The latter finding is particularly relevant, as this appears to be in conflict with my experiences on heathlands generally. I experienced severe 'hay fever' problems at acid grassland/woodland sites at Emer Bog (May 1992) and both Chilworth Manor Gardens and Southampton Common (June 1989 and May 1995). At all of these sites the most abundant flowering grass was probably *Holcus mollis*.

I am pointing an accusing finger at *Holcus mollis* following my experiences with the very abundant grass *Holcus lanatus*. Whenever I have come into contact with this latter species in flowering profusion I have suffered severely, even when under treatment. Contact with *Holcus lanatus* on a newly constructed footpath at Titchfield Haven in July 1991 'blinded' me for an hour afterwards and was the worst pollen allergy attack I have suffered to date. I also suffered from a field full of flowering *Holcus lanatus* near Oakhanger, Hants in June 1997 even though I was under full treatment, I didn't even enter the field and the westerly breeze that evening should have been blowing the pollen away from my sensitive nose. I am still at the mercy of *Holcus lanatus*, as I discovered when I accidentally strayed in to a field full of the nasty stuff at Botley Wood, east of Southampton, in June 2002.

The two species of *Holcus* probably explain most of my grass allergy problems rather neatly. However there are two exceptions to this, i.e. (a) outside the *Holcus* flowering season and (b) sites where these grasses are either scarce or absent. Taking the latter case first I refer to serious 'hay fever' symptoms both during, and following, trips to chalk grassland localities such as the aforementioned Pepperbox Hill in June 1988 and also Beacon Hill in east Hampshire (June 1989), Martin Down (June 1991) and Barton Hill, Bedfordshire (June 1993). On all of these occasions the most obvious flowering grass was *Bromopsis erecta*. I have also noticed that I have often developed rashes when exposing bare skin to *Bromopsis erecta* thus confirming this species as a likely culprit.

Although the above findings are based more on personal observation and suspicion rather than scientifically accurate proof there is an example of a chalk grassland 'control' that I can call on. From 1991 to 2003 I was heavily involved in a chalk grassland site east of Winchester known as Magdalen Hill Down butterfly reserve. On half of this site a long-term project is under way to create chalk grassland from former arable. I was repeatedly exposed to great variety of flowering *Poaceae* here as I worked on a botanical monitoring project. Although I frequently suffered symptoms of 'hay fever' at this site, most of the problems were relatively minor. *Bromopsis erecta* and *Holcus lanatus* are both present at this site but only in small quantities compared to other species such as *Poa pratensis, Trisetum flavescens* and *Arrhenatherum elatius.*

The serious 'hay fever' symptoms suffered at Botley Wood (18th April 1993) are unlikely to be due to *Holcus* or *Bromopsis*. There was an abundance of flowering *Betula* and this apparently confirmed my allergy to tree pollen. The unexpected pollen allergy symptoms suffered following visits to Strumpshaw Fen and Hickling Broad, both in Norfolk (August 1994) could also have little to do with *Holcus* or *Bromopsis*. Initially I suspected late flowering *Phragmites australis* but I am not aware of this grass causing me problems during late summer visits to the reed beds of coastal Hampshire. It can only be speculation but the sedge *Cladium mariscus* was flowering in the Norfolk fens at the time. Could this be the culprit! Unfortunately *Cladium mariscus* is scarce in Hampshire so it is difficult for me to test this theory.

I hope that this article provides stimulus for further discussion on this subject. Having said that, I hope that there are aren't too many other allergic botanists about!

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EUPHEMIA STOLONIFERA SP. NOV., INCREASING IN BRITAIN?

Looking for a new name for Bastard Balm or Bastard Toadflax, perhaps with 'star' in it? How about Illegitimate Balm or Spurious Toadstar?

Dactylorhiza fuchsii, classically pronounced, could possibly bring a blush to the present day maiden's cheek, though I doubt it. The absurdity of inventing inoffensive names lies in the unpredictably changing nature of the language itself. Honeysuckle and other climbers, in Shakespeare's day were 'Woodbine'. Cigarettes became 'Woodbines' and it must for a while have confused children made to study the great poets. The old name is now effectively sealed off from common usage.

I remember a Radio 4 programme discussing the Blue Tit in which a learned lady resolutely refused to use the vulgar name, insisting on '*Paris minor*' to sounds of stifled hilarity in the background. She succeeded in emphasising only her own prurience.

There is a quality of the Old Adam in many older plant names which goes back to our roots, and serious botany cannot ignore roots. The beautiful 'Guelder-rose' or 'Snowball Tree' (*Viburnum opulus*), it is instructive to note, used to be known on the Isle of Wight not for its balls of cream coloured flowers nor its distinctive autumn colours, but for a feature which nowadays goes unnoticed. They called it 'Stinktree'. Not exactly a guarantee of sales at the Garden Centre, and unlikely to help the conservation lobby either; indecorous but a genuine and practical country name.

The Early-purple Orchid (*Orchis mascula*) is a striking plant and the old botanists made it quite clear in their description of it that they thought so too. As appreciated back in the days of John Ray, in a readily translated reference to the root tubers, it was '*Testiculis canis*'; One cannot but agree.

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GALL AND POPLAR — WOOD!

The native Black Poplar, *Populus nigra* ssp. (or var.) *betulifolia,* nowadays a rare tree in the British Isles, has occasionally been mentioned in *BSBI News* (recently, for example, nos. **85**, p. 33, and **87**, p. 20). Not surprisingly, it is often chosen as a subject for conservation efforts, such as Species Action Plans under the auspices of 'Biodiversity'. It is in this context that I have renewed my acquaintance with Black Poplars over the last fifteen months.

The late Edgar Milne-Redhead, no less, personally drew Black Poplars to my attention 25 years ago, so I reckoned that I knew enough to distinguish the native species from its hybrid counterparts. Some of the specimens I looked at early in 2003, however, were not easily differentiated. This led to my researching afresh the parameters upon which identification could be reliably based, and then to re-visiting the trees in October. Obviously, it is vital to be as near 100% certain as possible, if cuttings are to be taken, that the source is a genuine *P. nigra* ssp. *betulifolia.*

Both Paul Tabbush, of Forest Research (Forestry Commission), who has special knowledge of this taxon, and Dr Fiona Cooper, the keeper of the national register, mentioned to me that an aphid, *Pemphigus spirothecae*, infests only true native trees and not the hybrids. The aphid produces a **gall** on the petiole, giving the affected tissues a swollen, twisted appearance. I suspect that this is fairly recent knowledge — possibly not known to Edgar Milne-Redhead, for example — and is not generally quoted in identification guides. [see illustration p. 35]

Probably botanists are not used to looking for, and using, entomological evidence. Moreover, one is conventionally advised to check new foliage, i.e. in spring — an enquiry that may not be conducive to seeing the spiral galls, if they develop later. Certainly, it is much easier to examine leaves *en masse* when they have fallen. Fortuitously, therefore, my autumn researches in 2003 offered a proper opportunity to test for a positive correlation of *Pemphigus* infestation with *P. nigra* ssp. *betulifolia.*

All the native specimens previously evaluated on other evidence (such as burrs on the trunk; downwards arching branches; relatively small, rhomboidal leaves; no glands where the blade meets the stalk), proved to have spiral galls. Sometimes, the search through drifts of fallen leaves was protracted, but on two occasions the 'corkscrews' were located on the very first leaf picked up!

Conversely, hundreds of leaves checked under several hybrid black poplars in various sites showed no sign of *Pemphigus*. These 'control' specimens included three trees with character-ful shapes, seemingly promising candidates, and, according to the landowner, previously determined as the native taxon: but, no *Pemphigus*!

I have discussed this with others, such as Peter Ennis of Dedham Vale, whose involvement with Black Poplars has made them aware of the galls. We seem to be in agreement: the occurrence of *Pemphigus* spirals = native *P. nigra* ssp. *betulifolia.* Clearly, though, there may be residual doubts. The *Pemphigus* factor is still not widely known, and where it has been used the temptation may have been to confirm its presence on native trees but not to complete the 'control' part of the test by verifying its absence on hybrids.

Another intriguing question remains: why should *Pemphigus* affect only native trees, and not the closely-related taxa of which *P. nigra* ssp. *betulifolia* was a distant forebear?

Doubts have been expressed about the rigour applied to Biodiversity Action Plans in some instances, so I hope that this account helps those involved with Black Poplars. I would be very interested to learn others' observations, and to have the biological explanation to the conundrum posed above.

If you do find spiral galls on definite hybrids, though, please break the news gently!

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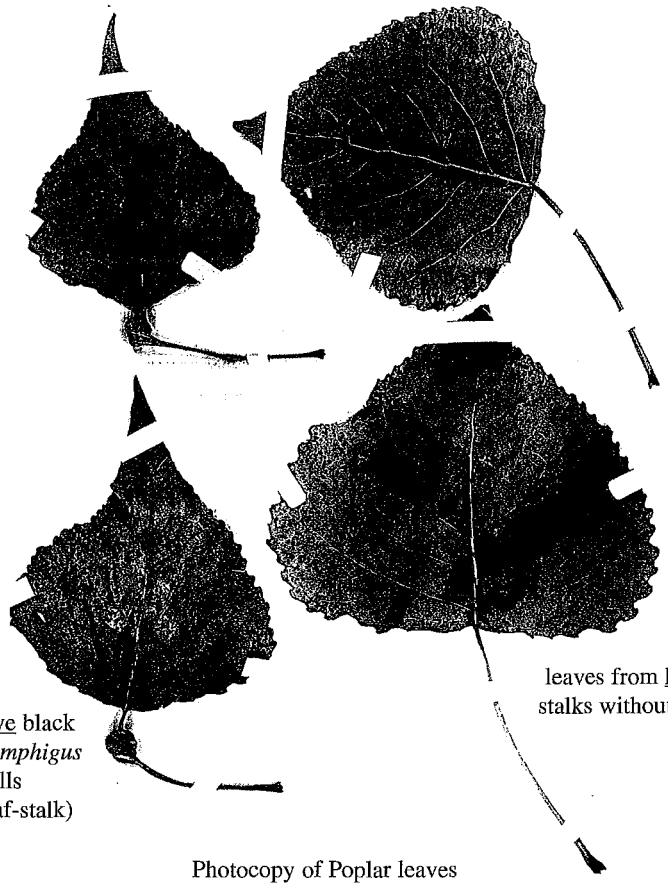

leaves of native black Poplar with *Pemphigus* spiral galls on petiole (leaf-stalk)

leaves from hybrid tree; stalks without spiral galls

Photocopy of Poplar leaves

A NEW SITE FOR *LEERSIA ORYZOIDES* IN SURREY

Leersia oryzoides (Cut-grass) is a European Temperate species, with a world distribution encompassing much of Europe, C. and E. Asia and N. America (Leach 2002). It reaches its northern limit in Europe in southern England. In the UK the plant has been recorded from ditches, canal-banks, lakes, ponds and riversides, and from seasonally inundated, nutrient-rich meadows. It appears to have always been limited to just a handful of sites in S. England (Somerset, Dorset, Hampshire, Surrey and W. Sussex). Even so, this grass has declined throughout its European range since 1960 and this has been mirrored by the loss of several populations in the UK over the last 20 years, most recently on the Bridgewater-Taunton Canal in Somerset where it was last seen in the early 1990s (Briggs & Harmes 1999, Leach 2002). It now appears to be restricted to just three native sites in S.E. England (Surrey and W. Sussex), plus two or three introduction sites (including one in S. Hants) where its present status is uncertain. Not surprisingly, *L. oryzoides* was assessed as 'endangered' in the latest edition of the British Red Data Book (Briggs & Harmes 1999), and it is listed on Schedule 8 of the Wildlife & Countryside Act 1981. It is also included as a Priority Species in the UK Biodiversity Action Plan (English Nature 1998).

On 3rd September 2002 I was involved in carrying out a habitat survey to help assess the likely ecological impacts of a flood alleviation scheme adjacent to the River Thames at Richmond, Surrey. The proposal would have involved substantial deepening of several existing ponds, the largest of which was approximately 30m by 20m. During this work I noticed the unusual panicles of a tall-growing grass on the edge of the largest pond, the grass 'sprawling' over the flamboyant purple flowers of *Pontederia cordata* (Pickerelweed), an exotic species from N. America. Using Hubbard's 'Grasses' (1984), the mystery grass was provisionally identified as *Leersia oryzoides*, and this was confirmed by Dr Tom Cope, the BSBI's referee for grasses, on 4th September last year, 2003.

Further examination of the pond showed that there were just two clumps of *Leersia* on the southern and north-eastern edges of the pond. In both cases the panicles were only partially exserted from the leaf-sheaths, the spikelets only just emerging. A dense swamp of *Typha latifolia* (Bulrush) occurred adjacent to the pickerelweed, effectively separating this pond from a second pond (without *Leersia*) to the west. Other frequent marginal plants included *Carex riparia* (Greater Pond-sedge), *Phalaris arundinacea* (Reed Canary-grass), *Lythrum salicaria* (Purple Loosestrife), *Bidens tripartita* (Trifid Bur-marigold) and *Persicaria hydropiper* (Water-pepper). *Urtica dioica* (Common nettle) was also frequent. Recent management of the site has involved trying to retain water in the ponds following winter flooding, to prevent complete drying out in the summer. Nevertheless, at the time of the original survey (3rd September 2002) the ponds were mostly dry, and the pond 'floors' were covered in a thin, slimy, carpet of *Lemna minor* (Common Duckweed). This contrasted with the much deeper water levels (approximately 0.5m water depth), despite the hot, dry summer, at the same time the following year.

Interestingly, this is not the first record of *Leersia* from the Richmond area. Bishop Samuel Goodenough saw it in Kew at some time between 1779 and 1805, i.e. some 200 years ago. The dates 1779 to 1805 are based solely on the first and last records of Goodenough's that Dr T. Cope has been able to trace (Dr T. Cope, *pers. comm.*). At this time the riverbank was not built up and the pond on Kew Green may still have been connected to the river. In addition fritillaries grew in Mortlake in the fields that would have been flooded in winter (Dr T. Cope, *pers. comm.*) so *Leersia* could have grown anywhere between the Bridge and West Sheen (where the Observatory on the golf course now stands). Nevertheless, until 2002 it had never been refound in the area and had long been presumed extinct. The recent rediscovery of *Leersia* raises all sorts of questions. Does this represent a new population, or could it be an old 'extension' of Goodenough's original colony? If the former, when and how did it get there? If the latter, how come it was overlooked for so long, and why (after 200 years) does it appear to be restricted to just two clumps on the edge of just one pond? Either way, why has it not colonised other patches of suitable-looking habitat in the vicinity? Or could it be present, but unrecorded, elsewhere in the Richmond area? This might seem unlikely, given that the area must have been exceptionally well recorded by local botanists (many of whom work at Kew!), but *Leersia* is well known as a shy flowerer and so could be easily overlooked. Even so, the suspicion amongst local

naturalists is that the new population must have 'arrived' recently, probably in the last few years (Dr M. Leigh *pers. comm.*).

Evidence for its recent arrival includes the fact that the pond in which it occurs didn't exist until the early 1970s when it was dug out, together with neighbouring ponds, as part of an earlier flood alleviation scheme. However, the ponds appear to be located in the same general area as Goodenough's *Leersia*, which suggests the possibility that the new colony — despite its recent appearance — could be directly linked in some way to the original population recorded 200 years ago. Nevertheless, it seems highly unlikely that viable seed could have persisted in the seed-bank for this length of time. So the question remains: why *this* pond? Clearly, recent changes in management to ensure that the pond stays 'wet' in the summer have provided ideal conditions for *Leersia*, but surely other wetland habitats beside the River Thames would be equally suitable? Which brings us back to the possibility that *Leersia* could be present elsewhere but unrecorded.... As noted by Hubbard (1984), the panicles of *Leersia* remain enclosed within, or partially exserted from, the leaf-sheaths during average spring/summer temperatures, and they only become fully exserted following exceptionally hot summers. However, the inflorescence is unmistakable once seen, and was particularly noticeable following the hot summer of 2003. Despite dire predictions of 'global warming', such summers are not (yet) the norm and, at the time of the original survey, I am convinced that without the panicles being readily visible I would have overlooked this grass. Or, perhaps, I would have dismissed it as something a good deal less interesting (*Phalaris arundinacea* for instance). One wonders whether, if hot summers become 'routine', then perhaps this grass will start to make an appearance elsewhere...

Oh yes, and BSBI members will be relieved to learn that the Richmond *Leersia* story has a happy ending too — the flood alleviation proposals that led to the discovery of this grass have now been shelved. Discussions are underway with English Nature and the owners of the site to ensure that the *Leersia* population is properly protected and that its habitat continues to be suitably managed.

Acknowledgements: My many thanks to Dr Tom Cope for his help and advice, and especially for his historical input into this article. Also many thanks to Dr Margaret Leigh for her enthusiasm and delight at the rediscovery of *Leersia*. Finally, many thanks to Simon Leach for his extensive, and very helpful, comments and revisions on an early draft of this article, and general help throughout the 'publication' process.

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KEY TO THE HAWKWEEDS OF SOUTH-EAST ENGLAND

Sussex Botanical Recording Society

The following key was adapted by R.C. Stern from keys produced by Sell and West for Sussex and Kent Hieracia with certain additions. It covers all species known to occur in v.cc. 7-32 inclusive in 1984.

It is worth reproducing the points made by Sell and West with regard to the use of the keys to Hieracia:-

i. Hawkweeds should be collected at their first flowering, i.e. when the first few flowers have opened. Species with 0-1 stem leaf should not be collected after the middle of June; those with 2-8 stem leaves should not be collected after mid-July; none should be collected after the end of August.
ii. A complete plant of average size (including the basal leaves, but not the rootstock) should be selected.
iii. The specimen must not be of secondary growth.
iv. Plants infected by moulds, attacked by insects or mechanically damaged in any way should not be collected.

Sections of named plants in the key:

Section Sabauda:
H. sabaudum
H. virgultorum
H. rigens
H. salticola
H. vagum
Section Hieracioides:
H. umbellatum ssp. umbellatum
H. umbellatum ssp. bichlorophyllum
Section Tridentata:
H. calcaricola
H. eboracense
H. cambricogothicum
H. trichocaulon
H. cantianum
Section Vulgata:
H. pollichiae
H. vulgatum
H. lepidulum
H. surrejanum
H. cheriense
H. acuminatum
H. diaphanoides
H. diaphanum
H. maculatum
Section Hieracium:
H. scotostictum
H. sublepistoides
H. severiceps
H. grandidens
H. cardiophyllum
H zygophorum
H. kentii
Section Oreadea:
H. angustisquamum
Section Amplexicaulia:
H. speluncarum
H. amplexicaule

1. Stem leaves usually less than 8 2
1. Stem leaves usually more than 8 20

2. Plant clothed with viscid glandular hairs 3
2. Plant not clothed with viscid glandular hairs 4

3. Plant with glandular hairs only ..... *H. amplexicaule*
3. Plant with glandular and simple hairs ..... *H. speluncarum*

4. Leaves spotted or marbled 5
4. Leaves not spotted or marbled 7

5. Stem leaves 0-1 ..... *H. scotostictum*
5. Stem leaves 2 or more 6

6. Phyllaries dominantly glandular hairy with only an occasional simple hair ..... *H. maculatum*
6. Phyllaries dominantly simple hairy with only a few glandular hairs ..... *H. pollichiae*

7. Stem leaves 0-1 (rarely 2) 8
7. Stem leaves more than 2 13
8. Phyllaries with glandular and simple hairs. ..... *H. zygophorum*
8. Phyllaries with glandular hairs only 9

9. Stem leaves with dense stellate hairs beneath ..... *H. kentii*
9. Stem leaves without stellate hairs beneath 10

10. Styles yellow when fresh; leaves of medium or small size 11
10. Styles discoloured when fresh; of medium or large size 12

11. Glandular hairs of phyllaries short and ± equal in length leaves rather small, often ± subentire ..... *H. sublepistoides*
11. Leaves of medium size, often with irregular purplish blotches and teeth near base shaped like a bird's claw ..... *H. severiceps*

12. Leaves ovate or ovate-oblong, markedly mammiform-dentate; glandular hairs of phyllaries long and short ..... *H. grandidens*
12. Leaves broadly ovate, subentire to sharply denticulate; glandular hairs of phyllaries short ..... *H. cardiophyllum*

13. Phyllaries with numerous glandular hairs, sometimes with occasional simple hairs 14
13. Phyllaries with numerous simple hairs, glandular hairs, in variable numbers 17

14. Glandular hairs of phyllaries short, ± equal and usually yellowish ..... *H. cheriense*
14. Glandular hairs of phyllaries longer and darker 15

15. Glandular hairs of phyllaries very unequal and slender, stellate hairs on phyllaries absent or nearly so 16
15. Glandular hairs of phyllaries robust, stellate hairs on phyllaries numerous ..... *H. acuminatum*

16. Leaves elliptic or ovate, ± dentate, rigid; phyllaries usually with no simple hairs *H. diaphanum*
16. Leaves long-elliptic to elliptic-oblong, shallowly dentate; phyllaries with a few simple hairs ..... *H. diaphanoides*

17. Leaves lanceolate ..... *H. vulgatum*
17. Leaves broadly elliptic or broadly ovate 18

18. Phyllaries greyish-green; margins of phyllaries with dense stellate hairs .... *H. angustisquamum*
18. Phyllaries dark or olive-green; margins of phyllaries with fewer stellate hairs 19

19. Styles yellow; phyllaries obtuse ..... *H. surrejanum*
19. Styles discoloured; phyllaries acute ..... *H. lepidulum*

20. Phyllaries glabrous or nearly so 21
20. Phyllaries with glandular or simple hairs or both 24

21. Leaves linear, parallel sided ..... *H. umbellatum* ssp. *umbellatum*
21. Leaves ovate, ovate-lanceolate, lanceolate or elliptic 22

22. Leaves with revolute scabrid margins, subentire ..... *H. umbellatum* ssp. *bichlorophyllum*
22. Leaves without revolute scabrid margins, usually toothed 23

23. Leaves lanceolate with long teeth ..... *H. salticola*
23. Leaves ovate, ovate-lanceolate or elliptic, usually with short teeth ..... *H. vagum*

24. Stem ± glabrous; phyllaries with glandular hairs only 25
24. Stem ± hairy; phyllaries with simple and glandular hairs 26

25. Leaves long-lanceolate, ± regularly and minutely dentate ..... *H. virgultorum*
25. Leaves ± ovate-lanceolate, sharply and irregularly dentate ..... *H. rigens*

26. Leaves denticulate or ± dentate, plants usually with more than 15 (often > 20) stem leaves, normally not flowering before mid-August ..... *H. sabaudum*
26. Leaves dentate (often deeply), only exceptional specimens with >15 stem leaves, plants beginning to flower at the end of June or beginning of July 27

27. Leaves narrow, elliptic-lanceolate, at least the lower ones more than 3 times as long as broad ..... *H. trichocaulon*
27. Leaves broadly elliptic, usually not more than 3 times as long as broad 28

28. Leaves usually large and flaccid, with broad ± mammiform teeth ..... *H. cantianum*
28. Leaves usually small and rather rigid, with sharp teeth 29

29. Teeth of leaves regular; inflorescence normally corymbose of a few heads ..... *H. calcaricola*
29. Teeth of leaves irregular; inflorescence usually an elongate panicle of numerous heads 30

30. Inflorescence usually large with large hairy heads, receptacle pits with fimbriate margins ..... *H. eboracense*
30. Inflorescence with medium, less hairy heads, receptacle pits incise-dentate *H. cambricogothicum*

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BOTANY IN LITERATURE — 34

Dr Sigmund Freud (1856-1939), the Austrian psychoanalyst, had, by his own admission, never formally studied botany. Yet in his works he showed a remarkable propensity for analysing plant names in connection with relatively ordinary events. The following, taken from his *The Interpretation of Dreams* (pp. 300–301, 305–306) is one such example:

> ... and I heard one railwayman saying to another: 'Where are we to put the gentleman with the half first-class ticket?[1] This, I thought to myself, was a fine example of privilege; after all I had paid the full first-class fare. And I did in fact get a compartment to myself, but not in a corridor coach, so there would be no lavatory available during the night. I complained to an official without any success; but I got my own back on him by suggesting that he should at all events have a hole made in the floor to meet the possible needs of passengers. And in fact I did wake up at quarter to three in the morning with a pressing need to micturate, having had the following dream:
>
> *A crowd of people, a meeting of students. – A count (Thun or Taaffe)[2] was speaking. He was challenged to say something about the Germans, and declared with a contemptuous gesture that their favourite flower was colt's foot,[3] and put some sort of dilapidated leaf – or rather the crumpled skeleton of a leaf – into his buttonhole. I fired up – so I fired up, though I was surprised at my taking such an attitude.*

After continuing with describing the dream and providing an analysis of the source of it, Freud gives an interpretation of the part above:

> The remaining elements of this first situation in the dream were derived from deeper layers. What was the meaning of the Count's pronouncement about colt's foot. To find the answer, I followed a train of associations: colt's foot ['*Huflattich*', literally 'hoof lettuce'] – lettuce – salad – dog-in-the-manger ['*Salathund*', literally 'salad dog']. Here was a whole collection of terms of abuse: 'Gir-affe' ['*Affe*' is the German for 'ape'], 'swine', 'sow', 'dog' – and I could have arrived at 'donkey' if I had made a détour through another name and insulted yet another academic teacher. Moreover, I translated 'colt's foot' – whether rightly or wrongly I could not tell – by the French '*pisse-en-lit*'[4]. This information was derived from Zola's *Germinal*,[5] in which a child was told to pick some of that plant for salad.[6]

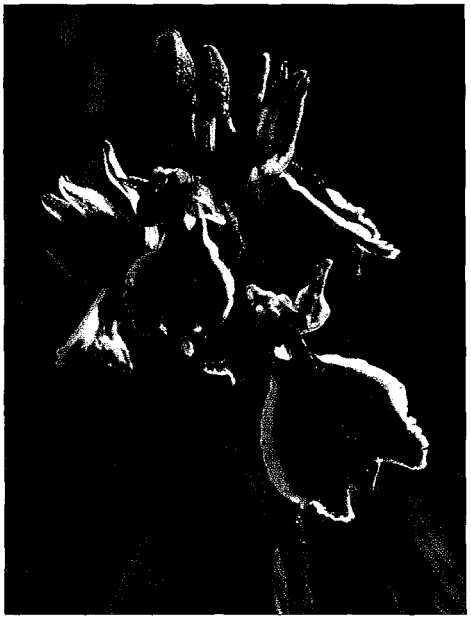
NOTES

1. Freud writes in a customary footnote (p. 301): '[Being a government official, he had been able to buy his ticket at half-rates.]'
2. *Thun or Taaffe*: According to Freud's footnote (*l.c.*) he was an Austrian politician (1833-95); premier 1870-71 and 1879-93.
3. *Colt's Foot*: i.e. *Tussilago farfara* L. (Compositae/Asteraceae); (Coughwort, Bull's Foot, Foal's Foot, Horse Foot (= *Pferdefuß* (Ger.)), Horsehoof, Son-before-the-Father; *Huflattichblätter* (Hoof (shaped)-lettuce-leaf), *Brandlattich* (Burning lettuce (i.e. tobacco)) (Ger.); *Pas d' âne* (Donkey Foot), *Feuilles de tussilage* (Cough leaves) (Fr.).

   The names *Tussilago* (cough dispeller) and Coughwort obviously allude to the medicinal properties of the leaf and flower (either smoked in dried form as a tobacco or infused or decocted to make a tisane) for the relief of asthma, old bronchitis, catarrh, dry cough, smoker's cough (traditional), or currently for 'catarrhal inflammation, dry cough, and acute and chronic irritation of the mouth and throat' (Frohne, 2001).

James E. Bicheno by T. Woolnoth 1834
Reproduced by permission of Swansea Museum
(see p. 24)

Arctostaphylos alpinus at Spean Bridge
Photo I. Strachan © 2003 (see p. 64)



Dactylorhiza maculata (hyperchromic form),
New Forest. Photo M. Chalk © 2003 (see p. 28)

Convolvulus tricolor 'Minor' in three colour
forms, Sefter Farm (v.c. 13).
Photos M. Shaw © 2002 (see pp. 44-46)

Geranium maderense, Sark. Photo Psyche Veall © 2003 (see p. 47)

Geranium palmatum, Sir Harold Hillier Gardens.
Photo R. Veall © October 2002 (see p. 47)

1. *Gunnera tinctoria* inflorescence.

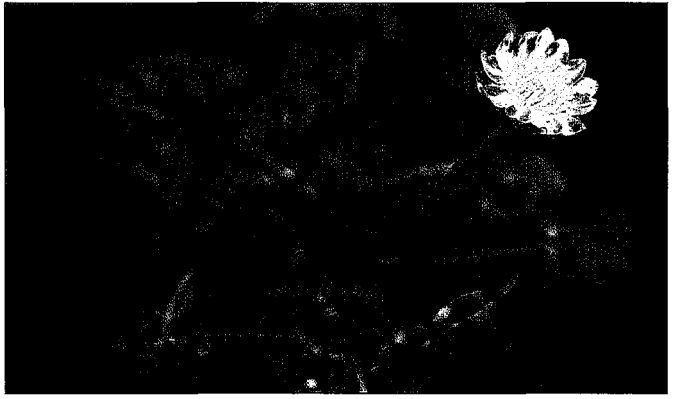
2. *Gunnera tinctoria* petiole

3. *Gunnera manicata* inflorescence,

4. *Gunnera manicata* petiole

All photos M. Grant © May 2003 (see p. 51)

Vaccinium ×*intermedium,* normal white-pink colour form (l) and deep rose-red form (r), both Cannock Chase. Photos K.J. Cavalôt © 1998 (see p. 18)

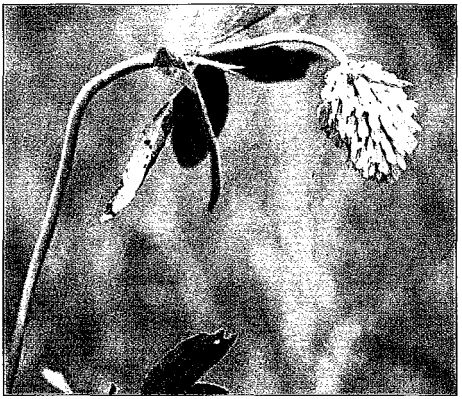


Ranunculus ficaria with mainly green petals, Newbridge-on-Wye, v.c. 43, Photo F. Slater © 2003 (see p. 28)

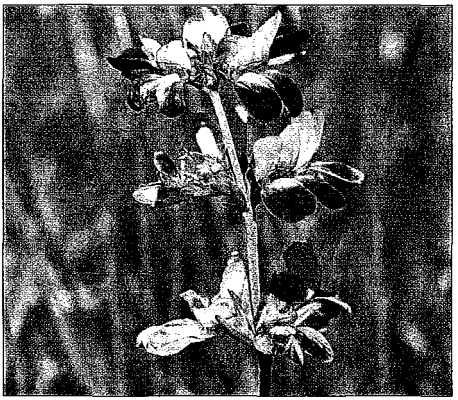
Mosiac of *Lemna minuta & L. minor* (above) and Marsh Pond Snails destroying Duckweed colonies (below) Photos J. Oliver © 2003 (see p. 31)

Phacelia divaricata

Gilia tricolor (2 colour forms)



Trifolium alexandrium



Collinsia heterophylla

Legousia pentagonia

Consolida ajacis

All found at Sefter Farm (v.c. 13). Photos M. Shaw © 2002 (see pp. 44-46)

The other English vernacular names refer to its leaf margin shape, except Son-before-the-Father, which alludes to the appearance of the flower before the leaf.

Farfara means 'floured', a reference to the white-felted lower surface of the leaf.

4. *The French 'pisse-en-lit'*: Freud corrects himself (p. 305) by writing '["Pissenlit actually means dandelion"]', i.e. *Taraxacum officinale* Wigg. group (also Compositae/Asteraceae); (Wet-the Beds,* Hare's Lettuce, Lion's Tooth (*Dent de lion* (Fr.)), *Löwenzahnkraut* (Ger.)), Piss-a-Bed,* Swine Snout; * = obviously Freud's *Le pissenlit* alluding to its diuretic action and therefore micturation.

   (The dried or fresh infused or decocted leaf and dried decocted root are used for liver problems, fluid retention, oedema, rheumatism (traditional) or today for much the same thing ('disorders of bile secretion, stimulation of diuresis, lack of appetite and dyspeptic complaints' (Willuhn, 2001)), but all somewhat different from the uses which *Tussilago farfara* is put to.
5. *Germinal*: Freud corrected this (*l.c.*) to *La terre*.
6. *Salad*: I leave the final word on this subject to that *Maître de cuisine*, Roger Vergé (pp. 47-48):

   Dandelion (Pissenlit), end November-March [April to early May in the lowlands (Stace, 1992)]. This is a salad that you must know how to find. The easiest way of tracking it down is to look for the bright yellow flowers that push their way up through the grass of meadows. That's what I used to do when my mother sent me out to find the salad for the evening meal. My basket was filled quick as a wink, and I was free to go off and play with my friends. When I got home the dressing-down was not for the salad but for me, and the supper had gone to the rabbits. This was because dandelions should not be eaten when in flower. They should be picked after a frost and chosen as small as possible. You can also pick leaves from those tight rosettes showing only the promise of a flower which reminds me of the winder of an old man's pocket watch. To close the discussion of dandelions I must tell you the disgusting fact that the best and tenderest are found under dried cow-pats or beneath mole-hills. Seasoning: walnut oil.

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ALIENS

INVADING ALIENS – OR INVADING NATIVES?

For some years now the prophets of doom have had the field to themselves on the much-trumpeted threat from alien invaders. Hardly an issue of magazines from responsible people such as Plantlife, the Wildlife Trusts and even *The Garden* (the journal of the Royal Horticultural Society) passes without some dire warning followed by appeals and a Code of Conduct. For instance, I was asked to join a Dorset Japanese Knotweed Forum, 'based on a similar successful operation in Devon'. A recent DEFRA report (Review of non-native species policy – report of the working group, DEFRA 2003), which incidentally had no input from the BSBI, provided a field day for the sensationalists and gave

costs for eradication of aliens ranging from £0.7 million for Floating Pennywort (*Hydrocotyle ranunculoides*) to £100 million for Giant Hogweed (*Heracleum mantegazzianum*) and £1.56 billion for Japanese knotweed (*Fallopia japonica*).

I would contend that, if we are really talking about aggressive species and the threats they pose to our native flora, then there are a small number of much stronger native candidates. All are currently thriving in highly disturbed and fertile habitats which are now a ubiquitous feature of the modern British landscape. This is written by a southerner, albeit one who travels around a lot, and who visits Scotland frequently and who perceives the biggest threat there, on the west coast at least, to be Ground-elder!

Speaking in very general terms our lowlands are under-managed and under-grazed and our uplands over-grazed. With the exception of Rhododendron, by far the greatest threat to other vegetation types (twenty-times that of any other alien) are Ivy and Brambles. Wherever I go they have smothered verges, overgrown grasslands and cliffs and carpeted woodlands. Little survives underneath them. Has anything been written on this, other than at a local level? It is getting worse every year. Bracken is increasing because of more intensive grazing and burning, and reeds and nettles, encouraged by increased eutrophication, have choked ditches, riverbanks and fens. These five species would be my rogue's gallery (always assuming we need such a gallery, and that we don't just accept what is there). Others may have local threats - which for me at least would include Cock's-foot, Cow Parsley and Gorse. Rhododendron is an insidious and persistent nuisance in the countryside, and if there was any money that could only be spent on aliens then that is where I would direct it, but the subtle difference here is that the threat from Rhododendron is known about and the damage is done. It does not need any more emotion; it just needs action. Cotoneaster is a major pest on calcareous soils and rocks. Swamp Stonecrop (*Crassula helmsii*) poses local threats (have I ever seen them really quantified?), as does, I am told, the new and yet very local Floating Pennywort. Butterburs and Winter Heliotrope carpet long areas of verges. But Japanese Knotweed, the multi-million pound industry, does not even begin to approach the damage that my five natives pose. Has it actually caused irreversible damage at anything other than a very local level? The case against it was elegantly refuted by Oliver Gilbert and Jim Dickson in their recent papers to a conference in Glasgow (*Alien Species: Friends or Foes*, Glasgow Natural History Society, 2001), where reference was even made to the plus points of wildlife gains from its shelter. The cases against Himalayan Balsam (*Impatiens glandulifera*) and Water Fern (*Azolla*) haven't even begun to be made, and anything else can be dismissed. They all pale into insignificance beside my five native plants.

There is no alien crisis. There is a lack of traditional management – traditional in the sense that it created and nurtured the landscape that we seem to wish to protect. It seems totally negative and unrealistic to maintain the charade of natives 'good' and aliens 'bad', especially when, to my knowledge, no-one has tried to put the invasiveness of aliens into any rational context. How much invasiveness is bad? Why are invasive natives completely ignored in this judgement?

There are a few papers which express similar sentiments to mine (see M. Williamson (1998) *Measuring the impact of plant invaders in Britain* and C. Preston (2002) *Approaches to native and alien species*), but these were in journals outside the mainstream of conservation thinking which, to be frank, is relentlessly anti-alien. Are the above just thoughts that have built up in my isolated world? Am I biased by having to do so much Atlas work on aliens? I would very much welcome members views (either via *News* or direct) before thinking of fleshing this out for a wider audience – though will they want to listen? I fear not. My local Wildlife Trust was completely disinterested in the above articles in favour of Japanese Knotweed when they ran their most recent anti-alien campaign: 'watch out for these invaders'.

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EUONYMUS JAPONICUS ET CETERA

I was interested in the article, by Eric Clement, on Evergreen Spindle in *BSBI News* **95**. This is seen quite often in the coastal areas of v.c. 59 but always, I think, as a relic of cultivation or a garden throwout. Despite seeing what looked like mature fruits for the first time in 2001 I have never spotted any seedlings in this area.

However a side issue that clicked something in my mind was the statement that this plant is sometimes known as 'privet' or even 'laurel'. I have no doubt that that is the case but I wonder if any other readers have ever called it 'myrtle'? My grandmother and father consistently referred to what I soon came to know as *Euonymus japonicus* as 'myrtle' so that's what it became known as to me when I was very young. The plant bug bit me early on and by about twelve I knew full well that that name truly belonged to *Myrtus communis* and went as far as sending off for seeds, growing and flowering the plant. On being presented with 'real' myrtle my Nan acknowledged the fact, even volunteering the snippet that she thought Queen Victoria had some of it in her wedding bouquet, but said that the 'myrtle' in the hedge was really 'evergreen myrtle'. I think I left it at that and decided not to presume to correct her nomenclature any further. I have often wondered whether this was a name in general circulation or whether my Nan had come up with it off her own bat.

Other early names I had to unlearn include: 'perennial ageratum' for *Stachys macrantha* (she grew the annual ageratum most summers and I could not understand the connection at all) 'spiraea' for *Astilbe* and 'syringa' for *Philadelphus*. There were probably others but I cannot think of any just at present. As a keen gardener I am aware of many out-of-date names still in regular circulation but have never yet heard anyone else refer to 'myrtle' or 'perennial ageratum' when discussing the species above.

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IDENTIFICATION OF CUPRESSACEAE IN WINTER

Keys which rely on the smell of leaves of *Cupressaceae* when crushed may be unreliable, especially in winter. In March 2003 I sent some specimens of conifers to Cameron Crook for determination. None of them had any discernible scent even when crushed. He determined one of the specimens as *Platycladus orientalis* (previously *Thuja orientalis).* The others were *Thuja plicata.* He said in his reply 'I have encountered unscented *Thuja plicata* before, though not often . . .'. When I returned to the site when the weather was warmer the *Thuja plicata* had the characteristic scent without the need to crush the leaves. In April 2003 I sent specimens for determination from another site. Some were *Thuja plicata* and the characteristic aroma was just discernible by crushing the leaves. It may be that the lack of aroma in winter is normal for *Thuja plicata.*

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OH NO IT'S NOT!

(Easy to distinguish *Lonicera nitida* and *L. pileata*)

While there are 2 clearly distinct entities as Mick Crawley illustrates only superficially similar — this is not the whole story (see *BSBI News* **95**: 48).

In v.c. 99 we have curious bushes neither exactly fitting one or other category. In *The European Garden Flora* there are cultivars listed, presumably wild collected, if not, then displaying some of the genetic diversity. There are *Lonicera nitidas* with larger leaves, very narrow leaves and taller with larger leaves. There is also a possible hybrid said to have been planted by shrub fanciers in the early part of the last century — i.e. the CV 'Elegant' (syn. 'Yunnan').

Next season I'll try the hair characters listed and see how some of these 'funny' honeysuckles key out. We have several sites with escapes, always not far from where there once were plant fanciers' gardens.

Reference:
J. CULLEN *et al.* eds. 2000 *The European Garden Flora* **vol 6**

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ALIENS ON THE FARM: ALL FROM A DUTCH 'WILD FLOWER MIX'

In April 2002 whilst driving from Chichester to Pagham (v.c. 13, West Sussex) I noticed some tall plants, not yet flowering, on a broad grassy strip bordering several consecutive fields alongside the road. On closer inspection these appeared to be large specimens of *Agrostemma githago* (Corncockle), which I suspected had been accidentally introduced with the seed with which the grass strip had been sown. Nearby was another squat looking plant with light blue flowers about 15mm across on a curled raceme like a forget-me-not. I could not identify it so sent a sample to Alan Knapp, recorder for West Sussex, who was similarly perplexed. My further research now suggested the plant might be *Phacelia divaricata*, later confirmed by Eric Clement, to whom Alan had forwarded my specimen.

By now several other unusual plants were appearing along the grassy field edge and Eric's curiosity was aroused enough to visit the site with me on June 2nd, accompanied by Paul Stanley and Ian Thirlwell. On a hot sunny morning we identified *Agrostemma* 'Milas' (Corncockle), *Collinsia heterophylla* (Chinese-houses), *Convolvulus tricolor* 'Minor' (Tricolour Convolvulus) in three colour forms, *Gilia tricolor* (Bird's-eyes) both pale and dark mauve varieties, *Hesperis* aff. *matronalis* (Dame's-violet), *Legousia pentagonia* (a Venus's-looking-glass), similar but larger than the also present *Legousia speculum-veneris* (Large Venus's-looking-glass), *Matthiola longipetala* cf. ssp. *pumilio* (Night-scented Stock), *Nigella damascena* (Love-in-a-mist), *Silene conica* (Sand Catchfly), *Sinapis alba* ssp. *alba* (White Mustard), and *Vaccaria hispanica* var. *grandiflora* (Cowherb). A plant tentatively determined as *Anchusa* sp. was earmarked for collection when in seed, but could not be refound after the petals had dropped off. Several of these are illustrated in the Colour Section, p.1 & 4. Other less common introductions were seen including fine specimens of *Chrysanthemum segetum* (Corn Marigold), *Lobularia maritima* (Sweet Alison), *Centaurea cyanus* (Cornflower), and *Borago officinalis* (Borage). *Matricaria recutita* (Scented Mayweed) was prolific, and many plants were of an unusual ray-less form. A lot of *Polypogon monspeliensis* (Annual Beard-grass) was found and although growing as a native a few miles away, it was obviously introduced here. Paul discovered *Phalaris canariensis* (Canary-grass) and *Lolium ×boucheanum* (Hybrid Rye-grass). Finally our little group headed home well satisfied and with Eric clutching several specimens for his herbarium and more detailed examination.

Over the rest of the summer I continued to visit the site and watched new exotica appear. Some, like *Consolida ajacis* (Larkspur), *Silybum marianum* (Milk Thistle), and *Salvia viridis* (Annual Clary) were fairly easy to recognise, but others including *Coreopsis* cf. *tinctoria* (Tickseed), *Malva sylvestris* var. *mauritania* (Common Mallow), and *Trifolium alexandrinum* (Egyptian Clover) required Eric's expertise. Amongst the crops grew many specimens of *Echinochloa crus-galli* (Cockspur), and in a maize field on the other side of the road owned by the same farmer I saw plentiful *Panicum miliaceum* (Common Millet) and *Setaria viridis* (Green Bristle-grass).

All these plants were found on Sefter farm, taken over 6 years ago by Barfoot's of Botley. They had been introducing a series of initiatives to enhance the farm's biodiversity and cropping potential, while increasing the positive environmental benefits. The farm manager told me that the field edges were generally unproductive of crops and had been sown with a grass and wild flower seed mix obtained from a supplier in Cobham, Surrey. In addition to their aesthetic appeal these flowers attract insects and birds as pollinators and as predators eating crop pests, therefore enabling a significant reduction in pesticide use. Water meadows have been restored, ponds and scrapes for birds created, with an increase in bird species being recorded by local ornithologists. A wide variety of crops, some unusual, are cultivated, including maize, squash, rhubarb and pumpkin.

The most noticeable thing about most of the plants was their vigour. *Centaurea cyanus* specimens were 70cm tall and multi-branched with maybe 30 flowers per plant and *Chrysanthemum segetum* flowers were 5cm in diameter. Huge varieties of *Borago officinalis* produced a magnificent display in

April and May while the *Consolida ajacis* was 1m tall. Some however seem to have been bred for their colour – *Coreopsis* specimens were quite weedy looking, but a glorious burnt orange colour rather than the usual yellow. The plants originate in varied parts of the world – *Collinsia heterophylla*, *Coreopsis tinctoria*, *Gilia tricolor* and *Phacelia divaricata* are all from the USA. *Agrostemma* 'Milas', *Convolvulus tricolor* 'Minor', *Nigella damascena* from the Mediterranean, while *Vaccaria hispanica*, *Matthiola longipetala* and the *Legousias* are native to SE Europe and SW Asia. This variation in origins, and the selective breeding, are what one would expect from a commercially sold seed.

At the start of 2002 the ground that had been sown was prepared and flat, but during the year tractor tyres have produced numerous ruts and these have been waterlogged throughout the winter. It will be interesting to see what flowers in 2003; maybe some perennials will appear, but it would be lovely to see again the profusion of colour of last year. There is a possibility that the owners will introduce new seed from time to time, otherwise most of these annuals are likely to disappear.

I am very grateful to Eric Clement for all his help with identification of many of the species and for encouraging me to write this short note. Surprisingly little has appeared in print as to exactly which species are being introduced into Britain with 'wild flower mixes'.

[Our apologies to Mike for omitting this from the September issue of *BSBI News*; it came to light in January 2004, just too late for the January issue! Eds]

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Plants found in 2002 on field strip of farm owned by Barfoot's of Botley, bordering Pagham to Chichester road

Latin name	English name	GR	Comments
Agrostemma 'Milas'	Corncockle	SZ 89469944	Det. E.J. Clement (EJC)
Borago officinalis	Borage	SZ 89399991	
Carex otrubae	False Fox-sedge	SZ 89469940	Native
Centaurea cyanus	Cornflower	SZ 89469944	
Chrysanthemum segetum	Corn Marigold	SZ 89379986	
Cichorium intybus	Chicory	SU 89360018	
Collinsia heterophylla	Chinese-houses	SZ 89459947	Conf. EJC
Consolida ajacis	Larkspur	SZ 89409967	
Convolvulus tricolor 'Minor'	Tricolour Convolvulus	SZ 89459946	Three colour varieties - white, pale blue and tricolour
Coreopsis cf. *tinctoria*	Tickseed	SZ 89449947	Det. EJC. Less vigorous than normal *C. tinctoria* as bred to specific colour
Gilia tricolor	Bird's-eyes	SZ 89469946	Conf. EJC. Two forms, pale and dark -flowered
Hesperis aff. *matronalis*	Dame's-violet	SZ 89409965	Det. EJC
Legousia pentagonia	Venus's-looking-glass	SZ 89469944	Det. EJC. White form also found
Legousia speculum-veneris	Large Venus's-looking-glass	SZ 89469944	Det. EJC
Lobularia maritima	Sweet Alison	SZ 89469944	
Lolium ×*boucheanum*	Hybrid Rye-grass	SZ 89459849	Det. P. Stanley. May be native here
Malva sylvestris var. *mauritania*	Common Mallow	SU 89360018	Det. EJC
Matricaria recutita	Scented Mayweed	SZ 89469944	Short-rayed form
Matthiola longipetala cf. ssp. *pumilio*	Night-scented Stock	SZ 89399991	Conf. EJC
Nigella damascena	Love-in-a-mist	SZ 89409965	
Phacelia divaricata	Phacelia	SZ 89399991	Conf. EJC
Phalaris canariensis	Canary-grass	SZ 89459951	
Polypogon monspeliensis	Annual Beard-grass	SZ 89469944	
Salvia viridis	Annual Clary	SZ 89409968	Conf. EJC
Silene conica	Sand Catchfly	SZ 89469944	
Silybum marianum	Milk Thistle	SZ 89409965	
Sinapis alba ssp. *alba*	White Mustard	SZ 89399991	
Sinapis arvensis	Charlock	SZ 89399991	
Trifolium alexandrinum	Egyptian Clover	SZ 89469944	Det. EJC
Vaccaria hispanica var. *grandiflora*	Cowherb	SZ 89379986	Det. EJC

Alleged contents of seed mix supplied to Sefter Farm

Latin Name	English Name	Life form*	Origin
Achillea millefolium	Yarrow	p	Native
Adonis aestivalis	Summer Pheasant's-eye	a	Europe
Agrostemma gracile 'Milas'	Corncockle	a	Greece/Turkey
Anethum graveolens	Dill	a	W & Central Asia
Bellis perennis	Daisy	p	Native
Borago officinalis	Borage	a	S Europe
Campanula rotundifolia	Harebell	a	Native
Centaurea cyanus	Cornflower	a	Native
Chrysanthemum segetum	Corn Marigold	a	Europe
Cichorium intybus	Chicory	a	Native
Collinsia heterophylla	Chinese-houses	a	California
Consolida regalis	Forking Larkspur	a	Europe / SW Asia
Convolvulus tricolor (minor)	Tricolour Convolvulus	p	Mediterranean
Coreopsis tinctoria	Tickseed	a	USA
Cotula barbata	Buttonweed, Bearded	a	South Africa
Cynoglossum amabile 'Firmament'	Chinese Hound's-tongue	b	China / Tibet
Digitalis purpurea	Foxglove	b	Native
Dipsacus sativus	Fullers' Teasel	b	Uncertain
Foeniculum vulgare	Fennel	p	Europe
Gilia tricolor	Bird's-eyes	a	California
Hesperis matronalis	Dame's-violet	b/p	Europe
Legousia speculum-veneris	Large Venus's-looking-glass	a	Europe
Leucanthemum × *superbum*	Shasta Daisy	p	Garden origin
Limnanthes douglasii	Meadow-foam	a	California
Linaria vulgaris	Common Toadflax	p	Native
Linum usitatissimum	Flax	a	Cultivated origin
Lobularia maritima (*benthamii*)	Sweet Alison	p	S Europe
Lunaria annua	Honesty	b	SE Europe
Lupinus nootkatensis	Nootka Lupin	a/p	NW USA / NE Asia
Lythrum salicaria	Purple-loosestrife	p	Native
Malva moschata 'Rosea'	Musk Mallow	p	Native
Malva sylvestris var. *mauritiana*	Common Mallow	p	Native
Matthiola longipetala ssp. *bicornis*	Night-scented Stock	a	SE Europe / SW Asia
Mentzelia lindleyi	Golden Bartonia	a	California
Myosotis alpestris	Alpine Forget-me-not	p	Native
Nepeta cataria	Cat-mint	p	Native
Nepeta ×*fassennii*	Garden Cat-mint	p	In cultivation
Nigella damascena	Love-in-a-mist	a	Mediterranean
Nigella sativa	Black-cumin	a	SW Asia / N Africa
Oenothera glazioviana	Large-flowered Evening-primrose	a/b	USA
Papaver rhoeas	Common Poppy	a	Native
Phacelia campanularia	California-bluebell	A	California
Phalaris canariensis	Canary-grass	a	NW Africa / Canaries
Polemonium caeruleum	Jacob's-ladder	p	Native
Polypogon monspeliensis	Annual Beard-grass	a	Native
Prunella vulgaris	Self-heal	p	Native
Reseda odorata	Garden Mignonette	a/b	SE Mediterranean
Salvia officinalis	Sage	p	SW Europe
Salvia pratensis	Meadow Clary	p	Native
Silene conica	Sand Catchfly	a	Native
Silene pendula	Nodding Catchfly	a	S Europe
Sinapis alba ssp. *alba*	White Mustard	a	S Europe
Tanacetum vulgare	Tansy	p	Native
Thymus vulgaris	Garden Thyme	p	W Mediterranean
Trifolium pratense	Red Clover	p	Native
Verbascum phoeniceum	Purple Mullein	p	SE Europe

* Life forms = a (annual); b (biennial); p (perennial)

GERANIUM MADERENSE & G. PALMATUM

These two native perennials of Madeira, especially the former, are commonly grown in gardens in Guernsey and Sark and, less commonly, in other parts of the British Isles, mainly in south-western coastal areas. Both can produce abundant seedlings. In Sark *G. maderense* occurs on roadside banks bordering gardens and has been recorded by Clement & Foster (1994) and Stace (1997) well naturalised away from gardens in Scilly. A record from Guernsey was found to be an error for *G. canariense* (Stace 1997). It has been planted in Sark on the verge of a track outside of a garden in the mistaken belief that it was *G. palmatum.* It would be surprising if *G. palmatum* was not soon to be found outside of gardens and should be remembered when plants resembling one of these is found. They can be distinguished easily by the floral characters given in horticultural books and Press & Short (1994), but references to vegetative characters are inadequate.

Most books do not refer to the red veins on the leaves and the red petioles of *G. maderense* which are distinctive. Unfortunately herbarium specimens of both become very dark and the rest of the leaf becomes almost the same colour as the veins. The outline of the blades of the two species are almost indistinguishable though the tips of the ultimate segments in *G. maderense* are slightly more tapered than in *G. palmatum.* In the living plant the tips of the blades of *G. palmatum* tend to hang down and the tips look even blunter than when flattened. When collecting a leaf a note should be made of the presence or absence of the red colour. Other features of the plant should also be noted. *G. maderense* has a caudex (stem) of about 30cm. Leaves come from the top of this and the strongly reflexed and adpressed petioles clothe it completely. In *G. palmatum* the caudex is very short or absent and the petioles arise from or near ground level.

The *G. palmatum* in the photographs (see Colour Section p. 2) is growing near Jermyns House in the Sir Harold Hillier Gardens in Hampshire. No English name has been published for this species, but the local Madeiran name 'Geranium folha-de-anemona' would seem to translate as 'Anemone-leaved Geranium'.

References:

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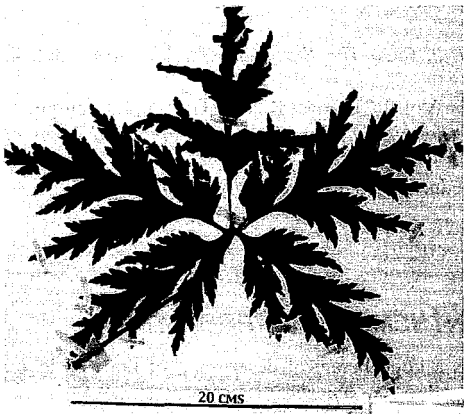
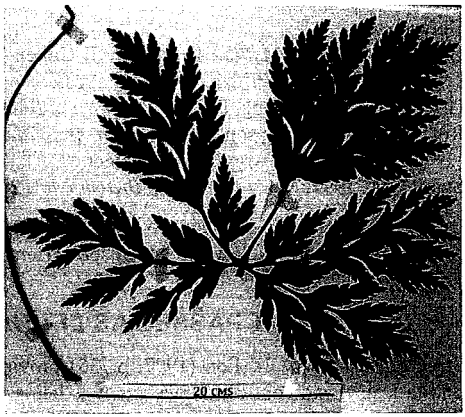


Geranium palmatum



Geranium maderense

Photos Psyche Veall © 2003

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AN ARGYLL *ASTILBE* REVISITED AND REDETERMINED

In the most recent checklist of Argyll plants (Rothero & Thompson 1994) there is a record for '*Astilbe rivularis*' from Inveraray. As PM was born and brought up in the Royal Burgh but had not known of the plant's existence, he expressed a keenness to see it and to assess its current status, and was able to do so with the aid of a map kindly provided by BT.

The site is on the wooded slopes of Dun na Cuaiche, the hill which overlooks the town and Loch Fyne (v.c. 98; NN095099). The *Astilbe* occurs in relation to a very long abandoned ruined round house and, presumably, was originally planted. However, as seen again in 2003 the rhizomatous herb forms almost complete ground cover in a rough square whose sides measure *c.*13m. Within the area there are many flowering shoots. In addition, there are a few satellites elsewhere in the wood clearing. Associates are Lady-fern (*Athyrium filix-femina*), Male-fern (*Dryopteris filix-mas*), Soft-rush (*Juncus effusus*), Wood-sedge (*Carex sylvatica*), Tufted Hair-grass (*Deschampsia cespitosa*), Bramble (*Rubus fruticosus*), Common Nettle (*Urtica dioica*), Broad-leaved Willowherb (*Epilobium montanum*), Wood Sage (*Teucrium scorodonia*), Hedge Woundwort (*Stachys sylvatica*) and Ash (*Fraxinus excelsior*) and Rusty Willow (*Salix cinerea* ssp. *oleifolia*) saplings. The only other hortal in the vicinity is Aunt Eliza (*Crocosmia paniculata*) which is present on the periphery.

We have ascertained that the building was last occupied in the late 1950s. The colony is clearly well established and has spread competitively over the last 40 years.

It was originally identified for the authors as being *Astilbe rivularis* (Tall False-buck's-beard), but reference to the key and description given by Stace (1997, pp. 314-315) reveals that an error has been made. The flowers clearly possess five linear reddish-purple stamens (looking more like long staminodes than petals) and there are 10 stamens of unequal length. Useful illustrations are provided by Barnes (1995) and Grierson & Long (1987), and following these, we cannot find a definite match amongst the species known in cultivation. Hybrids abound in this genus and we suggest that *A. rubra* Hook.f. & Thomson × *A. chinensis* (Maximowicz) Franchet & Savatier is the most likely combination. *A. rubra* is a native of the Himalayas and adjacent China, and *A. chinensis* from C. Asia, China, Japan and Korea.

Voucher specimens are preserved in **Hb PM** and **Hb EJC**. Furthermore, our artist, Mrs J.M. Millar has captured all the important characters of the Inveraray plant in the splendid cover illustration for all to appreciate and consider.

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WHAT PASSES AS *LEUCANTHEMUM ×SUPERBUM*?

Stace's *New Flora*, 2nd Edn (1997, p.735) provides a good botanical description of the well-loved Shasta Daisy, and confidently accepts it as being equal to *L.* ×*superbum* (Bergmans ex J.W. Ingram) D.H. Kent (*L. lacustre* × *L. maximum*). But, a glance at other Floras of the world reveals that there is still considerable controversy about this decision.

E.A. Brown in G.J. Harden's *Flora of New South Wales* **3**: 288 (1992) rejects the hybridity claim and refers it to the Pyreneean *L. maximum* (Ramond) DC. In H. Schäfer's *Flora of the Azores* (2002, p.190) what I presume is the same taxon is referred to as the Portuguese *L. lacustre* (Brot.) Samp. Who is correct?

The history of the origin of the Shasta Daisy, which was named in reference to the pure whiteness of the snow-capped Mt Shasta in California, is well documented, but the details are scarcely believable; plant breeders are, of course, loathe to reveal exact details about their hybrids, and their parental species may also be wrongly named. Howard (1945) tells how Luther Burbank started with a N. America alien *Chrysanthemum* (presumably *Leucanthemum vulgare*) 'as his foundation stock' and 'combined [it] with *C. maximum* and *C. lacustre* from Europe and *C. nipponicum* from Japan.'. A four-parent hybrid! – the work lasting from 1884 until 1901. 'Seven varieties were introduced, of which 'Alaska' and 'Westralia' were the most prominent.'.

In *RHS The Garden* **127(7)**: 518-521 (2002), Graham Rice gives more details and a coloured plate showing 24 current cultivars (plus *L. vulgare*). Does the Shasta Daisy have 4, 3, 2 or just one parent species? – or is it a mixture of these?

Chrysanthemum nipponicum (now in the genus *Nipponanthemum*) is a very unlikely parent – it is a shrub with leaves crowded towards the ends of its stout branches. *Leucanthemum maximum* appears to have no special garden merit (apart from the very attractive name!), and the one old (1850) voucher in **WSY** (ex Herb. C. Billot) much resembles our own *L. vulgare*, and there seems to be no firm proof that it has been in cultivation in Europe (or elsewhere). Selected forms of *L. vulgare* (s.s.) can look very attractive, and *L. lacustre* is a robust and tall plant with larger flower heads. This pair seem to me to be the more likely candidates for hybridisation, and could account for the garden plants that Dowrick (1952) found with chromosome numbers ranging between 2n=85 and 2n=175 (compare with the key below where it would exclude the parentage *L. maximum* × *L. lacustre*).

Flora Europaea **4**: 175-176 (1976) chooses a very broad species concept and their '*L. vulgare*' includes dozens of 'microspecies' (incl. *L. maximum* and *L. lacustre*) and offers no key to its division, but it does state that the name *L. maximum* has been misapplied to two further plants – *L. adustum* and *L. heterophyllum*. Two more potential parents thus emerge!

I strongly suspect that the name *L.* ×*superbum* currently covers more than one entity. Most of the 'wild' material in Britain seems remarkably uniform for a hybrid and sets perfect seeds that reproduce as more or less identical plants (there is some variation from glabrous to sparsely shaggy stems). Looking in **BM**, native material of *L. lacustre* seems to match perfectly. In addition, Gordon Hanson (Ware) very kindly grew for me material (ex Coimbra Botanic Garden seed) of *L. lacustre* which, even in the live state, we could not distinguish this plant from the common British alien plant. The forthcoming BSBI book on alien plants has a fine plate of Shasta Daisy; it is virtually identical to plate 99 (p.209) in Vogt (1991) showing *L. lacustre*. My deduction is clear!

Wild flower mixes sown on road verges may well represent another species (from south east Europe) and they are sometimes late-flowering. Some have been misdetermined as *Leucanthemella serotina*, as Stace's key (p.671) to this genus makes separation far from easy. The genus *Leucanthemum* is supposedly separated from its close allies by the character 'perennial herbs with red-tipped roots' (Bremer, p.468), but I have yet to detect this colour in any fresh or dried plant that I have studied. Help!

A provisional key to the species mentioned above is now offered, but much more study is required:

1. Lvs glandular-punctate, all sessile and ± equal in outline; ray florets sterile *Leucanthemella serotina*
1. Lvs not glandular-punctate, lower ones petiolate; ray florets fertile 2

2. Lvs predominantly near the base, some of them usu ± lobed as well as toothed; stems usu 25-45cm; fls June-Aug; 2n= 18, 36 or 38 ..... *Leucanthemum vulgare* s.s.
2. Lvs well distributed along stem, all of them merely toothed 3

3. Stems usu 35-70cm; middle stem lvs shortly toothed proximally; middle invol. bracts <3.5mm broad; fls July-Sept; 2n=108 ..... *Leucanthemum maximum*
3. Stems usu 90-120cm; middle stem lvs deeply toothed proximally; middle invol. bracts 4-5mm broad; fls July-Oct; 2n=198 ..... *Leucanthemum lacustre*

Most of the keys feature the diameter of the flower head, but this varies dramatically according to nutrient levels, and I find it unhelpful. Clearly, chromosome number is the best character! Ploidy level of flowering plants often correlates positively with average pollen size – see *Watsonia* **4(1):** 11-16 (1957) for proof of this in *Leucanthemum,* but note the great overlapping that exists. As a guide, the measurements published are (the spines being included in the diameter):

Species	Chromosome number	Usual pollen diameter (µm)	Source
L. vulgare	2n=18	27-33	*Watsonia* **4(1)**
L. ircutianum s.l.	2n=36	30-39	*Watsonia* **4(1)**
L. maximum	2n=108	41-44.5	Vogt (1991)
L. lacustre	2n=198	48.5-51.5	Vogt (1991)
L. ×superbum	None known to EJC or BSBI database		

Proc. BSBI **7(1)**: 75-76 (1967) reports on further work, and the discovery of plants of *L. vulgare* in Britain with 2n=38.

The type specimen of the basionym of *L. ×superbum* lies in **BH** Ithaca (New York) and was grown from seed. I have not seen it but the Latin type description in *Baileya* **19**: 167-168 (1975) was accompanied by an English translation which readers can assess and try to fit into the key given above:

> *Chrysanthemum ×superbum* Bergmans ex J. Ingram, sp. hybr. nov. . . . Presumably a hybrid between *C. lacustre* Brot. and *C. maximum* Ramond: robust, glabrous perennial, to 1m or more; leaves coarsely toothed, lower leaves oblanceolate, to 30cm long including the petiole, upper leaves lanceolate, sessile; heads to 10cm across, solitary on long peduncles; disc flowers yellow, ray flowers pure white.- Intermediate in height between the parents, with leaves narrower than *C. lacustre,* and heads often larger than in the parents.

D.H. Kent (Feb. 1990) gives a very similar description, and validly transfers it to the genus *Leucanthemum.* Some modern books, e.g. Glen (2002), overlook this fact and cite it as *L. ×superbum* (Bergmans ex J.W. Ingram) Soren & Cope, a combination which was published in *Baileya* **23(3):** 145-165 (Apr. 1991). This is an isonym (i.e. a duplicated name) and, being published later than Kent (1990), should not be used. But, Glen (2002) is an invaluable book for listing all important modern references to cultivated plants for every genus that it treats. Much recommended as a reliable checklist!

Kent (1990) also tells us of one, definite record for *L. maximum* Ramond in v.c. 59 (S. Lancs), but he then fails to provide the locality details.

In our gardens, *L. ×superbum* 'Esta Read' is one (of several?) cultivar(s) that does suggest a hybrid origin, but it has yet to escape from cultivation.

Vogt (1991) is a fine monograph for those wishing to know more about *Leucanthemum.* But it only covers the Iberian peninsula, where *L. vulgare* ssp. *vulgare* does not occur (not even as an alien?). It has a key (in German) to the 19 spp. that he accepts, and lots of excellent illustrations. He refers, very briefly, to the Shasta Daisy on pages 204, 206 and 212. The distribution maps show how easy it is to name the species when the exact locality is known. (Please do not send to me alien specimens for naming!).

I am much indebted to Mike L. Grant (Senior Botanist, RHS Gardens, Wisley) for help with the above account, although he may not share all of my opinions.

References:

BREMER, K. 1994. *Asteraceae, Cladistics & Classification.* Timber Press, Oregon.

DOWRICK, G.J. 1952. The chromosomes of *Chrysanthemum,* 1: the species. *Heredity* **6**: 365-375 (not seen)

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HOWARD, W.L. 1945. Luther Burbank, a victim of hero worship. *Chronica Botanica* **9(5/6)**, pp. 482-483.

KENT, D.H. 1990. The Shasta Daisy. *Watsonia* **18(1)**: 89.
VOGT, R. 1991. Die Gattung *Leucanthemum* Mill. (Compositae-Anthemidae) auf der Iberischen Halbinsel. *Ruizia* **10**: 1-261.

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IDENTIFYING *GUNNERA* NATURALISED IN THE BRITISH ISLES

Clement (2003) draws attention to the nomenclatural confusion surrounding *Gunnera manicata* (Brazilian Giant-rhubarb) and alludes to the difficulty in distinguishing it from *G. tinctoria* (Giant-rhubarb). There have been several papers from Wanntorp *et al.* in recent years exploring the phylogeny and biogeography of the genus and the nomenclature of *G. manicata*: most of this work is summarised in Wanntorp (2003). Unfortunately for British botanists and gardeners, none of these accounts address the morphological differences between the two species under consideration here.

Identifying garden and naturalised material in the UK has always been a bit of an uncertain business. This is not helped by the claimed intermediate nature of some naturalised material, particularly in Ireland I believe, and the mysterious metamorphosis of *G. tinctoria* into *G. manicata* at the Sir Harold Hillier Gardens cited by Clement! Whilst future workers may be able to shed more light on hybridity and whether to recognise one or two species, I think it would be helpful to draw attention to the differences between the two species as we currently understand them. However, I have to admit that my observations are based on the two species as grown at RHS Garden Wisley, which may represent the two traditional extremes.

I would also like to encourage users to have confidence in Stace's account (1997), to which I am heavily indebted for the key below. The leaf and petiole dimensions are not altogether reliable, although they are a useful guide and I modify them slightly in my key. Like Clement, I do not accept that *G. manicata* has peltate leaves: in both species the base of the leaf is approximately cordate. The most useful characters are size, shape and proportion of the inflorescence and I hope my photographs (see Colour Section p. 2) illustrate this. Surprisingly, the green or red colour of the petiole spines [see colour section] also works well on material at RHS Garden Wisley. Sykes (1969) gives further morphological information including inflorescence measurements, details of cataphyll ('bud scale') webbing (membranous lamina between lobes more developed in *G. manicata*) and photographs.

1. Leaves ≤2m across; petioles ≤1.5m with pale or green spines; inflorescences cylindrical to narrowly ellipsoid, ≤1m, >4× as long as wide; inflorescence branches stout, ≤8cm; flowers ageing to reddish-brown. ***G. tinctoria***

1. Leaves often >2m across; petioles 1.5-2.5m with reddish spines; inflorescences conical to narrowly ovoid, ≤1.2m, <4× as long as wide; inflorescence branches slender, longest 9-11cm; flowers ageing to green. ***G. manicata***

References:

CLEMENT, E.J. 2003. What is *Gunnera manicata*? – and whence? *BSBI News* **93**: 52-55.
STACE, C.A. 1997. *New Flora of the British Isles*. 2nd edition. Cambridge University Press.
SYKES, W.R. 1969. *Gunnera tinctoria* and *Gunnera manicata*. *Journal of the Royal New Zealand Institute of Horticulture* **1**: 56-59.
WANNTORP, L. 2003. Origin and identity of the cultivated *Gunnera manicata*. *The Plantsman* n.s. **2**: 221-225.

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NOTICES (BSBI)

NEWS FROM THE BSBI DATABASE (LEICESTER)

One of the roles of the Database Committee, based at the University of Leicester, is to maintain a complete checklist of the vascular plants and stoneworts that occur in the British Isles. The list is available electronically as described below.

BSBI 2003 List of British & Irish Vascular Plants and Stoneworts
The BSBI is offering a free, downloadable file produced from its Leicester database, containing:

- all accepted names in Kent's *List of British & Irish Vascular Plants* and its supplements (name type A1)
- all additional accepted names in Stace's *New Flora* . . . (name type A2)
- all additional accepted names in Clement & Foster's *Alien plants* . . . and in Ryves, Clement & Foster's *Alien grasses* . . . (name type A3)
- accepted Charophyte names (name type AC)

The zipped file is 180kb in size and unpacks to about 600kb. It is a tab-delimited text file, suitable for importation into any good spreadsheet. If you use Excel the Text Import Wizard will recognise it. The file has ten columns as follows:

1) accepted Latin names (from the sources described above)
2) authorities (Brummitt & Powell abbreviations)
3) common name (English)
4) BRC number (where available)
5-8) Kent numbers (family, genus, species, subspecies)
9) status, native or alien (to be revised in future versions)
10) name type, A1/2/3/AC (see above).

BSBI 'Abstracts'
Following a long hiatus, work is now progressing on incorporating literature references relating to the British & Irish flora into the BSBI database. Previously these were published in hardcopy as *BSBI Abstracts*, the final issue of which appeared in August 2001. In future, such material will be available directly from the Database website (www.bsbi.org.uk), with updates being made annually. Our new literature data gatherer is Dr Peta Hayes (Natural History Museum), who has been appointed to trawl through the journals picking out relevant material. Just to remind members of what is currently available, at the time of writing there are 31,905 references of various descriptions relating to the British & Irish flora, covering the period 1958-2000, and including all BSBI publications from 1949 onwards; field meeting reports are also included.

RICHARD J. GORNALL, Dept of Biology, University of Leicester, University Road, Leicester LE1 7RH

Crossword solution: **Across** - 6, Brecon Beacons; 7, Look up; 8, Dabble; 9, Seti; 10, Rosemary; 12, Accentor; 16, Rust; 18, Collie; 20, Action; 21, Yellow Hammer. **Down** - 1, Penknife; 2, Copper; 3, Bbudes; 4, Lamb; 5, Poplar; 6, Brome; 11, Maritima; 13, Clover; 14, The Owl; 15, Raasay; 17, Stour; 19, Lily.

NOTICES (NON-BSBI)

CAR HIRE IN CYPRUS

If you are planning a holiday in Cyprus and wish to hire a car you may well be interested in the offer of 20% discount for BSBI members by Petsas Rent-a-Car on their already reasonable prices.

As a satisfied customer over some 15 years I am very happy to recommend this company; they provide good, well-looked after cars and offer excellent service. Cars are available at both Larnaca and Paphos airports or can be delivered to a hotel. For botanists and bird-watchers a car is almost essential in Cyprus and by taking up this offer you also contribute to the island's economy rather than to the profits of some multinational company.

Full details can be obtained from, and bookings made to: A. Petsas & Sons Ltd., 24 A-B C. Pantelides Ave., Nicosia 1010, Cyprus; tel: 22 662650 (International code from UK is 00357).
E-mail: rent_a_car@petsas.com.cy; Website: http/www.petsas.com.cy

It is very easy to book direct by phone. However you book, mention the BSBI (or perhaps better Botanical Society of the British Isles) and ask for the discount. If you have any initial queries, you are welcome to contact me on 01494 562082.

ALAN SHOWLER, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks., HP14 4PA.

PHENOLOGY SEMINAR

Would you like to immerse yourself in phenology for a day and hear the latest from Dr Tim Sparks, Dr Alistair Fitter, the UK Climate Impacts Programme, the National Pollen Research Unit and Mike Townsend CEO Woodland Trust? The Woodland Trust is jointly hosting a one-day phenology seminar with the Royal Meteorological Society on Saturday May 15 2004 at London Zoo. The day will cost £5 for Woodland Trust members, £10 for all others. Places are very limited so book early or look out for details of how you can take part online.

To register telephone the RMS on 0118 956 8500 or email susandrew@royalmetsoc.org

BOOK NOTES

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

Poisonous plants and fungi: an illustrated guide. M.R. Cooper, A.W. Johnson & E.A. Dauncey. Pp. 185. TSO, London. 2003. Softback. £14.95. ISBN 0 11 7028614.

Compendium of symbolic and ritual plants in Europe. M. de Cleene & M.C. Lejeune. 2 vols in boxed set, pp. 885 & 695. Mens & cultuur uitgevers, Ghent. Hardback. £115. ISBN 90-77135-04-9.

Ancient woodland, its history, vegetation and uses in England, New edition Oliver Rackham. Pp xxxvi + 584. Castlepoint Press. 2003. Hardback £50. ISBN0-897604-27-0

From earth to art. Edited by C. P. Biggam. Pp. 342. Rodopi, Amsterdam & New York. 2003. Paperback, □70. ISBN 90-420-0807-5.

The flora of Huntingdonshire and the Soke of Peterborough. T. C. E. Wells. Pp. xxxiii + 203. Huntingdonshire Flora and Fauna Society and the author, Upwood, Huntingdon. 2003. Hardback, £17.50. ISBN 0-9514427-2-4.

Medicinal Plants in Folk Tradition. David E. Allen & Gabrielle Hatfield. Pp unknown. Timber Press. 2004. Hardback. £22.50. ISBN 0-88192-638-8

Flora Nordica, General Volume. Edited by B. Jonsell. Pp. 274. Bergius Foundation, Royal Swedish Academy of Sciences, Stockholm. 2004. Hardback. £??.??. ISBN 91 7190 042 X.

**Den nya nordiska floran.* B. Mosssberg & L. Stenberg. Pp. 928. Wahlström & Widstrand. 2003. Hardback. 749 kr. ISBN 91-46-17584-9.

[I found out about *Den nordiska floran* (1992) several years after its publication, and it immediately struck me as the most attractive as well as the most accurate illustrated popular Flora I had seen. This new book is a greatly expanded second edition, with 928 not 696 pages. The scope has been enlarged to cover Spitsbergen as well as Sweden, Denmark, Norway, Finland, the Faeroes and Iceland, and there are additional descriptions of many extra infraspecific taxa, aliens and microspecies. Four rather than two pages are devoted to Lycopodiaceae, for example, and there are now separate drawings of *Huperzia selago* ssp. *selago* and ssp. *arctica* as well as new drawings of *Lycopodium annotinum* ssp. *alpestre*, *L. clavatum* ssp. *monostachyum*, *Diphasiastrum complanatum* ssp. *montellii*, *D. tristachyum* and *D.* ×*zeilleri*. An example to show the expansion of alien coverage is provided by *Petasites* and *Tussilago*, which have also got 4 rather than 2 pages to allow for new drawings of *P. japonicus* and *P. fragrans*; in addition both male and female plants of the native *P. hybridus* and *P. spurius* are now drawn. For both lycopods and butterburs there are a number of additional habit and habitat photos including a lovely vignette of a stream-side stand of *P. hybridus* in full flower. The pages have been completely redesigned so that the new material is fully integrated (apart from a 2-page appendix). The reproduction of the drawings is sharper than in my copy of the first edition, but the invaluable distribution maps are less sharp – the only exception to the otherwise extremely high production standard. C.D.Preston]

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ALTITUDINAL LIMITS OF BRITISH AND IRISH VASCULAR PLANTS, EDN 2

We are well on with the production of a new version of this, ready for the 2004 field season. It will include about 180 alterations, almost entirely higher maxima, but we have also taken the opportunity to add more references and correct errors. Anybody who would like the new version, which should be available by early May, please send a cheque for £2, payable to DAP or go to Summerfield Books. We did not get this onto our web-site last year, for which our apologies, but this year . . .

D.A. PEARMAN & R.W.M. CORNER, c/o Algiers, Feock, Truro, Cornwall, TR3 6RA.

DORSET RARE PLANT REGISTER

by B. Edwards & D. Pearman

Containing details of about 250 qualifying species, with a short account for each, with stress on their status in Dorset and the surrounding counties with details of sites, full grid references and populations etc. About 110 pages.

This will be available in May, at about £6 + p&p from Dorset Environmental Record Centre and elsewhere.

For final details please look at their website, www.derc.org.uk, or the BSBI's site, www.bsbi.org.uk, or apply to me.

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WILTSHIRE BOTANY

Issue No. 6 of this journal is now published. It contains:

- The Barbara Welch herbarium and archive: The Wiltshire component held at Cardiff — *Pat Woodruffe and Tim Rich*
- Great girth trees in Wiltshire: *Fagaceae:* Their size, seedlings and spread — *Jack Oliver*

- The bryology of South Wiltshire — *Rod Stern*
- The fungi of Bentley wood — *Edward Gange*
- The survival of *Ornithogalum pyrenaicum* in a coppiced woodland — *Richard Aisbitt*
- Conservation at Porton Down — *Stuart Corbett*
- *Juniperus communis* in Wiltshire – 1972-2002 — *Jane Banks*
- Plant records: 2001; 2002; updates 1993-2000

Copies of No. 6 and some earlier issues are available from Jean Wall at Withybeds, Dark Lane, Malmesbury, Wilts SN16 OBB (Tel 01666 823865). The cost is £3.00 post free. Cheques should be made out to Wiltshire Botanical Society.

JOHN L PRESLAND, 175C Ashley Lane Winsley Bradford-on-Avon Wilts BA15 2HR

REPORTS OF FIELD MEETINGS — 2003

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.

NEW FOREST field meeting - a correction

Any twitchers amongst our members will have noticed an error which crept into the above report (*BSBI News* **94**: 50-52). The bird which caused the rerouting of the Sunday programme was a Mongolian Lesser Sand Plover (not Sand Piper). My apologies for this mistake.

ALAN SHOWLER

FORRES AND FINDHORN AREA, MORAY (v.c. 95) 6th – 8th June

On the Friday four of us met by Logie School to do Local Change recording in NJ05A. We started by exploring the road side verges, where we found two coastal species well established, *Spergularia marina* (Lesser Sea-spurrey) and *Puccinellia distans* ssp. *distans* (Reflexed Saltmarsh-grass). After lunch we looked around Logie Wood where we saw several interesting species including *Goodyera repens* (Creeping Lady's-tresses), *Pyrola minor* (Common Wintergreen), and *Orthilia secunda* (Serrated Wintergreen). The most exciting discovery of the day was along the rocky wooded banks of the River Findhorn. Here we refound *Carex hirta* (Hairy Sedge) for v.c. 95; this sedge is extremely rare in northern Scotland.

Saturday we met in the village of Findhorn to survey three species that are only known from this one locality in v.c. 95. The two clovers *Trifolium ornithopodioides* (Bird's-foot), and *T. suffocatum* (Suffocated) we found to be much more common than I had previously realised. The third species was *Ophioglossum azoricum* (Small Adder's-tongue) which was not looking as good as it did in 2002 when it was first found, this probably was due to the very dry weather. We had lunch on the dunes while looking at *Hypochaeris glabra* (Smooth Cat's-ear). After lunch we drove to Forres to do Local Change recording in NJ05J. This square is half taken up by the town of Forres; the rest is a mixture of arable, woodland and the River Findhorn. Lots of interesting plants were recorded including one plant of *Fumaria densiflora* (Dense-flowered Fumitory) that was growing up through a garden fence. The most interesting find of the day was *Knautia arvensis* (Field Scabious) another extremely rare plant in v.c. 95.

Sunday morning we met on the corner of Burgie Wood to survey *Moneses uniflora* (One-flowered Wintergreen) before starting recording in NJ05W. We found the Wintergreen had declined

remarkably since I last saw it in 2002. In NJ05W we started off by exploring the large pine plantation on the Hill of Mulundy, this turned out to be rather boring, the most interesting plant being a little *Vaccinium vitis-idaea* (Cowberry) which is common in v.c. 95 anyway. Later on we found the valley below Branchill Farm very rich with *Mimulus moschatus* (Musk) very well established, as well as many interesting native species including *Carex hostiana* (Tawny Sedge) and *Triglochin palustre* (Marsh Arrowgrass). Last place to be explored during the meeting was Branchill Farm where we were surprised to see several plants of *Anthriscus caucalis* (Bur Chervil).

IAN P. GREEN

TOOTING COMMON (v.c. 17), 7th June

12 people, mostly new members, met at Balham Station for an afternoon exploring Tooting Common. Before we reached the Common we stopped in Bedford Hill to see *Tragopogon porrifolius* (Salsify) which has been growing for some years in the low shrubbery around Sainsbury's car-park.

Entering the Common via Cavendish Road we studied a variety of common species including *Conium maculatum* (Hemlock) and *Malva sylvestris* (Common Mallow) and admired *Geranium pyrenaicum* (Hedgerow Crane's-bill). The area beside the railway provided a range of hedgerow species including *Stachys sylvatica* (Hedge Woundwort) and *Anthriscus sylvestris* (Cow Parsley).

Crossing Bedford Hill we noted *Lotus pedunculatus* (Greater Bird's-foot Trefoil) in the grassland, before going through the woodland with its fine *Carpinus betulus* (Hornbeam) trees to emerge near the winter-pond installed some years ago when the area north of Tooting Bec Road between the railway line and Garrad's Road was re-landscaped. The dried-out pond yielded a good variety of (presumably all planted) wetland species including *Eleocharis palustris* (Spike-rush), *Ranunculus lingua* (Greater Spearwort), *Lythrum salicaria* (Purple Loosestrife) and *Iris pseudacorus* (Yellow Iris). In the surrounding area we noted *Galium verum* (Lady's Bedstraw), *Daucus carota* (Wild Carrot) and *Vicia tetrasperma* (Smooth Tare).

Beside Tooting Bec Road we observed *Plantago coronopus* (Stag's-horn Plantain), *Sedum acre* (Biting Stonecrop) and *Cynodon dactylon* (Bermuda Grass) a patch of which several metres in length was evident from the way in which it pushed its way through the tarmac pavement.

Turning back on to the Common we visited the disused reed-bed drainage area, in which grew *Galega officinalis* (Goat's Rue) and, presumably planted, *Geranium pratense* (Meadow Crane's-bill). On the margins of the lake grew a number of moisture-loving plants, including *Cardamine pratensis* (Cuckoo Flower) and *Ranunculus sceleratus* (Celery-leaved Buttercup). During the walk down Bedford Hill, *Thlaspi arvense* (Penny Cress) was noted in a neglected front garden, and *Diplotaxis muralis* (Annual Wall-rocket), which has pluckily survived in paving near the Balham Health Centre for several years, was admired.

Good weather and a wide selection of plants which ensured that most people saw something new – or saw familiar species in a new way contributed to the afternoon's success.

ROY VICKERY

LLYN HELYG & Y GRAIG, TREMEIRCHION, FLINTSHIRE (v.c. 51) 7th June

14 members and friends attended this meeting. In the morning we visited Llyn Helyg, between Holywell and Prestatyn. This is a man-made lake, some ½ mile long, constructed in the early part of the 18th century and referred to by Thomas Pennant in his *History of the Parishes of Whiteford and Holywell* (1796). We are grateful to the Mostyn Estates for permission to visit.

Llyn Helyg is surrounded by woodland, with some fine specimens of *Castanea sativa* (Sweet Chestnut) among the native species. The lake margin provided a range of habitats and our main objective was to look for the elusive *Pilularia globulifera* (Pillwort) which had been reliably recorded from the site some years previously. We concentrated our efforts at the eastern end of the lake, but in spite of a careful search by 14 pairs of eyes for 1½ hours, no *Pilularia* was found. Plants which were common at the water's edge included *Potentilla palustris* (Marsh Cinquefoil), *Lycopus europaeus*

(Gipsywort), *Mentha aquatica* (Water Mint), *Hydrocotyle vulgaris* (Marsh Pennywort) and *Littorella uniflora* (Shoreweed), with unwelcome patches of *Crassula helmsii* (New Zealand Pigmyweed). Large stands of *Carex rostrata* (Bottle Sedge) and *C. pseudocyperus* (Cyperus Sedge) occupy much of the marsh, with smaller patches of *Typha latifolia* (Bulrush) and *Iris pseudacorus* (Yellow Iris). In the open water *Nymphoides peltata* (Fringed Water-lily) is well established in two areas.

In the afternoon we visited Y Graig at Tremeirchion, a limestone outcrop which is part of a chain from the North Wales coast south to Llangollen. In the lane leading to the site we found *Geranium pyrenaicum* (Hedgerow Crane's-bill) and *Valerianella locusta* (Common Cornsalad). Y Graig is a North Wales Wildife Trust reserve, and is grazed by sheep in winter. In the short grass by the entrance was *Sherardia arvensis* (Field Madder), *Aira caryophyllea* (Silver Hair-grass) and *Trifolium striatum* (Knotted Clover) – a recent find on the site. On the upper slopes *Helianthemum nummularium* (Common Rock-rose) was abundant, with some *Inula conyzae* (Ploughman's-spikenard). In the bare earth of rabbit scrapes were the tiny plants of *Aphanes australis* (Slender Parsley-piert), *Vulpia bromoides* (Squirrel-tail Fescue), *Veronica arvensis* (Wall Speedwell) and *Arenaria serpyllifolia* (Thyme-leaved Sandwort) with *Marrubium vulgare* (White Horehound). On a south-facing rock ledge were several plants of *Potentilla argentea* (Hoary Cinquefoil); this is intolerant of competition and has disappeared from other places on Y Graig which have become too grassy.

In the old disused limestone quarry we found *Viola hirta* (Hairy Violet) and *Rosa micrantha* (Small-flowered Sweet-briar). Near the exit from the reserve grew *Hypericum montanum* (Pale St John's-wort), not yet flowering, but recognisable by its large pale leaves. To end the afternoon we saw a crop of over 30 *Dactylorhiza praetermissa* (Southern Marsh-orchid). These plants, which are rare in N. Wales, had been confirmed by the late R.H. Roberts.

N.B. Later in the year another group visited Llyn Helyg and found Pillwort in considerable quantity!

GORONWY WYNNE

WEST & EAST SUTHERLAND (v.cc. 108 & 107), 27th–29th June

This meeting, based at Tongue, was designed to 'mop up' three rather remote tetrads for 'Local Change', in which aim it succeeded beyond our fondest expectations, adding new species to all three. The group was small, the two 'locals' being joined by Effy Everiss and Rosemary McCance from Orkney and Jackie Muscott from the Lothians, and the weather was unexpectedly kind.

The first day was spent on the Meadie Ridge (NC44W) north-west of Altnaharra, a bit dour at first sight, but boasting an interesting isolated record for *Tofieldia pusilla* (Scottish Asphodel). This record prompted a look at the geological map, which revealed a narrow band of base-rich metamorphic rock crossing the ridge, similar to that enlivening the summit of Ben Hope, not far away. In the event, *Tofieldia* was one rarity we were unable to refind. However other occupants of base-rich flushes on the flanks of the ridge included just one spike of *Coeloglossum viride* (Frog Orchid), a conspicuous stand of *Eriophorum latifolium* (Broad-leaved Cotton-grass), *Dactylorhiza incarnata* ssp. *incarnata* (Early Marsh-orchid) and *Schoenus nigricans* (Black Bog-rush), the last two 'new' to the tetrad.

Elsewhere, the lower parts of the ridge were generally acid in character, but tiny areas of neutral grassland alongside small burns yielded other 'new' species such as *Botrychium lunaria* (Moonwort) and *Primula vulgaris* (Primrose) and also, in an adjacent mire, *Drosera ×obovata* (a hybrid sundew) and *Carex limosa* (Mud Sedge).

The summit of the Ridge, rising to 414m (1358ft), had the usual hill-top communities in this part of the North-West Highlands, including good stands of *Arctostaphylos alpinus* (Alpine Bearberry), *Diphasiastrum alpinum* (Alpine Clubmoss) and *Salix herbacea* (Dwarf Willow). There was also a tiny amount of *Loiseleuria procumbens* (Trailing Azalea), which would have been 'new' to the tetrad if our GPS had not, irritatingly, informed us that it was 5m over the grid-line! A large fissured erratic on the north side of the summit did, however, yield *Cystopteris fragilis* (Brittle Bladder-fern) and *Polypodium vulgare* (Common Polypody), neither previously recorded.

For those from richer areas, the tally for the day may be of some interest. The target list, from the previous survey, was 106 species. We failed to find 19 of these, but we did record 25 'new' to the tetrad, giving a total of 112.

The next day, having brushed-up our hill and moorland species, we made for a tetrad on the back road from Syre, in Strathnaver, to Kinbrace (NC74A), the major feature of which is the rounded summit of Beinn Rosail, rising to a modest 259m (850 ft). The tetrad straddles the road, which was productive of 'weedy' species, but also a somewhat vaguely defined v.c. boundary between West and East Sutherland, so the two survey parties had to keep a close eye on the terrain and GPS.

The morning was spent north and south of the road in West Sutherland, where there are tiny areas of tall herb vegetation on damp, west-facing crags which appear to have been missed by previous recorders (they did not, perhaps, realise how productive such fragments can be in the wind-swept north). They yielded such predictable, but nevertheless 'new', species as *Alchemilla glabra* (Lady's Mantle), *Holcus mollis* (Creeping Soft-grass) and *Rubus saxatilis* (Stone Bramble) and, less predictably, in a patch of bracken below the crags, *Luzula pilosa* (Hairy Woodrush) and a good stand of *Trientalis europaea* (Chickweed Wintergreen). The crags also provide sufficient shelter for isolated specimens of *Betula pubescens* (Downy Birch), *Populus tremula* (Aspen) and *Sorbus aucuparia* (Rowan), in an otherwise markedly tree-less landscape.

In the afternoon, the two parties shuffled their personnel and divided their attentions between two areas of East Sutherland, on the one hand Palm Loch, Loch Rosail and the burn valley between them, on the other the east side of Beinn Rosail and the imposing north face of Creag Rosail. The loch party picked up the expected aquatics, such as *Equisetum fluviatile* (Water Horsetail), *Isoetes echinospora* (Spring Quillwort) and *Sparganium angustifolium* (Floating Bur-reed).

The hill party were rewarded with the writhing stems of *Lycopodium clavatum* (Stag's-horn Clubmoss) and a small stand of *Gymnocarpium dryopteris* (Oak Fern) on Beinn Rosail and on Creag Rosail, which had probably not been previously visited, a swatch of tall herb species enjoying the shelter from wind and sun. They included several that would be utterly commonplace elsewhere, but were nevertheless 'new' to the tetrad, such as *Dryopteris affinis* (Golden-scaled Male-fern), *Geranium robertianum* (Herb-Robert), Red Campion (*Silene dioica*) and even one (extremely isolated) bush of *Corylus avellana* (Hazel).

The tally for this second day is complicated by the fact that most of the original records had not been assigned to the two vice-counties but we had decided to record them separately. There were 120 target species for the tetrad, of which we recorded respectively 81 and 88 for West and East Sutherland, 100 in aggregate. We failed to find 20 species, but these were offset by 47 'new' to the tetrad, giving a total of 147. The long list of additions is probably in part due to 'local' experience, but also because some previous visits had been later in the year.

The venue for the third and last day of the meeting was a 'lowland' tetrad located at Rhifail (NC74J), in the middle part of Strathnaver. Given the terrain, mainly estate grounds, pasture and riverine woodland, deer-fenced in places, we decided to attack it 'mob-handed'. This strategy and the time available precluded visits to the higher ground in the eastern half of the tetrad, but we seem to have missed few of the target species as a result.

The estate grounds gave us a good start, with a mixture of planted trees and shrubs (exotic in northern Sutherland!), 'weeds', including *Anthriscus sylvestris* (Cow Parsley) 'new' to the tetrad, and probable escapes from former cultivation such as *Pentaglottis sempervirens* (Green Alkanet) and, on a wall, *Sedum telephium* (Orpine). *Poa nemoralis* (Wood Meadow-grass) carpeted the woodland surrounding the house, and proved 'new' to both the tetrad and hectad; it is rare in the far north and may have been introduced.

The riverine woodland, on glacial deposits and alluvium, is dominated by *Betula pubescens* (Downy Birch) and *Alnus glutinosa* (Alder) and the ground flora is relatively species-poor. However, the river banks were very colourful in places, with patches of *Anthyllis vulneraria* (Kidney Vetch), large stands of *Cirsium heterophyllum* (Melancholy Thistle) and, in one place, some very fine spikes of the hybrid orchid *Dactylorhiza ×formosa* and one of its parents, *D. purpurella* (Northern Marsh-orchid).

The lower reaches of a spate burn flowing into the River Naver were an awe-inspiring jumble of glacial boulders bearing a huge stand of *Digitalis purpurea* (Foxglove) in full flower, and a few rosettes of *Saxifraga aizoides* (Yellow Saxifrage), probably washed-down from higher up its course. Boggy areas nearby contained *Carex curta* (White Sedge) and the hybrid sundew *Drosera ×obovata* again with, obligingly, both of its parents.

The last stop of the day was on the east bank of the river, where the chance find of a steep base-flushed meadow added a good handful of species not seen previously, including *Carex dioica* (Dioecious Sedge), *C. hostiana* (Tawny Sedge) and its hybrid with *C. viridula* (Yellow-sedge), *C. ×fulva*, as well as scattered inflorescences of *Platanthera bifolia* (Lesser Butterfly-orchid).

The target list for this tetrad reflected its lowland nature, and, at 207 species, was much longer than those of the other two. We failed to find 32 of these, some of them weeds of arable, which is now almost gone from this part of Strathnaver. However, we did find some 47 species 'new' to the tetrad, giving a total of 222.

We should like to thank our three 'visitors', who worked very hard during the three days; we enjoyed their company and benefited greatly from their experience. The resultant records should give the next generation of 'Local Change' surveyors something to get their teeth into.

PAT & IAN EVANS

MEALL NAN TARMACHAN & BEN LAWERS, MID-PERTH (v.c. 88) 5th – 6th July (Joint with PSNS and BSS)

MEALL NAN TARMACHAN 5th July

This trip was unusual in that it was part of a project initiated by David Pearman, (BSBI Project Manager) to accurately record the upper and lower altitudinal ranges of plants using GPS. Originally it was intended to head straight for the summit, split into groups of 5 or 6 people and then work our way downward surveying as much ground as possible. However, on the day, the weather dictated otherwise as low cloud obscured most of the higher cliffs which we hoped to survey. Most of the participants were unknown to us and so we were unsure of their abilities. As there was to be a similar trip to Ben Lawers the next day we decided to make the first day a trial if the cloud cover was low and to see how people coped with the rough terrain. It was as well we did as one elderly lady dropped out after a 500m walk on rough ground at low elevation. As the clouds were low, instead of heading for the summit we searched the Creag an Lochan cliffs which are known to be very rich in alpines. We crossed the dam and headed a short way up the hill and immediately found a large boulder festooned with *Saxifraga nivalis* (Arctic Saxifrage) and as we headed northwards more and more alpines were found. Mainly high up out of the reach of (previous) marauding sheep and goats were swathes of *Trollius europaeus* (Globeflower), *Sedum rosea* (Roseroot), *Geranium sylvaticum* (Wood Crane's-bill), *Vicia sylvatica* (Wood Vetch) and other tall herbs. The latter plant we probably would not have seen if we had gone higher up. About half way along these cliffs we again found an interesting boulder, but this time because of a lovely tuft of *Woodsia alpina* (Alpine Woodsia) on it. All of this area is enclosed in electric fencing to exclude grazing animals and the dramatic effect of this has been to allow the spread of species from the cliffs above so that they can prosper on the flatter ground where they are no longer eaten. The rarer species included *Poa glauca* (Glaucous Meadow-grass) (1 plant), *Pseudorchis albida* (Small-white Orchid), *Pyrola minor* (Common Wintergreen), *Carex atrata* (Black Alpine-sedge) and *C. capillaris* (Hair Sedge) (locally frequent).

Clive Dixon and Lesley Tucker, experienced fell-runners, had forsaken our group and headed for the summit where they were fortunate to find *Minuartia rubella* (Mountain Sandwort) and lots of other alpine goodies. Clive brought back, with permission, a specimen of *Festuca rubra* ssp. *arctica* from high up near the summit. The total number of species for the day was 151. On the recce, a week previous to this, we visited the rocks of Cam Creag which were quite magnificent with all sorts of alpine treasures, such as *Veronica fruticans* (Rock Speedwell) in plenty, *Salix reticulata* (Netted Willow) occasional, *Woodsia alpina*, *Saxifraga nivalis*, *Poa alpina* (Alpine Meadow-grass), *Botrychium lunaria* (Moonwort), *Coeloglossum viride* (Frog Orchid) in plenty, *Dryas octopetala* (Mountain Avens) and best of all, a single plant of *Myosotis alpestris* (Alpine Forget-me-not) (only 2

recent dots in Scotland in the *New Atlas*) which I had only previously seen on Ben Lawers. Most of the participants were BSBI members from south of the border, some from as far afield as Surrey, Manchester and S. Wales. The Meeting coincided with the end of a weeks botanising at the Kindrogan Field Centre and some people had stayed over from it. Although we had 23 people including SNH staff and several 'old hands' as stewards we managed pretty well but I would not like to repeat the exercise with so many people. I believe everyone enjoyed the experience. I would like to especially thank Jim McIntosh, SNH & BSBI; the warden, David Mardon and his staff for helping in the planning and running of these visits. Without them we would have had a much less successful meeting and safety may have been compromised.

DOUGLAS MCKEAN

BEN LAWERS, 6th July

This meeting followed on from Saturday's very enjoyable joint BSBI/BSS meeting on Meall nan Tarmachan, and after a pleasant evening spent eating, drinking and socialising with fellow BSBI members in the Falls of Dochart Hotel, Killin. The purpose of the field meeting was to record highest altitude and GPS locations of species on a list of some 120 species previously recorded as having their highest locations in the Ben Lawers area in order to help David Pearman revise his booklet entitled *Altitudinal Limits of British & Irish Vascular Plants BSBI* (BSBI, 2003).

The morning dawned grey, cold and with mist well down the mountain tops – disappointing, as we really needed good weather for the survey. Ben Lawers, at 1214 metres, is the 10th highest mountain in the British Isles and to spend any significant time botanising at, or near, its summit would require good weather. The plan was for the group of 24 members plus leaders to go directly to the summit, split up into three sub-groups and then record as we walked down different routes on different faces of the mountain. As the cloud appeared to be lifting, we set off hoping that by the time we reached the summit, it would be clear. On the ascent, a group decided not to attempt the peak and instead headed off to sample the botanical delights of the famous southwest crags. Those who continued were lucky; the summit did clear and the views were spectacular and panoramic. Unfortunately, the wind strengthened and the windchill factor made botanising rather difficult. Undaunted the teams set to work and several notable records were made including *Draba norvegica* (Rock Whitlowgrass) at 1212 m (previous altitudinal record 1160m), *Campanula rotundifolia* (Harebell) 1209m (1160m), *Saussurea alpina* (Alpine Saw-wort) 1207m (1170m) and *Cystopteris fragilis* (Brittle Bladder-fern) 1192m (1175m). However, the biggest increase in altitudinal record was that for *Polystichum aculeatum* (Hard Shield-fern) by the group lead by David Pearman found at 1023m (760m). It was also good to confirm altitudinal records for other species such as *Galium saxatile* (Heath Bedstraw), *Achillea millefolium* (Yarrow), and *Saxifraga oppositifolia* (Purple Saxifrage) all at 1211m (all previously recorded as 1210m). The highest plants on the mountain, and probably altitude records in the British Isles, were *Cerastium alpinum* (Alpine Mouse-ear) and *Poa annua* (Annual Meadow-grass) on the concrete plinth of the summit trig point at 1214m! Full details will be published in the revised *Altitudinal Limits of British & Irish Vascular Plants*, BSBI.

I am very grateful to David Mardon, the Ben Lawers National Trust for Scotland Senior Ranger for his help in arranging this field meeting, and to his colleagues, Helen Cole, Andrew Warwick and Harry Lobnitz, for helping to lead the various sub-groups. Thanks also to Douglas McKean, David Pearman and Richard Thomas for their help in organising the day.

JIM MCINTOSH

BANGOR, CAERNS. (v.c. 49), 19th July (*Rubus* Meeting)

The meeting began with a steep ascent towards the wooded hillside at Garth where the aggressive colonist of disturbed ground *Rubus tuberculatus* was viewed along a pathway. On entering the woods we soon found several specialities of the North Wales region including *R. griffithianus* and *R. incurvatus* together with the three members of Series Vestiti, *R. bartonii* (in great abundance), *R. lanaticaulis*

and *R. ordovicum*. Members of the party were shown how to distinguish two widespread species of Series Hystrices, *R. dasyphyllus* and *R. hylocharis*, when growing together in a woodland setting. Within the woodland, plants resembling *R. sciocharis* were also seen (confirmation required).

In more open situations towards the summit we looked at two characteristic thermophilous species of the North Wales coast *R. cardiophyllus* and *R. ulmifolius*. After admiring the view of the Menai Strait, *R. effrenatus* was seen along the woodland edge close to the summit, before descending a woodland path to see fine bushes of *R. wirralensis* just above the coast road.

After lunch the party headed inland towards Llyn Padarn. At a triangle of roads near Cae-cerrig (SH571643) additional species included two further members of Series Hystrices, *R. semiglaber* and *R. segontii*. Approaching the hills fine plants of *R. infestus* were seen on the banks of the road leading east of Pen-y-goiwg T junction (SH574635). Here also western elements of the *Rubus* flora were apparent with an abundance of a bramble considered to be within the range of variation *R. prolongatus* growing in association with plants resembling *R. dumnoniensis*.

The meeting was to conclude at Pen-y-llyn (SH5562). Further Padarn elements here included *R. longithyrsiger*, *R. lentiginosus*, *R. riparius* together with two widespread species not seen earlier in the day *R. echinatoides* and *R. lindleianus*. A final plus for the meeting was the discovery by Afon Rhythallt of a member of subsection *Rubus* considered to be the western species *R. briggsianus*, a fitting conclusion to a most rewarding day.

A series of specimens has been gathered for Manchester Museum. An update for the species requiring confirmation will appear in a further edition of *BSBI News* in due course.

DAVE EARL

NORFOLK BROADS (v.c. 27) 2nd–3rd August

Ten members met at Catfield Church on a warm sunny morning. Led by the warden and his family we moved on to the entrance to Catfield Great Fen, a Norfolk Wildlife Trust reserve. We divided into two groups; one party spent the morning on the fen while the other joined the warden to explore Barton Broad by boat. In the afternoon, the roles were reversed. Catfield Fen is a fine example of Norfolk *Cladium mariscus* fen. While a Marsh Harrier entertained us in the skies, many of the plants particular to the area were seen including *Potamogeton coloratus* (Fen Pondweed), *Utricularia vulgaris* and *U. intermedia* (Bladderworts), *Osmunda regalis* (Royal Fern) and, of course *Peucedanum palustre* (Milk-parsley) upon which we saw several caterpillars of the Swallowtail butterfly. Brown Hawker dragonflies patrolled the dykes in which *Cicuta virosa* (Cowbane) and *Sium latifolium* (Greater Water-parsnip) were observed.

From the boat on Barton Broad, we saw *Acorus calamus* (Sweet Flag) and *Sonchus palustris* (Marsh Sow-thistle). We visited an experimental area where fish were excluded, to encourage the zooplankton, and within this zone there was a large colony of *Ranunculus circinatus* (Fan-leaved Water-crowfoot) not seen elsewhere on the broad. At one end of the broad, we alighted at an island known as 'The Heater' because its triangular shape is reminiscent of the stones used to heat old smoothing irons. The island supports a large colony of *Dryopteris cristatus* (Crested Buckler-fern) and we also noted *Thelypteris palustris* (Marsh Fern) and *Impatiens capensis* (Orange Balsam). Many thanks go to the warden, George Taylor, for acting as boatman and guide. To round off the day, we paid a late-afternoon visit to nearby Hickling Broad. Here we saw *Najas marina* (Holly-leaved Naiad) washed up among the flotsam beside a jetty. Other plants were noted including *Oenanthe lachenalii* (Parsley Water-dropwort) and *Baldellia ranunculoides* (Lesser Water-plantain) and we were somewhat surprised to see an inland colony of *Juncus maritimus* (Sea Rush).

On the Sunday we met at the car park of Upton Fen reserve and the weather was even warmer than on the previous day. In the morning, we walked around the fen admiring a wide variety of sedges, including abundant *Carex appropinquata* (Fibrous Tussock-sedge). In one of the dykes we noted *Potamogeton friesii* (Flat-stalked Pondweed), which is fairly common in the region, and in the open fen we saw *Pedicularis palustris* (Marsh Lousewort) and a few fruiting spikes of *Liparis loeselii* (Fen Orchid). In the afternoon, we moved on to the far side of the reserve where the Wildlife Trust has

acquired an area of arable land, which is being restored to grazing marsh. Adjacent to this are some long-established marshes where the dykes support vegetation typical of ditches in the area including *Stratiotes aloides* (Water-soldier) and *Hydrocharis morsus-ranae* (Frogbit). In one of the dykes, we were particularly pleased to see a small colony of *Potamogeton compressus* (Grass-wrack Pondweed), where it has been known for many years.

My thanks to all who attended and I hope they all enjoyed the days as much as I did.

BOB ELLIS

CONNEL BRIDGE, ARGYLLSHIRE (v.c. 98) 2nd & 3rd August

The aim of this meeting was to assist me with the inordinate number of tetrads in Main Argyll that need visiting as part of the Local Change project and Connel Bridge was chosen as a reasonable centre to get to some of the west-most tetrads. In the event, it was a good choice as the newly refurbished inn by the Bridge, The Ferryman, proved very welcoming. I was somewhat surprised but very pleased to have over 20 participants, even though this overloaded the Lismore transport system somewhat, requiring two trips for both the ferry and the minibus. My thanks to all who helped out, particularly for the resilience and good humour on display on the damp Sunday.

The limestone island of Lismore was the venue for the Saturday and all of the party opted to bash the one Local Change tetrad on the island, centred on Kilcheran Loch, a rich area for Argyll. The team split up into three groups to cover the loch, woodland, limestone grassland and coast which make up this part of the island. The best find of the day was just a few metres outside of the tetrad (a GPS is tiresomely exact) with *Lithospermum officinale* (Common Gromwell), a very rare plant in Argyll and here looking happily native amongst limestone blocks below a small crag. Other species of note were *Potentilla neumanniana* (Spring Cinquefoil), known from elsewhere on the island but not recorded before from this tetrad, *Potamogeton coloratus* (Fen Pondweed) and *Carex diandra* (Lesser Tussock-sedge). One disappointment was not being able to re-find the site for *Melampyrum sylvaticum* (Small Cow-wheat) in this tetrad, but overall there was a net increase in species recorded. We were dependant on the community minibus to get us back to the ferry and, as always, it was a pleasing sight for the leader to see the various parties appear over the skyline at the appointed time.

The two tetrads on offer for the Sunday were one on Ben Cruachan, which Jim McIntosh had offered to lead, with steep ground up onto the easterly ridge over 900m but on rather acid granite, and one in Glenstrae with the vague possibility of more base-rich ground but essentially rather dull. The weather was pretty grim all day. Up in Glenstrae, the common species of wet heath, acid grassland and river gravels were gradually ticked off to give a dull but worthy list enlivened by a small ravine which had a few plants of *Viburnum opulus* (Guelder-rose) as well as *Saxifraga aizoides* (Yellow Saxifrage), and flushes with *Eriophorum latifolium* (Broad-leaved Cotton-grass). We were not tempted up onto the higher ground to the south where more calcareous rocks outcrop. The mires on the flat river terraces had a lot of *Rhynchospora alba* (White Beak-sedge) and a scattering of *Carex pauciflora* (Few-flowered Sedge) and old farm buildings produced the usual crop of weeds.

Up on Cruachan, things had gone fairly slowly on the steep ground in the cloud but many of the plants recorded in 1988 were refound including *Juncus triglumis* (Three-flowered Rush), *Silene acaulis* (Moss Campion) *Sibbaldia procumbens* (Sibbaldia) and *Gnaphalium supinum* (Dwarf Cudweed). The extent of wet heathy ground over rather uncompromising granite was reflected in the generally poor list both on this occasion and on the day I spent there in 1988. The descent proved as arduous as the ascent and I had a few anxious moments, after getting down in good time from Glenstrae, peering up into the cloud and down at my watch in turn, until bodies began to appear.

GORDON ROTHERO

SPEAN BRIDGE, WESTERNESS (v.cc. 96 & 97) 16–17th August

Eleven botanists from diverse parts of Britain assembled in Spean Bridge to enjoy a sunny weekend of recording for the Local Change scheme, in two of our largest vice-counties, Westerness and Easterness.

On Saturday we divided into three groups and headed north to explore three tetrads in NN19 lying between Loch Arkaig and Glen Garry. The least promising J tetrad in the western part of Glen Garry proved to be more interesting than expected, with many species added to the previous list. Notable finds included a new hectad record for *Arctostaphylos alpinus* (Alpine Bearberry) [see Colour Section p. 1], growing alongside *A. uva-ursi* (Bearberry), and an abundance of flowering *Carex pauciflora* (Few-flowered Sedge). I suspect this last species had an unusually good flowering year, I certainly saw a lot of this rather shy sedge in 2003.

The second party drove west along the narrow, twisty road on the north shore of Loch Arkaig to the new Butterfly Conservation reserve, Allt Mhuic, which is managed in conjunction with Forest Enterprise, and which overlaps the A tetrad. It was too late in the season to see its specialities (Chequered Skipper and Pearl-bordered Fritillary) but there were plenty of Scotch Argus on the wing. The reserve has patches of typical oak-birch woodland and wet heath, but basalt dykes enrich the flora with species such as *Galium odoratum* (Woodruff) present, and a respectable list was compiled. On the loch's shingle shore *Silene uniflora* (Sea Campion) was abundant – a species more familiar on the coast.

The third group headed up Glen Cia-aig, past the fine waterfall at the eastern end of Loch Arkaig. Despite the bright sunshine the midges were ferocious, with the added joy of deer keds (no fun with a beard!). However the tetrad was very rewarding botanically, with basic rock outcrops over a wide altitudinal range. On flushed slopes *Parnassia palustris* (Grass of Parnassus) was coming into flower, with *Thalictrum alpinum* (Alpine Meadow-rue) and the confusingly tall form of *Carex viridula* ssp. *oedocarpa* (Common Yellow-sedge). At higher altitude, scree and crags on Meall an Tagraidh and Meall Odhar had *Sibbaldia procumbens* (Sibbaldia), *Salix lapponum* (Downy Willow), *Juncus triglumis* (Three-flowered Rush) and *Cryptogramma crispa* (Parsley Fern). These four were new hectad records, as were finds of *Equisetum hyemale* (Rough Horsetail) and *Viburnum opulus*.

On Sunday we travelled east to Laggan and up the Spey to Glen Shero (v.c. 96), round the 'back' of Creag Meagaidh. Again we divided to tackle three tetrads, this time in grid square NN49. In Coire an t-Slugain (tetrad W) notable finds included *Alopecurus borealis* (Alpine Foxtail), *Salix lapponum* (Downy Willow) and *Saussurea alpina* (Alpine Saw-wort). Further north in tetrad J the crags, scree slopes and flushes of Corrie Yairack had plenty of interesting ferns, willows and other mountain plants, such as a large stand of *Dryopteris expansa* (Northern Buckler-fern), as well as *D. oreades* (Mountain Buckler-fern), *Tofieldia pusilla* (Scottish Asphodel), *Salix phylicifolia* (Tea-leaved Willow) and more *S. lapponum*.

I headed south west with the remaining party, past Loch Spey and back over the watershed into v.c. 97. Much of the target tetrad (NN49A), straddling the upper reaches of the River Roy, is eroded blanket bog and was botanically dull. Although we failed to refind *Betula nana* (Dwarf Birch) there were pockets of interest. On Sron Nead we found *Arctostaphylos alpinus* (Alpine Bearberry), *Coeloglossum viride* (Frog Orchid), *Gentianella campestris* (Field Gentian) and *Loiseleuria procumbens* (Trailing Azalea), with *Epilobium anagallidifolium* (Alpine Willowherb), *Saxifraga hypnoides* (Mossy Saxifrage) and the usual puzzling willows on stream banks. I couldn't resist the opportunity for a visit to Loch Roy, at the head of the river, in its splendid setting – a fine end to a successful and productive meeting.

IAN STRACHAN

PORT MEADOW, OXFORDSHIRE (v. c. 23) 23rd–24th August

Once again Oxford botanists and BSBI members have been working together. Blazing sun met the botanists out on this northern version of the Carmargue, so we were glad when the gazebos went up. We could shelter while concentrating on the differences between tricky species pairs (and hybrids) of

which there seem to be a large number on this ancient grassland. We benefited greatly from the experts – we didn't know we had *Persicaria lapathifolia* (Pale Persicaria) there and would not have recognised *Carex nigra* (Common Sedge) from a few leaves. A small party searched for *Limosella aquatica* (Mudwort), but unfortunately it could not be found. *Apium repens* (Creeping Marshwort) was admired, it was flowering better than at any time in the last ten years. Assisted by comfortable kneelers, Susan Erskine's home-made lemonade and by working in pairs, a magnificent 120 one metre square presence/absence quadrats were completed. This substantial data-set should enable David Gowing to model the association between vegetation type, the behaviour of the water table, and crucially, the distribution of *Apium repens*.

On behalf of the Rare Plants Group of the Ashmolean N.H.S. of Oxfordshire, thank you for helping!

CAMILLA LAMBRICK

BURTON UPON TRENT & TUTBURY, STAFFS. (v.c. 39) 23-24th August

Good botanising weather, a wide range of habitats, and a large and congenial group of highly competent members from across the kingdom made for a very enjoyable weekend in an area unfamiliar to most of the participants.

After lunch we explored the Fauld area, on the edge of Needwood Forest above the Dove valley. Gypsum, including alabaster, has been mined and quarried here for centuries, and much of the woodland is on former workings. Professor Donald Pigott had made the journey from the Lake District to examine some lime-trees which it was hoped might be *Tilia platyphyllos* (Large-leaved Lime), and two professional tree climbers, Messrs R. and R. Peach, had also kindly attended to facilitate this process, but despite the best efforts of all concerned only *Tilia ×europaea* (Common Lime) could be found. However, members enjoyed Prof. Pigott's learned and entertaining exposition of the characteristics of the different clones of this hybrid, the Fauld trees being probably referable to cv. 'Kaiserlinde'. An *Epipactis,* most of it past flowering, was frequent in dense shade; it was provisionally determined as atypical *E. helleborine* (Broad-leaved Helleborine).

The working mine of British Gypsum, nearby, has produced large mounds of spoil with a characteristic flora including *Carlina vulgaris* (Carline Thistle) and the handsome magenta form of *Polygala vulgaris* (Common Milkwort), both uncommon in Staffs., plus enormous quantities of *Erigeron acer* (Blue Fleabane), formerly scarce in the west midlands but now showing a significant increase. Some of the best examples of this habitat have recently been covered in new spoil, but doubtless this too will become interesting in time.

Saturday began at Tutbury Castle, owned by the Duchy of Lancaster and privately managed as an historical attraction. The Curator, Mrs Lesley Smith, welcomed us to the Castle. She has a gratifying interest in the flora of the site and had generously waived our entrance fee. Botanical records for Tutbury go back to the eighteenth century; many are for plants which probably derive from an early herb-garden. *Sambucus ebulus* (Dwarf Elder) has frequently been seen here and survives, though in very small quantity (there is a better patch in the nearby churchyard). In contrast, *Clinopodium ascendens* (Common Calamint), first recorded by Robert Gamer in 1844, was only rediscovered in 2001; this is its only extant Staffordshire site. The Castle's stockman kept Mrs Smith's prize bulls at bay so that we could view a large colony which has doubtless been present all the time. *Rosa ×nitidula*, a hybrid between *R. canina* (Dog-rose) and *R. rubiginosa* (Sweet-briar) may be a later introduction; it advertised itself by its scent while its other features were demonstrated by John Hawksford. The wall flora of the site has been impoverished by spraying, but thanks to Mrs Smith a more restrained regime now prevails, and species such as *Catapodium rigidum* (Fern-grass) and *Asplenium adiantum-nigrum* (Black Spleenwort) are returning. More ferns were admired in the Castle's famous well, 150ft deep and lined as far down as we could see by *Phyllitis scolopendrium* (Hart's-tongue).

The afternoon ended with a visit to the spectacular Fauld Crater, the site of an explosion (1944) in former mine workings used as a munitions store. The resulting hole is some 300 feet deep and about a third of a mile across. Exposed subsoil has been slow to regenerate and some bare patches are still visible, but most of the area in and around the crater has now been colonised by a restricted number of species including much *Brachypodium sylvaticum* (False Brome) and *Carex flacca* (Glaucous Sedge), with pioneer trees of *Larix* (Larch), *Salix* (Willow) and *Betula* (Birch) species. The remains of the large colony of *Dactylorhiza fuchsii* (Common Spotted-orchid) were seen. Most of the party then adjourned to the nearby Cock Inn, rebuilt after the explosion; from the dining-room we had a splendid view to the Peak District in the evening sun. Our first visit on Sunday was to industrial Burton. Famous for beer, the town was once also famous to botanists for the alien plants introduced with grain and timber to its breweries, wood-yards and railway lines. Many of these were merely casual; others became established, but have mostly disappeared following reorganisation of the industry and its transport system. We saw survivors such as *Reseda lutea* (Wild Mignonette) and *Saponaria officinalis* (Soapwort). *Centaurea scabiosa* (Greater Knapweed), known at Burton only as a long-established introduction, grew beside a more recent arrival, *Conyza sumatrensis* (Guernsey Fleabane), first recorded here in 2000.

In the River Trent the presence of *Sagittaria sagittifolia* (Arrowhead) and *Schoenoplectus lacustris* (Common Club-rush) confirmed that this is a very different watercourse from the industrial waste-pipe of forty years ago. Much of the valley floor at Burton consists of wash land, flooded in wet seasons (a few years ago the town centre almost had to be evacuated). Traditionally used for grazing, this land is gradually being converted to various 'amenity' uses. In one such area, *Carex acuta* (Slender Tufted-sedge), scarce in Staffs., is found both in its typical wet-meadow form and as a robust clump 2m across, with tall sterns drooping in fruit and partial infertility; this looks like a hybrid, but the majority of expert opinion is against it. The habitat was so dry that this plant, usually conspicuous, had almost disappeared in a rank growth of weedy species such as *Lactuca serriola* (Prickly Lettuce). Nearby is perhaps the only extant British locality for *Polygonum cognatum* (Indian Knotgrass). This perennial alien was known at Burton in the 1940s, and rediscovered in its present site in 2000. The single patch was flowering splendidly in mid-August, but by the time of our visit it had been mown to within an inch of its life. Fortunately enough remained, in a small hollow, for members to see and photograph.

Next we paid a brief visit to a garden 'somewhere in Burton' where another local speciality, *Malva parviflora* (Least Mallow), has been known as a weed since 1970; it was accompanied by *Mercurialis annua* (Annual Mercury), which is frequent around Burton but otherwise apparently absent from Staffordshire. That the Mallow was in such good form, showing both flowers and fruit, may be due to regular watering by the gardener in preparation for our visit.

At Branston, south-west of the town, exploitation of the Trent gravels on a large scale began about 50 years ago. We walked across grassland on former workings backfilled with fly-ash to a narrow riverside strip which had escaped disturbance and supports an unusual association of *Sanguisorba officinalis* (Great Burnet) and *S. minor* ssp. *minor* (Salad Burnet). The latter, not seen on this visit but there in 2002, is rare in Staffs. off the limestone. However, the main interest of this site is the presence of a number of ponds, some old and some of more recent date, in an area affected by saline groundwater. The Branston salt springs were described in Plot's *Natural History of Staffordshire* (1686), and in the course of a detailed survey in 1889 J.E. Nowers and J.G. Wells recorded six salt-tolerant species. Their published account enabled three of these to be rediscovered in 2001 and seen on this visit: *Juncus gerardii* (Saltmarsh Rush), *Rumex maritimus* (Golden Dock) and *Schoenoplectus tabernaemontani* (Grey Club-rush). The ponds, most of which are unusually free of shade, gave us other good aquatic species including *Veronica catenata* (Pink Water-speedwell) and *Typha angustifolia* (Lesser Bulrush), the latter exactly where noted by E.S. Edees in 1956.

A more recent gravel-pit not far away, with shallow water and seasonally-inundated sandy margins, is well-known for its population of *Ophrys apifera* (Bee Orchid), several plants of which were seen in fruit, and is unusual in this area known for its acidophilous mosses and lichens *(Polytrichum & Cladonia* spp.). The opportunity was taken to record all vascular plants seen; the total of 82 taxa was not bad for a rapid tour late in a dry season, and included *Juncus* ×*diffusus* (a rush hybrid), new to v.c. 39.

Finally, and in contrast, we visited a relic of unimproved Keuper Marl grassland at Battlestead Hill. This site too was very dried out, and its special plant *Ranunculus parviflorus* (Small-flowered Buttercup) eluded us both here and on the adjacent motorcycle scramble course. However, *Dipsacus pilosus* (Small Teasel) was seen on a wood margin where it has been known for nearly fifty years.

The leaders would like to thank all participants for their expertise and co-operation. We are also most grateful to the many landowners who kindly gave permission to visit their property, and to their courteous and helpful staff.

Mike Smith & Ailsa Burns

ST DAVID'S AIRFIELD HEATHS, PEMBROKESHIRE (v.c. 45) 31st August

A small group gathered at the leader's rented farmhouse near Whitchurch and poked around the scruffy corners of the yard as a preamble to the main event. On offer here were *Malva neglecta* (Dwarf Mallow) and *Iris foetidissima* (Stinking Iris) in the horse paddock, *Ranunculus sceleratus* (Celery-leaved Buttercup) and *Medicago arabica* (Spotted Medick) by the silage lagoon, and *Torilis nodosa* (Knotted Hedge-parsley) and a profusion of *Oenothera cambrica* (Small-flowered Evening-primrose) around the buildings. We drove on to the western end of St David's Airfield Heaths, a SSSI and cSAC where National Trust, Pembrokeshire Coast National Park Authority and Countryside Council for Wales are working in partnership to deliver conservation management. The reintroduction of summer grazing by Welsh Mountain ponies and Welsh Black cattle and some recent work with a cut-and-collect flail mower and tracked excavator are already paying dividends. The group looked at the *Ranunculus trichophyllus* (Thread-leaved Water-crowfoot), *Ranunculus hederaceus* (Ivy-leaved Water-crowfoot) and fruiting *Ranunculus tripartitus* (Three-lobed Water-crowfoot) which have already appeared in a pool dug in June this year. A leaf mine on the *tripartitus* may have been interesting, but nobody was in the mood for homework! Shallow seasonal pools elsewhere held *Rorippa palustris* (Marsh Yellow-cress) and both *Isolepis cernua* (Slender Club-rush) and *I. setacea* (Bristle Club-rush), but we were too late for the *Cicendia filiformis* (Yellow Centaury) which grows well here. The 'damp' heath on Waun Vachelich had some fine spikes of *Platanthera bifolia* (Lesser Butterfly-orchid) and a few leaves of *Viola lactea* (Pale Dog-violet). *Hypericum undulatum* (Wavy St John's-wort) was flowering in the wetter moor-grass pasture, and *Carex lasiocarpa* (Slender Sedge) and *C. diandra* (Lesser Tussock-sedge) fruiting in a small area of high quality basin mire on Waun Llandruidion. However, in true BSBI-style, we paid more attention to the areas of grassland disturbed recently by a cable-removing operation. These held a number of 'arable' weeds including *Kickxia elatine* (Sharp-leaved Fluellen), *Stachys arvensis* (Field Woundwort) and *Fallopia convolvulus* (Black Bindweed), together with a strangely fasciated plant of *Hypochaeris radicata* (Cat's-ear) with globose 'pom-pom' like flowers up to 35mm diameter*. The leader then left to resume house-moving operations, whilst a few members headed for St David's tip to continue the search for the strange and out-of-place!

(*shown at the Annual Exhibition)

MATT SUTTON

CWM CLYDACH AND CRAIG Y CILAU, BRECON (v.c. 42) at Welsh AGM 5th–8th September

The first excursion, on Sept. 6th was to the old railway line at Cwm Clydach. Rosettes of the newly discovered population of the English and Welsh endemic *Hieracium cyathis* (Chalice Hawkweed) were shown growing next to rosettes of another hawkweed, *H. glevense*, and the genetic and conservation work being carried out on it with Lola Lledo of the National Botanic Garden of Wales was outlined. Trees of *Sorbus anglica* (English Whitebeam) and an un-named member of the *S. porrigentiformis* group were then demonstrated growing on the cliffs and rocks above the railway, with emphasis on selecting the right leaves from sunlit positions on the lateral rosettes for identification. Fortunately some fruits were also present on the *S. porrigentiformis*, in what was an otherwise very poor fruiting year. *Gentianella amarella* (Autumn Gentian) was also noted on the old track.

On the morning of Sunday, Sept. 7th the party met at the east end of Craig y Cilau, first investigating the old quarry cliffs of Darren Cilau. Here rosettes of the two special endemics restricted to this site, *Hieracium asteridiophyllum* (Llangattock Hawkweed) and *H. cillense* (Craig y Cilau Hawkweed) were shown, with more Chalice Hawkweed (Tim Rich was amazed at the interest taken in the hawkweeds and found it difficult to move the party on!). The three obvious trees of *Sorbus minima* (Least Whitebeam) in hectad SO21 not recorded in the *New Atlas* were then shown and all agreed that it was surprising nobody had recorded them before; one tree even had two inflorescences, a long way out of season! The party finally proceeded to Craig y Cilau NNR, where *S. rupicola* (Rock Whitebeam), two forms of *S. porrigentiformis*, *S. leptophylla* (Narrow-leaved Whitebeam) and more *S. minima* and *S. anglica* were demonstrated and discussed. The Least Whitebeam was turning to its yellowish-light brown colour to perfection; 744 trees are now known on these rocks, about double the 1975 estimates. In the later afternoon, 14 of the party made their way to Merthyr Tydfil to see *S. leyana* (Ley's Whitebeam) and the backcross with *S. aucuparia* (Rowan) that Graham Motley had discovered a few years ago. More Chalice Hawkweed was shown, with *Carex montana* (Soft-leaved Sedge).

TREVOR EVANS

KENSINGTON GARDENS (v.c. 21), 6th September

Eight people gathered at Lancaster Gate underground station for a new members' meeting to examine the flora of Kensington Gardens in the morning and visit the Department of Botany of The Natural History Museum in the afternoon.

Unfortunately the exceptionally hot and long summer had discouraged plant growth, and there were no accessible disturbed areas where interesting casuals might have become established. Just inside the Gardens a crucifer with large yellow flowers was noticed at the edge of the lawn. Various floras were consulted, but no satisfactory identification was achieved, and when the leader returned a week later to gather material for critical examination the plant had vanished. Along the western edge of the Long Water *Amaranthus retroflexus* (Common Amaranth) — presumably grown from bird seed — and two species of *Conyza* (Fleabane) were observed beside the path, and *Verbena bonariensis* (Argentinian Vervain) appeared to be well established in a small grassy area behind the fence. A detour was made to examine a *Rumex* (Dock) plant which produced vivid green leaves in the midst of dried out grass, but as little more than basal leaves were present we simply admired the plant's tenacity and only half-heartedly attempted to identify it. Other plants which attracted attention included *Sonchus arvensis* (Perennial Sow-thistle) and *Bryonia dioica.* (White Bryony).

Although comparatively few plants were seen, as one participant put it 'we had time to enjoy each one.'

Rain threatened as we ate our lunches before we moved on to The Natural History Museum, where our leader introduced us to the herbaria.

ROY VICKERY

BRAUNTON BURROWS, N. DEVON (v.c. 4) & SEDGEMOOR, S. SOMERSET (v.c. 5) 13th-14th Sept. Willows & their Parasites (joint with British Plant Gall Society. Originally listed for Minehead & Bridgewater)

On Saturday, 13th September, twelve people met at the Braunton Dunes car park, North Devon, on a perfect morning. Those who had come to investigate galls followed a slow course into the dune slacks as considerable time is required to find and identify the various galls. The willow enthusiasts, led by Mr Desmond Meikle, the leading authority on the genus *Salix*, were pleased to discover a variety of willows beginning at the dune boundary with a row of *Salix viminalis* (Osier) and *S. cinerea* ssp. *oleifolia* (Rusty Willow).

Further into the dunes proper, large areas of *S. repens* (Creeping Willow) were spreading over the sand. Other willows identified included *S. caprea* × *S. cinerea* (*Salix* ×*reichardtii*), *S. cinerea* × *S. viminalis* (*S.* ×*smithiana*), *S. aurita* × *S. cinerea* (*S.* ×*multinervis*), and only one example of *S. caprea*. In the hot afternoon sun a fairly large expanse of grassy terrain was covered and at one point surveying from a raised hummock, our attention was drawn to a group of small trees that included a specimen of what seemed to be a silvery-leaved willow. Closer examination of the clump was very pleasing because as we drew near we could see a willow that we had not found previously. This proved to be an unusual hybrid which has not been recorded in Devon, *S. repens* × *S. viminalis* (*S.* ×*friesiana*). The exact position was mapped using a GPS set which is very useful considering the great difficulty in re-finding specimens in miles of featureless dune habitat. A further example of *S.* × *friesiana* was found a short distance away. There are very few records of *S.* ×*friesiana* in the British Isles apart from one from Southport dunes and one from Cumbria. As well as being a new record for Devon this is a new record for the South of England. The sun-reflecting willow that had drawn our attention to the spot was then identified as *S. alba* var. *vitellina* (Golden Willow). The willow group then met up with those who had been looking for galls. The combined party picnicked in the sunshine and were given a number of specimens of willows brought by Mr Meikle. These were identified and discussion followed which all present found helpful. The party left Braunton and travelled back to Somerset stopping on the top of Exmoor at Goat Hill bridge near Pinkworthy. Here specimens of pure *S. aurita* (Eared Willow) by the road were examined together with hybrids between *S. aurita* and *S. cinerea*. In addition, whilst walking up the track towards Pinkworthy Pond, some examples of the locally-rare hybrid thistle *Cirsium* ×*celakovskianum*, were observed. These were growing with both parents, *C. arvense* and *C. palustre* (Creeping and Marsh Thistles). The day ended with a number of the party meeting up for a very convivial evening and good dinner at the Rest and Be Thankful Inn in Wheddon Cross. The heat of the day required fluid levels to be restored and this was duly accomplished without much difficulty.

The following day the party assembled at a lay-by near Lyng on Sedgemoor in which unlikely situation a surprising number of willow species were collected. These included *Salix alba* (White Willow), *S. alba* var. *caerulea*, *S. alba* var. *vitellina*, *S. fragilis* var. *russelliana*, *S. alba* var. *vitellina* × *S. fragilis* (*S.* ×*rubens* nothovar. *basfordiana*), *S. viminalis*, *S. triandra* (Almond Willow) and *S. cinerea* ssp. *cinerea* (Grey Sallow). The next stop was at Beer Bridge where a circular walk down one rhyne and returning along another provided interesting willows as well as one or two surprises. More *S. cinerea* ssp *cinerea* was identified as well as *S. cinerea* ssp. *oleifolia*. The former has very few Somerset records and the number of these was increased considerably during the day.

A quantity of hybrids between *S. cinerea* ssp. *cinerea* and *S. cinerea* ssp. *oleifolia* was noted and some time was spent observing the wide range of variations. Other willows found included *S. triandra*, *S. alba*, *S. fragilis* var. *russelliana*, *S. alba* × *S. fragilis*, and *S. cinerea* × *S. viminalis* (*S.* ×*smithiana*).

The surprise discovery was unconnected with willows. Along the track it was observed that a late-flowering thistle showed unusual characteristics and it was once again determined to be the hybrid between *Cirsium arvense* and *C. palustre* (*C.* ×*celakovskianum*). Further along the track a field of rushes tempted the botanists into a diversion and another hybrid (rare in Somerset) *Juncus* ×*diffusus* (*J. effusus* × *J. inflexus*) was found.

Marsh and aquatic plants added to the diversity of this species-rich area with Sedgemoor's Burrow Mump and nearby Glastonbury Tor providing a historical setting.

The weekend was a complete success – perfect weather, a variety of habitats, a good number of *Salix* species identified and the members of the party looking for galls seemed pleased with their findings.

JEANNE WEBB

ANNUAL EXHIBITION MEETING 2003 ABSTRACTS

AN UNNAMED HAMPSHIRE BRAMBLE IN THE FOREST OF DEAN

A prime source of frustration for those who study *Rubus* is the frequent occurrence of lone bushes or patches of brambles that cannot be matched with any others known in the same county or even region. Some of these plants bear the telltale signs of hybridity, such as outsize flowers or leaf asymmetries, but many do not. The temptation is to dismiss the latter as merely the more harmonious products of the relatively rare interspecific crossing of which even that great majority of brambles that reproduce as a rule asexually are putatively capable. While the more successful of those crosses become the new widespread entities of the future, the rest tend to be regarded as constituting a kind of litter sprinkled around the countryside, due to be cleared away in the fullness of time by the usual processes of nature.

That picture is beginning to appear too simplistic, however. To a greater extent than has been appreciated the supposed 'litter' can include strays from other, often quite distant regions, brought by birds or accidental human agencies, the identity of the plants concerned unsuspected because of the great disjunction in distribution involved or simply through the finder's unfamiliarity with the *Rubus* florula of the other region in question. Several brambles puzzling batologists in Scotland, for example, have recently been recognised as species otherwise confined to south-east England; that has proved to be the source too, of one or two 'unknowns' in the far west of Wales. More startling still has been the discovery of a clump of a Welsh Marches species on Achill Island, off Ireland's west coast.

In all of those cases, however, the brambles concerned belong to entities sufficiently widespread in one or more regions to have received taxonomic recognition and bear a Latin name. In the case of brambles much more restricted in distribution and not named, the chances of making long-distance matches are much slighter. One such instance formed the subject of the exhibit. Shown side by side were a plant found scattered in a group of old hedgebanks NW of Petersfield, in N. Hants. (v.c. 12), and one represented by a series of specimens in **BM** collected in 1913 in the Forest of Dean (v.c. 34), 145km away. Even to an untrained eye the two clearly belong to one and the same entity. In this particular case the evidence is insufficient to decide whether the one or the other represents a stray (and if so, which) as an example it draws attention to this under-appreciated problem of 'over-localised experience'. Many such disjunctions in range could be escaping detection due to the restricted opportunities those well-versed in the local, unnamed entities of one region have of becoming acquainted with the equivalents of those in other areas. The example illustrates the potential for discoveries presented by the mass of undetermined material in the major herbaria.

D.E. ALLEN

'PAINTING ONE'S BENTHAM' IN 1861

In the days when 'Bentham & Hooker' enjoyed a near-monopoly as a means of identifying British vascular plants, many who owned that book were in the practice of marking their first-ever discovery of each species by filling-in in water-colour the black-and-white line-drawings by Kew's brilliant botanical artist, W.H. Fitch, which accompanied the text from the 2nd edition onwards. Beneath each painting the date and place of first discovery was then written in, the whole thus substituting for a herbarium specimen for those who found collecting distasteful. The practice was still in evidence as an evening activity on field meetings as recently as the 1950s. Though it was known to go back at least 30 years, whether it existed earlier was anyone's guess but a statement in the 4th edition of 1916 that 'a paper suitable for colouring has been used' has long provided a probably overlooked clue.

The publication in 2003 of *The Isle of Wight Flora* has thrown unexpected new light on the matter. In this, two sample pages (which were exhibited) are reproduced from a copy of Bentham's *Handbook of the British Flora* with dated and localised paintings in the margins next to the species entries.

Elizabeth Hood, who lived at Norton, near Freshwater, is named as the person responsible for them. The acknowledgements in *The Isle of Wight Flora* identify the present owner of the copy as Mr A. Brent-Good, who has revealed that there are similar paintings throughout. The localities show that the specimens came from many parts of Britain, not just from the Isle of Wight.

One of the two paintings depicted in *The Isle of Wight Flora* bears the date Oct. 8th/61 – and that is obviously 1861, for the typeface and page numbers are those of the edition of Bentham's Handbook of 1858. Thus at least one owner of that work was 'painting her Bentham' even before the first illustrated edition came out, contrary to the general assumption until now that it was Fitch's line-drawings that gave rise to the practice. It does not necessarily follow, of course, that it was a practice that had much or any following between 1861 and 1916; Elizabeth Hood may have been a lone pioneer of the genre. However this discovery raises the possibility that 'painting-in' may even antedate Bentham's *Handbook*, perhaps by many years (after all, the woodcuts in the early herbals were meant to be coloured by hand, if bookseller or owner so desired).

D.E. ALLEN

OAK FERN (*GYMNOCARPIUM DRYOPTERIS*) REFOUND IN CORNWALL

Oak Fern, *Gymnocarpium dryopteris* (L.) Newman has been refound in Cornwall after a period of 73 years in a new site. It was found on the north facing riverbank of the River Inny, in woodland, SW of Laneast in SX28. About 70 fronds, some of which were sporing, were counted growing in a small patch on the riverbank with *Athyrium filix-femina, Dryopteris dilatata, Polystichum setiferum, Phyllitis scolopendrium, Chrysosplenium oppositifolium, Lonicera periclymenum, Hedera helix* ssp. *hibernica* and several mosses. The woodland at the site is mostly *Fraxinus excelsior, Fagus sylvatica* and *Acer pseudoplatanus* and is likely to be secondary as the area on maps dating from 1880 where the Oak Fern now grows appears to have been more open and disturbed from the nearby quarry spoil. Page (1997), remarks that Oak Fern is 'perhaps more common on ground which has a reasonable base content' and indeed the now disused quarry, upslope from the Oak Fern site, was quarried for 'Greenstone', a 'convenient term for a variety of basic igneous rocks' (Bristow, 1996).

The newly discovered site is only 6km west of a previously known site, a hedgebank at Trethorne Gate near Kennards House, Launceston (SX28), from where herbarium specimens were collected by William Wise in July 1880. Although Oak Fern may have always been at the Laneast site, it is also possible that plants may have become established from spores from the Trethorne site at a time when the disturbed site at Laneast was suitable for the early stages for fern colonisation. Searches for Oak Fern in other old sites in Cornwall have been fruitless, with overgrazing on Bodmin Moor a possible factor of its loss there. However with this discovery other small populations may still exist and further searches in Cornwall are planned in the future.

The map for Oak Fern in Preston *et al.* (2002) shows that SE of a line roughly from the Humber to the Severn, it has been recorded very rarely in this area with sparse records as far south east as Kent. It appears that the Cornish site is the third recent site in this whole area, the other records being from Exmoor in Somerset. In Green *et al.* (1997), Oak Fern is 'very rare', being recorded in two sites only and in one of these in very small quantity. There appear to be no recent records for Devon. This only emphasises the importance of the newly discovered Cornish population.

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IAN J. BENNALICK

IT'S ALL A MATTER OF CHANGE: ANALYSIS OF V.C. & TETRAD EXTINCTIONS IN V.C. 81

The survey was complete in Berwickshire (v.c. 81). Many species were found that had not been recorded in 1987/88. Some of these could be considered 'real' gains: these included maritime plants that had colonised road verges and *Rumex longifolius* (Northern Dock) which has been spreading dramatically in the Scottish Borders.

Some plants could not be refound at specific localities where relevant changes were noted and were considered 'real' losses. The average New Atlas Change Index of the real losses was close to zero, suggesting losses at tetrad scale for plants too widespread to show change at hectad scale. Notes had been made of the main physical changes in the tetrads.

MICHAEL BRAITHWAITE

ESTIMATING THE LOSS OF NATIVE PLANT SPECIES

The *New Atlas* Data for Berwickshire (v.c. 81), had been used to estimate that the average loss of individual plant localities for the scarcest native species had been 67% over a time period roughly from 1830 to 1999 on the assumption that for the scarcest species there was formerly only one locality per hectad. Almost the same percentage was derived from two separate exercises: one based on the number of extinctions in the v.c. as a whole and the other on the number of losses at hectad scale for species with a given hectad frequency.

A new survey had been made in 2003 of a small area around Berwick-upon-Tweed to seek to determine the fate of the detailed localities of scarce and common plants alike noted by J.V. Thompson around 1800. The losses were demonstrated to be very strongly habitat related. A separate analysis comparable to that of the Berwickshire Atlas data showed that, on the basis of the number of extinctions in the survey area as a whole, an average loss of scarce species localities of 61% was suggested if all species not refound were taken as extinct or 57% if allowance was made for species more probably overlooked in 2003. Information on some of the physical factors influencing this result was displayed.

MICHAEL BRAITHWAITE

TREES AND CLIMATE CHANGE

Data presented on four species of trees indicated a trend towards earlier leafing. The information had been collected from 1947 to 2003 at three locations in Surrey. The species were *Quercus robur* (Pedunculate Oak), *Fraxinus excelsior* (Ash), *Tilia* ×*vulgaris* (Lime) and *Aesculus hippocastanum* (Horse-chestnut). Leafing was defined as 'when the bud scales have opened to show the colour of the leaves inside' and was correlated to temperature data.

JEAN COOMBES, DR. TIM SPARKES & DR. PETER CAREY

PRESSED LEAVES AS HOLIDAY MEMENTOES

22 cards were displayed which showed pressed leaves collected whilst on holiday in Great Britain. The cards were of postcard size and covered with sticky-back plastic. The back of each card showed the date and place of collection and the period covered was from 1980 to 2003.

JEAN COOMBES

SOME 2003 ABERRATIONS

A variety of plants found in 2003 and showing aberration of some type were exhibited. These included:

Anagallis arvensis (Scarlet Pimpernel), green-flowered, Greenham Common, Berks., 2001 & 2003 (Malcolm Storey).

Aesculus hippocastanum (Horse-chestnut), digitate to pinnate leaves again, 2003; yellowing on the leaves suggests a virus may be implicated. In garden, Hullavington, Wilts. (Martin Cragg-Barber).

Armoracia rusticana (Horse-radish), with feathering of the leaf-blade may be considered normal but the extension of the mid-rib with an extra leaf at the tip is new. Verge of A429 (dual-carriageway) N. of Chippenham, Wilts.

Chelidonium majus 'Chedglow' (Greater Celandine), a peculiar variegated form which flowers but does not set seed. Even the reverted, all green divisions fail to set seed; summer 2003. One other report of variegation in this species.

Corylus avellana (Hazel) with leaves subtending catkins on several branches. Hedgerow E side of Hullavington to Norton road, Wilts.

Garrya elliptica (Silk-tassel) with similar proliferation.

Hedera helix (Ivy), fasciation on flowering stem, Garden, Hullavington, Wilts.

Hypochaeris radicata (Cat's-ear), aberrant flower heads. St David's airfield, Pembs. (Tony Lewis).

Rosa 'Paul's Scarlet' (a rose), proliferation in late Nov. This normally occurs with early flowers on older varieties. An extended growing season may make it more common in autumn. Hullavington, Wilts.

Samolus valerandi (Brookweed), fasciated, with very flattened stems. Upper part of saltmarsh on River Fal, near Ruan Lanihorne, E. Cornwall (Ian Bennalick).

Solidago virgaurea (Goldenrod), very congested and thickened stem but no obvious fasciation. St Ives, W. Cornwall (Mary Taylor).

Trifolium repens (White Clover), showing St Patrick's effect; the middle leaflet turns purple in winter. 2 colonies at Hullavington, one at Lt. Somerford, Wilts.

Tussilago farfara (Colt's-foot), leaves with purple veins. Sandy beach, Ayr, Aug. 2002.

Descriptions, and often illustrations, of these and other odd plants were included in *That Plant's Odd*: **30** available to members.

MARTIN CRAGG-BARBER

COCHLEARIA OFFICINALIS SSP. *SCOTICA* (SCOTTISH SCURVY-GRASS) IN BRITAIN

Introduction

Scottish Scurvy-Grass, *Cochlearia officinalis* ssp *scotica* was initially called *C. scotica* by Druce and although it has received varying treatments in later British Floras has until recently, been regarded as a 'good' species, albeit in a taxonomically difficult group. Following his 1991 revision of the genus for *Flora Europaea*, P.S. Wyse Jackson changed the status of the plant to that of a subspecies of *C. officinalis*. As *C. scotica*, the plant is the subject of a statement under the UK Biodiversity Group Tranche 2 Action Plans where its status is classified as 'Taxonomically Uncertain'. It is also probably endemic to Britain and Ireland.

The Project

The main aims of the project were to:

1. Determine what NVC community C. *scotica* grows in.
2. Determine the species ecological preferences by producing a suite of Ellenberg Indicator Values (there are no published Ellenberg values for C. *scotica)*
3. Compare the Ellenberg values and NVC communities with those of C. *officinalis*.
4. Use the information obtained to make recommendations as to the taxonomic and conservation status of *C. scotica*.

Conclusions

This study reveals an ecological distinctiveness between the two species, allowing C. *scotica* to occupy a niche not readily available to *C. officinalis*. Based on the distinct NVC communities occupied by the two taxa, it is therefore proposed that a conservative view be adopted and that the subject of this research be viewed as a good subspecies of *C. officinalis* named *Cochlearia officinalis* ssp. *scotica* (Druce) P.S. Wyse Jackson

This work is to be published in its entirety in Watsonia in due course.

With thanks to the Botanical Society of the British Isles for providing grant funding for the fieldwork.

MARTIN GODFREY & SARAH WHILD

ALIEN PLANTS IN IRELAND

Approximately 920 alien taxa have been recorded from Ireland, mainly in the 19th and 20th centuries. A little over half are casuals. 645 taxa have been recorded from 1987 to 2001; 70% are of cultivated origin, 55% are rare or are found at only one site, 27% are of occasional appearance and 18% are common. A number of these species were displayed.

SYLVIA REYNOLDS

UMBELLIFERAE – ONCE MORE

Many specimens were exhibited to illustrate the connections between British species and relatives in Europe and that umbelliferous happy hunting ground – South West Asia.

MERVYN SOUTHAM

DRAFT PAGES FROM *'ILLUSTRATIONS OF ALIEN PLANTS'*

Some pages from the forthcoming book by Clement, Smith & Thirlwell were displayed.

When beginning to put together the camera ready pages for the book, it became apparent that the traditional cut and paste method was causing difficulties. The original drawings would be scanned using one of the available public machines in libraries and post offices, etc. The scanned images would be cut to remove unwanted material such as pencil markings and allow for the better positioning of the plant on the final page. The pieces needed to be pasted to a prepared sheet containing header and legend information. Finally scale bars and letters had to be applied manually.

Each element in the procedure had problems. The cutting didn't, or couldn't remove everything required so some masking fluid was needed. None of the glues tried could prevent buckling of the pages during pasting. The individual parts being stuck down were quite large so large areas needed glue, which probably contributed to the problem. Lastly it was not easy to draw accurate and well aligned scale bars and stick down letters to provide a neat finish.

Instead, it was decided to try using some technology to resolve the problems and the pages were created as follows.

1. Original drawings were scanned into a PC
2. The scans were then cleaned (electronic 'masking fluid'), labelled and had scale bars added using Adobe Photoshop Elements.
3. Meanwhile skeleton pages with headers identifying the families, and legends describing the drawn parts were created using Microsoft Word. The completed electronic drawings were then inserted into the Word document pages, one document per plant-drawing to keep to a manageable size.

IAN THIRWELL

2003 NEWS FROM SARK

Specimens and/or photographs of the following were shown:

Atriplex glabriuscula (Babington's Orache). 1st localised record since 1897.

Myriophyllum aquaticum (Parrot's-feather). 1st record for Sark. Probably a deliberate introduction.

Geranium maderense (Giant Herb-Robert) & *G. palmatum.* Both are grown in gardens, but the latter has not yet been recorded elsewhere. It is likely to be, and vegetative plants can easily be mistaken for the former. The differences between them were described.

Nicotiana ×*sanderae*. 1st record for Sark. On rubbish tip.
Pilosella peleteriana ssp. *peleteriana* (Shaggy Mouse-ear-hawkweed). Photographs at only known extant site.
Erigeron glaucus (Seaside Daisy). 1st record for Sark.
Allium cepa (Onion). Fruiting inflorescence 2 years after 1st record.

ROGER VEALL

MALUS HUPEHENSIS (HUPEH CRAB) IN HAMPSHIRE

A tree resembling *Malus hupehensis* (Hupeh Crab) was found in September 2003 in the NW corner of the New Forest NE of Fordingbridge (v.c. 11). There is no entry in the *New Atlas* for this species. Paul Bowman recorded two small seedlings of a similar tree in the same area in 1986. Specimens are in the Hampshire Museum. It is still present and about 7m tall. It is 1.3km from the new site. There is also a specimen from Lady Anne Brewis from Woolmer Forest (v.c. 12), in the Hampshire Museum. Specimens and photographs from the first two sites were shown. This species may be more widespread.

ROGER VEALL

SURVEY OF BRITISH & IRISH PLANT-LORE

The Survey of British & Irish Plant-lore has grown from the Folklore Society's 'Survey of Unlucky Flowers', which was conducted in the early 1980s.

It now holds over 10,000 items of information from approximately 1,000 contributors, and a large number of press-cuttings, off-prints, photographs, and other material.

The Survey covers all aspects of the folklore and traditional uses of plants, and although previously published sources are of interest, the emphasis is on contemporary (i.e. current and remembered) beliefs and practices.

Therefore information is sought concerning:

- traditional beliefs concerning plants (for example, the belief that certain flowers are 'unlucky' if they are taken indoors)
- local names of plants
- plants and plant materials used in traditional customs or religious festivals
- herbal remedies
- sayings, riddles, tales and legends concerning plants
- traditional times for sowing and harvesting crops, and practices associated with the cultivation of plants
- plants used for foretelling the future
- children's games and pastimes which use plants
- wild plants gathered for food
- other traditional uses of plants

Information on the plant-lore of the various ethnic groups settled in the British Isles, and comparative material from overseas — particularly from the English speaking world and Europe — is included in the Survey, and would be greatly appreciated.

Any information, no matter how widespread and well known it might be, will be gratefully received. A copy of all the material received will eventually be placed in the care of the Botany Library of The Natural History Museum.

Please send information and other correspondence to: Roy Vickery, Department of Botany, The Natural History Museum, London, SW7 SBD.

Copies of *PLANT-LORE notes & News* were available for members.

ROY VICKERY

The following also exhibited:

Ian Bennalick — Botanical Cornwall Group
Michael Braithwaite & Bob Ellis — BSBI Local Change
Olaf Booy — The invasion of Giant Hogweed (*Heracleum mantegazzianum*) into the U.K.
Jane Croft — Field Meetings, 2004; a preview
Gwynn Ellis — Vice-county Census Catalogue
Liz McDonnell — Botanical equipment: sources of information
Rose Murphy — *Cystopteris diaphana*, new to Cornwall & Britain (see *BSBI News* **93**: 13)
Natural History Museum — Publications
David Pearman & Margot Godfrey — BSBI postcards
Richard Pryce — Photographs from (a) the AGM, Cornwall (b) the Leicester Conference (c) the Glynhir Field Meeting
Summerfield Books
Sean & Ann Karley as usual set up and supervised the much appreciated Help! display

The reports above have been edited for publication by Alan Showler.

ALAN SHOWLER, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks, HP14 4PA

ADVERTISEMENTS

BOOKS FOR SALE

All prices include post & packing, with profits to Berks., Bucks. & Oxon Wildlife Trust.
W.J. Bean – *Trees & Shrubs Hardy in the British Isles*. 7th. edn. complete in 3 vols. £24
New Naturalists, good condition, with dust covers: – *Wild Flowers*, *Mushrooms & Toadstools*, *British Plant Life*, *Mountains & Moorlands*, *Snowdonia*, *Nature Conservation in Britain* – All at £12
Enquiries to and more details from:

ALAN SHOWLER, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks., HP14 4PA.
Tel. 01494 562082

STOP PRESS

EXCURSION TO THE CZECH REPUBLIC, APRIL/MAY 2005

Plans are being made to arrange an excursion to Central Bohemia in the Czech Republic in late April/early May 2005.

Initially we would be based in Pruhonice just south-east of Prague where our leader would be Dr Franta Krahulec of the Institute of Botany. We would spend a few days in this area before moving on to the Palava area where we would be based in Mikulov. Visits to botanical sites would be by coach and the duration of our stay would be around eleven days. As yet we do not have details of costs but it would be helpful to know of those who might be interested before going on to make further arrangements. Please contact the Field Secretary enclosing a stamped addressed envelope if you would like more details:

JANE CROFT, 12 Spaldwick Rd, Stow Longa, Huntingdon, Cambs. PE28 0TL

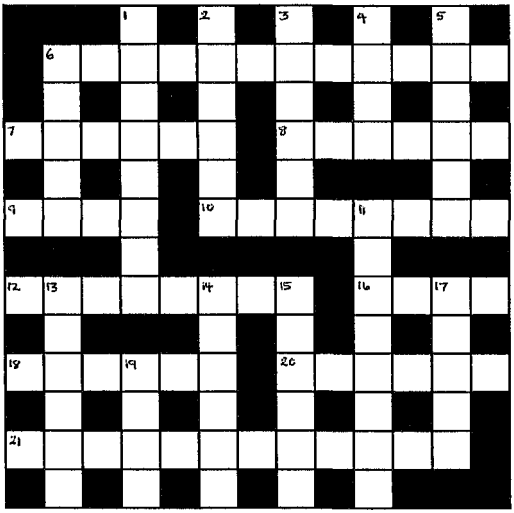
WILDLIFE CROSSWORD - by *Cruciada*

ACROSS

6. Highly visible eminence in South Wales (6, 6)
7. Bird watchers, hill walkers and those consulting a reference often need to (4, 2)
8. Ducks that don't dive do (6)
9. Arrange one initial project to look for aliens (4)
10. Two women discovered Andromeda (8)
12. Stress indicator or lbj in hedge (8)
16. Plant fungus corrosion (4)
18. Border shepherd (6)
20. (B)A(P) (6)
21. 'Chinese' Communist symbol depicts farmland bunting (12)

DOWN

1. Useful implements separately and together on a field trip, perhaps (8)
2. Penny butterfly (6)
3. See bud obscure title of Inner Hebrides (6)
4. One of 18's charges - a woolly jumper (4)
5. Tree is celebrated without you, we hear (6)
6. Sweep soundly with heavily awned grass (5)
11. I am a trim yet untidy denizen of the coast (8)
13. Caught paramour in luxury sward (6)
14. Strix who went to sea with Felix (3, 3)
15. Sun god has a contribution included in 3 (6)
17. Circular tours of various rivers (5)
19. Proverbially white - Snowdon, for example (4)



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BSBI News (ISSN 0309-930X) is published by the Botanical Society of the British Isles.
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