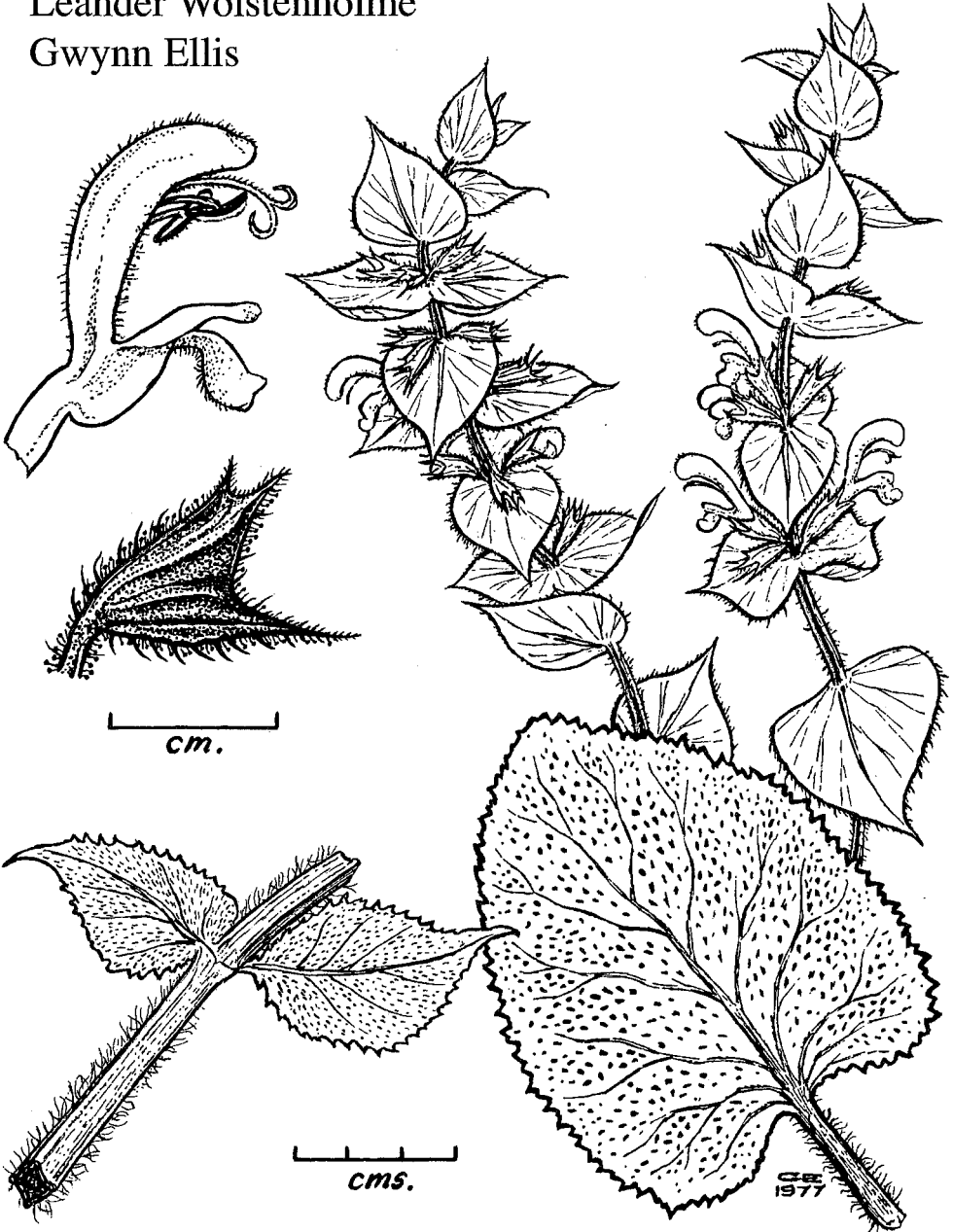


Edited by
Leander Wolstenholme
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CONTRIBUTIONS INTENDED FOR
BSBI NEWS 96
should reach the Receiving Editor before
MARCH 1st 2004



Cox & Kings

NATURAL WORLD TOURS

For 2004 Cox & Kings is pleased to offer a programme of botanical, garden and natural history tours, all of which are accompanied by expert tour leaders.

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London, SW1P 1PH.



IMPORTANT NOTICES

FROM THE PRESIDENT

Many of you will now be aware that Bob Ellis has been appointed to take over the *Local Change* scheme where Pete Selby so untimely and tragically left-off. Pete laid the foundations of the scheme by his enthusiasm and by becoming very knowledgeable and involved with the *MapMate* software and encouraged the vast majority of Vice County Recorders to adopt it. He was able to customise various parts of the program to meet the requirements of the users and successfully managed to set-up the exchange mechanism by which recorders and the central hubs are able to communicate. Pete was no mean field-botanist either, and led many recording meetings, particularly in his home county of Hampshire. He was also very keen, when he visited me in Carmarthenshire in 2002, on using his Palm computer based software in the field to make recording more efficient, an aspect which I, too, am especially keen to develop in order to avoid all those evenings of data-input. He will be a difficult act to follow but Bob will be getting up to speed in the next few months and will soon be in a position to advise on progress and, no doubt, will soon be appealing to recorders to send-in their 2003 records. (see page 7).

Bob is based in Norwich and is a nephew of the late Ted Ellis, the celebrated Norfolk naturalist who is author of many of the Jarrold photographic natural history booklets, so he comes with an impeccable pedigree! The transfer of *Local Change* data to him has now been completed and I am very grateful to Martin Rand for his assistance in this respect as he was able to take over Pete's machines and keep the whole scheme ticking-over. Thanks also to Alex Lockton was also involved in ensuring that all the data received during that difficult period was properly dealt-with and backed up.

Further amendments to *MapMate* are being addressed which, it is hoped, will go some way to answering the few criticisms that some users have made, principally the way in which it handles sites, which at present is not entirely compatible with the way most botanical recorders would like to see it. But the system is now in place and well proven, for recorders to transfer their records to Bob for processing and he should soon be able to keep us up to date with *Local Change* progress and be in a position to direct us to those areas which require further field-work. Of course, as I wrote in my last *From the President*, you can get the same information by logging-on to www.BSBI-projects.org where you will find the current species-total for every *Local Change* tetrad and will be able to download the list of species so far recorded. This is an opportunity for members to contribute new records when visiting areas away from home.

The Annual Exhibition Meeting held at Baden Powell House in London on November 29th was, as in most years, very well attended. Although the number of exhibits was somewhat down in number, the opportunity for an 'annual reunion' is probably the overwhelming reason for its popularity amongst members. I, for one, view it as one of the most outstanding botanical social events of the year and it has stiff competition from the regional AGMs! It also gave me great pleasure to be able, for the second year running, to award the prize to the top student of the year who had taken part in the *University Certificate in Biological Recording and Species Identification* course run by the School of Biosciences, University of Birmingham and jointly supported by the BSBI and the Field Studies Council. The winner was Jenny Ford who is employed as the County Ecologist by Wiltshire County Council and who achieved an unprecedented 100% in her marks for, not just one, but two modules of the course! Very warm congratulations, Jenny: I look forward to seeing you at future BSBI events.

No doubt most of you were baked by the prolonged hot weather during the summer but, in my home county of Carmarthenshire, the Annual Recording Meeting held at Glynhir at the end of July started and ended hot and sunny but, whilst being extremely successful and enjoyable, was notable for the almost continuous rain which fell from Monday lunchtime until Thursday evening – from one extreme to the other! Hopefully we might have better luck in 2004. So we can now look forward to recording next year, completing the fieldwork for *Local Change* and progressing our own particular

projects. The programme set out in the *Year Book* includes a variety of field meetings geared to *Local Change* recording, monitoring well-known sites and events for recently-joined members, but above all they will all be enjoyable and provide the opportunity for good botanising when members are able to learn from each other!

Finally, I hope that you will all have had a pleasant Christmas and New Year and I look forward to seeing you at one or more of next season's field meetings.

RICHARD PRYCE, President

BSBI DEVELOPMENT FUND APPEAL

I have great pleasure in reporting that this is proving a great success with excellent support from all round Britain and Ireland.

Our BSBI Council was determined in launching this appeal that all those who give so generously of their time (and that usually entails some pecuniary expense as well) by working in the field and in other ways have some professional support from the centre to make their work more worthwhile — all without pushing up subscriptions unrealistically.

So far about £25,000 has been raised but this is without counting the many members who have volunteered to pay a double subscription or who have promised to give additional donations in future years or to remember BSBI in their wills. There is additional exciting news in that we are working with five other individuals and trusts to firm up on offers of very substantial donations that are likely to bring in at least a further £100,000 over a period of years, subject of course to our projects going ahead.

Equally importantly we can now hope to double up these gifts with public grants for our projects.

Tax recovery has been claimed on gifts from those who had previously signed Gift Aid declarations. Other donors will have since received a Gift Aid form for completion if appropriate.

As office bearers we have found this marvellous support very humbling and it gives us great encouragement. Deep-felt thanks are thus offered not only to those who have supported this appeal but to those of you who continue to work so tirelessly for our Society.

MICHAEL BRAITHWAITE, Hon. Treasurer

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 2003 Calendar in *BSBI Year Book 2003* and include dates of the BSBI's Permanent Working Committees (more October and November dates in the next issue)

2004

- January 28 Records Committee
- February 2-3 Wetlands: Policy into Action, World Wetlands Day Conference, London (see p. 60)
- 4 Meetings Committee
- 9 Publications Committee
- 25 Executive Committee
- March 9 *Insect-Plant Interactions: From Parasitism to Mutualism*, The Zoological Society of London, Regent's Park, London (see p. 59)
- 17 Council
- 15-16 April International symposium on the biology of hemiparasitic Scrophulariaceae, Wageningen (see p. 60)
- 22 Database Committee
- 16-19 May Plant Evolution in Mediterranean Climate Zones, IXth IOPB Meeting, Botanical Garden of Valencia University, Spain (see p. 58)
- 8 June *Explaining species abundance distributions: Biodiversity over time*, The Zoological Society of London, Regent's Park, London (see p. 59)
- 27-30 August Irish Members' Weekend at Derrygonnelly Field Centre, Co Fermanagh (v.c. H33)

EDITORIAL

Congratulations: to John Topp awarded an OBE 'for services to the environment and conservation in the British Indian Ocean Territory'..

Colour section (centre pages): **Plate 1:** *Erigeron borealis* (see p. 19); aberrant *Digitalis* (see p. 7); Pete Selby and friends (see p. 67). **Plate 2:** *Erica ×stuartii* (see p. 12); *Trifolium stellatum* flowers, fruit and habitat (see p. 52); *Malva alcea* × *M. moschata* (see p. 54). **Plate 3:** *Salvia sclarea* (see p. 49); *Pratia pedunculata* (see p. 46); *Ranunculus acris* with green petals (see p. 14); *Euphrasia rivularis* (see p. 75). **Plate 4:** *Lemna minuta* microscopy (see p. 31).

New Atlas of the British & Irish Flora: I was dismayed to hear recently from one member of the Society that he was still waiting for a copy of the *New Atlas* almost 18 months after placing his order! If any other member is in the same position, please contact me (Gwynn Ellis) and I will do what I can to get your copy delivered.

Vice-county Census Catalogue: This has now been published and all members who ordered a copy should have received theirs by now. The pre-publication offer closed on January 1st 2004 and copies are now available only from BSBI Publications. A few members have reported faulty pagination of their copies, please report these to me (RGE) and I will send a replacement. Unfortunately, a faulty plate at the printers has resulted in a few vice-county numbers being obscured from two taxa on page 2. The complete entries for these are reproduced below and we apologise for any inconvenience caused.

Equisetum hyemale L.

2 6 11 12 14 17 26 27 28 30 37 38 39 40 41 42 44 45 50 51 54 55 56 57 58 59 60 61 62
63 64 65 66 67 68 69 70 72 73 75 77 78 80 81 83 84 85 87 88 89 90 91 92 93 94 95 96 97
98 100 103 104 106 107 108 109 111

Equisetum fluviatile x *arvense* = *E. x litorale* Kühlew. ex Rupr.

C 1 2 3 4 5 6 7 8 9 10 11 12 14 17 18 21 22 23 24 25 34 35 36 37 38 39 40 41 42 43 44
45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73
74 75 76 78 81 82 83 85 87 88 89 90 91 92 95 96 98 99 100 102 103 104 105 107 109
110 111 112

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.

Field Studies Council: brochures for overseas tours for 2004 are available from FSC, Montfort Bridge, Shrewsbury SY4 1HW; Tel: 01743 852150, email: fsc.overseas@field-studies-council.org; www.fscOverseas.org.uk

And finally: John Topp sent me a photograph of a strange *Digitalis* with an enormous, aberrant, terminal flower found in a London garden which I couldn't resist including in the colour section (plate 1)

EDITORS

BSBI VOLUNTEERS OFFICER

[The Society was very pleased (and relieved) to have such a well-qualified replacement for Pete Selby, waiting, as it were, in the wings. Bob Ellis is our Vice-county Recorder for East Norfolk, and was the runner-up at the original interview in May 2002. In view of the time-scale of the project, we all took the view that we could not afford the time (or expense) of re-advertising the post.]

By way of introduction . . .

In the wake of the sad loss of Pete Selby, I have recently been appointed as Volunteers Officer. As I endeavour to get to grips with the role, I have come to realise just how great Pete's contribution was and how well he made it. I doubt I'll be able to match his skill or enthusiasm but I will do my best. If I can be of help in any way, please do not hesitate to contact me and, as Pete would have said, 'remember that it is my job to help you'.

BSBI Local Change

Progress with BSBI Local Change continues apace, with records flowing into the BSBI Hub database, but at the time of writing, I suspect there are many more records still to come in from 2003 fieldwork. Therefore, it is difficult to identify all those areas in need of extra effort. However, by the time this *BSBI News* lands on your doorstep, the picture should be much clearer.

May I remind you of the BSBI Projects web site at www.bsbi-projects.org where you can check on the progress in any particular tetrad in any vice-county, so if you are thinking of recording whilst on holiday in a different part of the country you can pin-point useful areas to visit. Alternatively contact me and I will be able to make some suggestions for you.

If you are not already involved in the Local Change project and would like to join in, there are several ways you could help:

- Record one or more tetrads in your area and perhaps take along someone else, whether experienced or not, to help share your botanical skills. It is best to contact your local vice-county recorder or me in order to avoid any duplication of effort.
- Join with a local group that is recording in your area. Again contact your local vice-county recorder or get in touch with me.
- Attend one or more of the field meetings in Scotland, organised specifically for Local Change recording. These are listed briefly here, but please check the *Year Book* for full details.

19th & 20th June: Craik Forest, Ettrick Valley & The Moorfoots, Selkirk

26th June: Loch Katrine, West Perthshire

3rd to 5th July: Islay & Jura, South Eubudes

7th to 9th July: Golspie, East Sutherland

17th & 18th July: Pitlochry, Mid Perthshire

24th & 25th July: Castle Douglas, Kirkcudbrightshire

6th to 8th August: Inverpolly, Loch Ewe & Loch Duich, West Ross

There may be further Local Change meetings arranged during the year and if you would like me to keep you informed of these please let me know.

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

CO-ORDINATOR'S CORNER

Countryside matters

I noticed a curious thing this last summer. Lots of arable fields around this part of the country now have wide conservation headlands, and I was struck by the fact that these headlands really seem to work. Where the fields abut rivers and meres there always used to be dense stands of nettles and other nitrophilous species. This year the nettle beds seemed markedly thinner. I would be amazed if something as simple as a five metre wide buffer strip could not just halt eutrophication but actually reverse it to the extent that nettles, once established, went into decline. I wonder if anyone has seen similar results elsewhere?

The whole science of monitoring the effect of management policy on the countryside is still in its infancy. About five years ago the agricultural people started to get interested in arable conservation, but they decided to use a short list of incredibly rare species as the benchmark of their success. In discussions with people from Defra this year it has transpired that none of these species has ever been found in land within their stewardship scheme, so as far as their monitoring process goes the whole thing has been a failure. But in fact it clearly hasn't. If there is one thing that arable extensification can do for nature conservation, it is to control and ultimately reduce eutrophication. But how do we measure that? The best way is through large-scale programmes like the Countryside Survey and BSBI Local Change, which will pick up such effects in time. Concentrating on vanishingly rare weeds has been a silly outcome of the Biodiversity Action Plan and needs some serious rethinking.

Another pleasing change in the countryside is the control of alders by Alder Pox (*Phytophthora cambivora*), which causes dieback in the crowns particularly of riverside plants. I shall probably get hate mail for saying this, as our modern sense of hygiene makes people uncomfortable with the idea of letting diseases run free, but think about it for a moment: over the last fifty years or so our abandonment of the management of waterside habitats, possibly compounded by eutrophication, has led to a plague of alders along watercourses throughout the lowlands. Whenever a species becomes too abundant it inevitably becomes vulnerable, and in this case the agent of population control is a fungus. Our instinctive and prejudiced reaction is to try to eradicate the disease because disease is, by definition, 'bad'. Happily it has not worked and as a result a lot of watercourses are being opened up to the sunlight again, which is just what the water plants needed.

I wonder if we will ever learn to study natural cycles before we rush in to take control of every aspect of the natural environment? Will we ever hear conservation organisations argue for patience and research? I think there is going to have to be a change in the philosophy of the nature conservation sector over the next few years, as people realise that the biodiversity industry isn't really about nature conservation at all — it is about jobs and money and manipulation of the environment for political targets. In that respect, it is just another form of development.

Conservation battlegrounds

On the whole, the conservation sector seems very pleased with itself these days. It has grown exponentially in the last few years and, according to their own publicity, the half dozen or so leading conservation charities in Britain now have a turnover of nearly a billion pounds a year. But what puzzles me is the battles that we seem to be losing. Take Auchennies Moss in Kirkcudbrightshire. It is scheduled to be used as a landfill site, even though lowland mires are one of the most high-profile habitats for nature conservation. It is apparently the only site in Scotland for the bog bush cricket (*Metricoptera brachyptera*) and it has never been given a thorough botanical survey. But SNH seem happy to let it go without a fight, and you won't hear the well-funded campaigning groups putting up much of a fuss — it has been left to the traditional efforts of local protestors to make a stand. Has all this money turned them soft? Surely using peat bogs for landfill is the sort of thing that should not be happening anymore?

Another battle is over the Montgomery Canal, which I have mentioned before. This canal has been a SSSI since before the modern leisure boating movement was formed and it is now a candidate SAC.

British Waterways has proven that their measures to conserve plants in channel do not work (despite that being the reason they were allowed to redevelop SSSIs), so they now propose to create ponds and transplant all the rarities. Meanwhile the JNCC has produced guidelines which acknowledge that translocations do not work and should not be used as a mitigation measure. So, what is the response of CCW? They say that the redevelopment of the canal was agreed twenty years ago and they can't stop it. All they can do is hope that the National Lottery runs out of money and cannot afford to pay for it. It does not strike me as a very robust approach.

What puzzles me is why no-one can even think of compromise. There is nothing wrong with people running their boats up and down canals — that is their natural function. The only problem is that canals are bridleways, not motorways, and they simply can't cope with HGVs. Get some sort of propulsion mechanism that doesn't involve underwater propellers and the problem is practically solved. If farmers can achieve such success with a few metres of headland then surely boat owners can compromise in some way. After all, neither group actively dislikes wildlife — they just don't understand it. I suggest an overhead cable to tow the barges along by. You would think that within a billion pound budget there might be room for the development of such a thing. If it could be done, then all the other canals in Britain would have a chance of returning to their former glory.

Threatened Plants Database

Please continue to send in records. The main species I am working on at the moment are Northern Hawk's-beard (*Crepis mollis*), Purple Ramping-fumitory (*Fumaria purpurea*), Bog Orchid (*Hammarbya paludosa*), Red Hemp-nettle (*Galeopsis angustifolia*), Grasswrack Pondweed (*Potamogeton compressus*), Floating Water-plantain (*Luronium natans*) and Pennyroyal (*Mentha pulegium*), but a full list is available at www.tpdb.org. They are all fascinating plants. Last year Peter Sibley, from the Environment Agency, found Grasswrack Pondweed in the River Trent, which raises the awful (wonderful!) possibility that it is still hiding in rivers throughout England. Underwater plants in small quantities would be almost impossible to find and identify. Kate Thorne found Floating Water-plantain in abundance in an area of farmland — an entirely new habitat for it that will require the textbooks to be rewritten. Pennyroyal was found by Gill Gent and Rob Wilson in vast quantities in new sites along the River Nene and by various other people along Roman roads. This plant is not decreasing at all — it is expanding its range and thriving. I should congratulate Lee Thickett on his discoveries of new sites for Bog Orchid, and John Edgington for one of the best finds of the year — Alpine Fleabane (*Erigeron borealis*) at an entirely new site. Sarah Whild deserves a mention for refinding Purple Ramping-fumitory in its home town of Shrewsbury, and Heather McHaffie for several new Scottish sites. Please don't forget to send specimens of this to Tim Rich, preferably with permission to retain them at the National Museum of Wales. We especially need specimens from Lancashire, where it is alleged to be quite common, but thorough searches by Gail Quartly-Bishop were only successful in the one well-known site where it has been known for decades.

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

RECORDERS AND RECORDING

PANEL OF REFEREES AND SPECIALISTS

As usual there have been a number of changes of address in the Referees Section, and more Referees now have email addresses. Please could Referees let me know of address changes, and I would be glad to know if others would like their email addresses included.

The death of Franklyn Perring has been announced elsewhere; as Referee he was covering *Anagallis*, *Arctium*, *Symphytum* and 'popular names' and will be much missed in this connection, as in so many others.

Professor David Moore, *Viola* Referee, has said that he would like to retire, and we are pleased to welcome his replacement, Mike Hardman.

We welcome also Paul Green (*Allium*), Rose Murphy (*Oenothera*), and Andrew Norton (*Geranium*).

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

PANEL OF VICE-COUNTY RECORDERS

Members will receive a full listing with the new *Year Book 2004*, but it might be useful to give the recent changes.

V.c. 7 N. Wilts: Vacant

Dave Green has been recorder since 1982, and helped greatly in the recording, culminating in the new *Flora* in 1993. We thank him very much for his efforts.

V.c. 88 Mid Perth: Mr J.W. McIntosh, 6/1, 53 Hutcheson Street, Glasgow, G1 1SJ and Mr A.C. Godfrey, 18 Isla Road, Luncart, Perthshire, PH1 3HN, to be joint recorders. Correspondence to Mr McIntosh. We thank Dr R.E. Thomas, recorder since 1981, for all his work in such a rich and vast vice-county.

V.c. 92 S. Aberdeen: Dr R.J. Mitchell, Eastview Cottage, Woodside Road, Torphins, Banchory, Kincardines, AB31 4JR. We thank Kathy Fallowfield, recorder since 1994, for all her work in another vice-county that is daunting in its richness and difficulty of access.

V.c. 97 Westernness: Mr I.R. Bonner to be joint recorder. Correspondence, as before, to Dr I. Strachan.

V.c. 102 S. Ebudes: Dr M.A. Ogilvie, Glencairn, Bruichladdich, Isle of Islay, Argyll, PA49 7UN. We thank Richard Gulliver, recorder since 1993, for his help since that date.

V.c. 106 E. Ross: Drs B.R. & C.B. Ballinger, 5 Shaftsbury Park, Dundee, DD2 1LB. Mrs R. Scott to continue as joint recorder, but correspondence to the Ballantynes. Peter Wortham, recorder since 1994, retires, and we thank him for his work, especially for the *New Atlas*.

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

PLANT RECORDS FOR *WATSONIA* AND THE VICE-COUNTY CENSUS CATALOGUE

The criteria for submission of records for *Watsonia* have been completely revised following publication of the Vice-county Census Catalogue (VCCC), so that Plant Records becomes the formal way of updating the Census Catalogue, and a source of information on new records of rare and scarce species.

At present barely half of Vice-county Recorders (VCRs) regularly publish new records (of species, subspecies and hybrids) in *Watsonia*. It is really important that in future VCRs submit records, not only to keep the VCCC updated, but also to make *Watsonia* records more meaningful. Submission of such records will therefore be requested as part of with the annual report on records referred to above. We would like VCRs to use the following criteria for what records to submit as VCCC updates for their vice-county:

- First record of **all** taxa (species, subspecies and hybrids) included in the VCCC, designated as native, archaeophyte, neophyte or casual.
- First record since 1970 of the taxa above.
- Records demonstrating the rediscovery of all taxa published as extinct in the VCCC or subsequently.
- Newly reported definite extinctions. (Not simply 'not seen for ten years'.)
- Deletions from the VCCC (e.g. through the discovery of errors, the redetermination of specimens, etc.). [**NB** — only those errors affecting VCCC entry].

Please note the quite radical changes to the pre-VCCC criteria, including the inclusion of all casuals listed in the VCCC, some of which should previously have been published in *BSBI News*.

In addition, we would like VCRs to submit:

New 10km square records for Rare and Scarce plants, defined, for the moment, as those species in the *New Atlas* mapped in Britain in 100 10km squares or less.

We must collect records of these to make certain we know the real distribution and to help keep the TPDB up to date.

All critical taxa should, of course, be determined or confirmed by an acknowledged expert. This is currently a problem for *Hieracium*.

The history of botany has been littered with erroneous or dubious records and recorders are asked to make every effort to ensure accuracy of completed individual record cards (IRCs). In case of doubt on determinations refer to the appropriate BSBI referee or to BRC. At least 6 figure grid references should be provided and notes on actual location of plants to guide future monitoring should be written on the back of IRCs.

New guidelines for Irish VCRs are currently in the process of being drawn up by the BSBI Irish Committee in consultation with Records Committee and other interested parties.

GWYNN ELLIS, Editor Plant Notes

BEYOND TRAINSPOTTING

At the recent Scottish meeting it was suggested that it is time for us to move beyond 'trainspotting', that as recorders we can and should do more than simply tick the register — present or absent. This is a view I share, and as a positive step towards its implementation, I am setting out here two suggestions of how we might do more, which I propose to employ experimentally during the coming season. I invite others to do the same, and hope that on this basis discussion may be carried forward and a more adequate data collection system put in place.

Useful as it is to know that a taxon has been found or not found at a given site, this information is so much less than what might be recorded *without any additional fieldwork*, that it represents a squandering of effort and resources. In the course of several hours recording a site, km square or tetrad, we actually acquire a great deal of valuable information that at present never finds its way on to our record card. We observe, for instance, that some species occur as scattered individuals in suitable locations, others in colonies large or small, while yet others are frequent in many kinds of habitat. We make a few notes on rare and unusual taxa, but for the rest our record sheet preserves no indication of whether one, ten or ten thousand specimens were present, and if in one locality or many.

My first suggestion is to use an AFOR scale (abundant, frequent, occasional, rare). Towards the end of each session, it would take only a few minutes to write the appropriate letter beside each taxon which has been stroked through, or cards could be designed with four boxes after each taxon name, in which case only a tick would be needed. Cards scored in this way would be of much enhanced value: for instance, in assessing the health of a hectad population, the information that the species was frequent in three sample tetrads would be more significant than merely knowing that it was present there. In repeat surveys such as BSBI Local Change, the additional information would be of great value and would provide a much more sensitive barometer of population change. It would no longer be necessary to await total extinction in a tetrad, or worse hectad, before alarm bells could be sounded. Of course, there is always an element of subjectivity in drawing the lines between categories, but guidelines could be offered, and in any case differences should even out when data is pooled.

However, an AFOR type scale has serious limitations. As Rodwell remarked, its 'inherent confusion of . . . abundance and frequency' made it unsuitable for NVC work. Ideally, we should aim to record both these variables, thereby allowing a distinction between (e.g.) well scattered individuals and a couple of dense colonies, both of which might score Occasional on the AFOR scale. There are two axes, one from local to general within the entire site being recorded, the other from scarce to

abundant in the locality where the plant occurs. If the status of a species in both these respects can be recorded, the value of the record is hugely increased. The problem is how to convey a useful level of information without undue complexity in observation or recording. Three categories on each axis are probably sufficient, and may be most conveniently expressed by adding a code letter and number after the taxon. I suggest the following categories provisionally, they may require tweaking after trials.

Frequency:

A	>20%	widespread
B	>1%	rather local
C	<1%	very local

Note: to envisage this, mentally divide the survey area into 100 squares and estimate how many of these the species occurs in, i.e. more than one or more than 20.

Abundance:

1	plentiful
2	never numerous
3	very few plants

For example: *Lolium perenne* A1

This would mean that perennial ryegrass was widespread at a site and very numerous throughout.

Stachys officinalis C1

This would mean that betony was very local at the site but where it occurred it was plentiful.

To avoid future confusion, it is obviously desirable that a standard procedure be adopted, and it is my hope that readers may be stimulated to experimentation and discussion along these (or other) lines.

Reference

RODWELL, J.S. 1991. *British Plant Communities 1*: 7. Cambridge.

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Solution to Crossword No. 4

Across: 1. Wintergreen, 5. Tea-rose, 6. Dye, 8. Rename, 10. Tree, 11. Eden, 13. Editor, 15. Dam, 16. Lasting, 17. Forget-me-not.

Down: 1. Waterweed, 2. Terrain, 3. Grey, 4. Elder, 7. Eyebright, 9. Eve, 10. Thistle, 12. Emmer, 14. Aloe.

NOTES AND ARTICLES

THE ENIGMA OF THE ALIEN HEATHERS OF BRITAIN, ESPECIALLY *ERICA* × *DARLEYENSIS*

Having just taken over as BSBI referee for *Calluna*, *Daboecia* and *Erica*, and mindful to follow in the footsteps of the late referee, David McClintock, who did not take things for granted, I was somewhat taken aback by the *New atlas* CD-ROM on which there are four maps showing the distribution of several 'rare alien' heaths.

Three of the maps are not problematic. *Erica arborea* (Tree Heath) has been recorded as self-sown in several places in southern England, on Jersey and on the Isle of Man, and given that it can seed freely in gardens in Britain and Ireland, its presence beyond the garden wall is not at all unexpected.

Erica lusitanica (Portuguese Heath) has long inhabited a Cornish railway line and was naturalised for more than a century on Lychett Heath in Dorset, although I am uncertain whether it is still found there — McClintock reported in the 1964 *Yearbook of The Heather Society* that 'it was all but eradicated by fire not long ago', while 30 years later (just a decade ago) E.J. Clement and M.C. Foster (*Alien plants of the British Isles*.1994) wrote that the population was 'now much reduced or gone'. *Erica terminalis* (Corsican Heath) has been known from a site in Northern Ireland for at least a century (where I saw it in the mid-1970s), and is also recorded from three vice-counties in Britain: Berkshire, Dorset and Westerness.

The fourth map on the CD-ROM is for *E. ×darleyensis* (*E. carnea* × *E. erigena*) (Darley Dale Heath), a horticultural hybrid unknown in the wild because the parent species have widely separated natural ranges. In British gardens *E. carnea* and *E. erigena* can cross spontaneously and that was the origin of *E. ×darleyensis* — a chance seedling in Smith's nursery at Darley Dale in Derbyshire. At least 36 distinct, named cultivars have existed — 26 of these are commercially available today — according to the database maintained by The Heather Society for its *International register of heather names*. Recently, deliberate breeding programmes using carefully selected cultivars as pollen- and seed-parents have produced a crop of new seedlings, so the cadastre of named cultivars will undoubtedly increase.

Erica ×darleyensis is a very popular and widely cultivated plant, but it is sterile and none of the cultivars has produced viable seed as far as I can ascertain. Moreover, it does not spread in gardens by self-layering — although some of the cultivars do form mats, few if any of the stems will have adventitious roots. Given these characteristics, suggesting a plant incapable of 'jumping the garden wall', how do we explain the swarm of 18 10km squares across southern England? Are they all records of deliberately planted, but persistent plants? In one instance that is certainly the case. In the 1930s *E. ×darleyensis* was planted outside Notcutts' Nursery at Woodbridge in East Suffolk, but when the A12 was re-routed this heather 'plantation' was virtually destroyed, although an old plant did persist there for many years. As far as I can ascertain this plant has long since vanished and, contrary to what Clive Stace (*New flora of the British Isles*.1991) stated, there is no *E. ×darleyensis* on the side of the A12 at Woodbridge today. That leaves 17 squares, one of which presumably is the record cited by Clement and Foster (1994) for Brookwood Cemetery, Surrey — not a record I would regard as admissible unless the heather has escaped beyond the cemetery's boundaries. Indeed, it is rather suspicious that *E. carnea* is also recorded by Clement and Foster (1994) from Brookwood Cemetery, making the place sound more like a well-planted heather garden than a veritable 'wild' site. (The question of *when* a plant becomes a naturalised alien is another subject!)

The enigma of *E. ×darleyensis* is compounded by the fact that there is no map on the CD-ROM showing the distribution of naturalised populations of *E. carnea* (Winter Heath) in Britain although this widely cultivated and equally popular heather is recorded by Clement and Foster (1994) as 'persistent on Apple Tree Banks' on Tresco, on Dartford Heath, and at Churt and the aforementioned cemetery in Surrey. Neither the 1991 edition of Clive Stace's *New flora* nor his 1999 *Field flora of the British Isles* has an entry for *E. carnea*.

I suggest that the enigma of the 16 inexplicable squares for a heather incapable of producing seeds and rather less prone to vegetative spread than Stace suggests is a matter of identification. Few heather experts, whether nurserymen, gardeners or botanists, given pressed specimens of these plants, or even fresh specimens plucked from unseen plants, can distinguish between *E. carnea* and *E. ×darleyensis*, and even telling *E. carnea* apart from *E. erigena* takes a great deal of blind faith. In gardens at least, a good (but not utterly reliable) rule-of-thumb is that hybrids between *Erica* species usually have non-green (coloured) young growth (see colour section, plate 2) during late Spring-early Summer. The following clones are just four examples of the so-called Spring-tipped hybrid heathers: *E. ×darleyensis* 'Furzey', pink tips; *E. ×stuartii* 'Irish Orange', orange tips; *E. ×watsonii* 'Dawn', red tips; *E. × williamsii* 'Cow-y-jack', bright yellow tips. The last three are wild-collected, native clones.

Thus a key to *E. carnea*, *E. ×darleyensis* and *E. erigena* could be as follows:

- | | | |
|----|--|---------------------|
| 1a | Plants with stiffly erect stems, forming bushy shrubs with several, distinct main stems, to at least 0.75(–3)m tall; foliage green all year round | <i>erigena</i> |
| 1b | Plants with numerous decumbent or ascending shoots, without distinct, main stems, rarely more than 0.6m tall (usually lower when growing in open ground) | 2 |
| 2a | Foliage green all year round; shoots usually decumbent (pollen fertile) | <i>carnea</i> |
| 2b | Young shoot-tips not green, often brightly tinged red, yellow or cream; shoots ascending or decumbent (pollen infertile) | <i>×darleyensis</i> |

While it would be nice and convenient to have a few good morphological characters to denote the differences between *E. carnea* and *E. ×darleyensis*, it is apparent that the only reliable way of distinguishing them is to examine their pollen. With one rather rare exception, the pollen grains of the cultivars of *E. ×darleyensis* are reported to be shrunken and infertile. Telling *E. carnea* and *E. erigena* apart, when these are presented as detached specimens, is if anything even more difficult because both have fertile pollen.

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FLORAL ABBERATIONS

The recent correspondence regarding double-flowered forms of *Cardamine pratensis* (Cuckooflower) reminds me of the only occasion when I have seen this aberration. This was about 60 years ago when I found the fully double form at the top of a hill at Barby in Northamptonshire, in a field where stood the remains of an old windmill (GR SP542697). After this length of time I cannot remember whether there were other similar plants.

Years later I found a fully double form of *Helianthemum nummularium* (Common Rock-rose) on Ivinghoe Beacon. I took a cutting from this and cultivated it for many years in my garden at Little Hallingbury. It was never a vigorous plant. I have also cultivated a fully double form of *Ranunculus bulbosus* (Bulbous Buttercup) given to me and taken from a road verge in Farnham Lane near Bishop's Stortford. In the 1960s I discovered a form of *Ranunculus acris* (Meadow Buttercup) with green petals at the foot of Brean Down in Somerset (see Colour Section, plate 3).

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DROUGHT RESISTANT *RANUNCULUS FICARIA*?

In May this year I noticed *Ranunculus ficaria* (Lesser Celandine) growing in sandy soil just above the littoral zone on the foreshore north of the Highland boundary fault, north of Stonehaven. The surrounding vegetation was brown and parched whereas the plants of *R. ficaria* appeared lush, green and healthy. This and the high levels of salinity surrounding the plants made me wonder whether this is an example of a variant designed to cope with physiological drought. Do members have any ideas?

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A SINGULARLY DOUBLE FORM OF *CARDAMINE PRATENSIS*

I have been very interested in the various articles you have printed on double forms of Lady's Smock, from various parts of the country, and this reminded me of a very peculiar mutant form that I found back in the 1960s in Somerset, when I was at the Botany Dept at Bristol University. The plant was growing with normal individuals in a damp meadow, but I could at once see that there was something unusual about the flowers. On closer inspection, some of the flowers appeared to be quite normal, while others, on the same stem, consisted of a mass of petals and no sexual organs. However, when I examined the latter in detail, I realised these were just a later developmental stage of the 'normal'

flowers. The flower buds opened to reveal a single flower, with a normal androecium and gynoecium. However, after the petals dropped, the ovary, instead of developing into the usual elongate siliqua, began to swell in the middle, eventually bursting open at one side to reveal a large number of more or less perfectly formed petals. At this stage these flowers looked at first glance like any other double flowers! I was so interested in the plant that I removed it to the Experimental Glasshouse, at the University, where it thrived for a few years. Unfortunately I no longer recall the exact locality where I originally found it, though I returned on several occasions to see if there were other similar individuals, but without success. This really was a double flower, as it produced two flowers from the same bud! I wonder if anyone else has encountered anything similar?

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COASTAL *ELYTRIGIA* SPECIES AND HYBRIDS IN NORTH-WESTERN ENGLAND AND NORTHERN WALES

Introduction

Over the last thirty five years vascular plant records have been gathered on a tetrad basis in West Lancaster (v.c. 60). In the course of this work it became clear that one of the most common upper marsh species was what was thought to be *Elytrigia atherica* (Sea Couch) (Fig. 1, below).

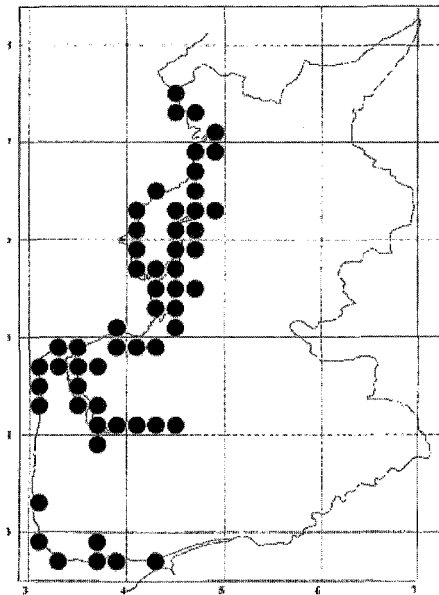


Figure 1. Tetrad distribution map of what was thought to be *Elytrigia atherica* on the coast of West Lancaster, v.c. 60 compiled from records collected 1964 – 1998. It probably shows the distribution of somewhat glaucous *Elytrigia* taxa, mostly *E. ×oliveri* but also of *E. ×obtusiuscula*, *E. ×laxa* and *E. repens*. *E. atherica* is absent.

Map prepared using Alan Morton's DMAP programme.

However Halliday (1997), having had material from Cumbria critically checked by Dr T.A. Cope, found that what was thought to be *Elytrigia atherica* was the male sterile hybrid *Elytrigia ×oliveri* (*E. repens* × *E. atherica*). This prompted a more detailed investigation of the supposed *E. atherica* populations in v.c. 60 and elsewhere in north-western England and northern Wales. Whilst the text

accompanying the map for *E. atherica* in the *New Atlas* (Leach, 2002) recognises that there might be identification problems towards the north of *E. atherica*'s range all the supposed records for *E. atherica* were published with the exception of those for v.c. 60. Here the records were omitted at the last minute in the light of growing evidence of a more complicated situation.

Coastal *Elytrigia* in v.c. 60 and elsewhere

In v.c. 60 supposed *E. atherica* dominates parts of the upper salt marshes in Morecambe Bay and in the estuaries of the Rivers Lune, Wyre and Ribble.

Wheldon & Wilson (1907) recorded *E. atherica* at five localities in Morecambe Bay and in the Lune and Wyre estuaries with a further record added on the Keer estuary (part of Morecambe Bay) in 1912 (Wheldon & Wilson, 1925). At that time the identity of the grass was causing problems as the Keer estuary gathering was identified as '*Agropyron pungens* R. & S. var. *aristatum* Hack.' and material from Preesall on the Wyre estuary circulated in 1899 (Wheldon, 1901) prompted debate. Fortunately these and other voucher specimens survived for Dr Cope to check. All are *E. ×oliveri* (*E. repens* × *E. atherica*) with the exception of one gathering in 1911 from Fleetwood on the Wyre estuary that is *E. atherica*.

More recently Gray & Scott (1987) refer to the variability of *E. atherica* in Morecambe Bay and suggested a hybrid complex with *E. juncea* (Sand Couch) may be involved.

Elsewhere in north-western England Halliday (1997) doubts the validity of old records of *E. atherica* in Cumbria whilst in South Lancaster (v.c. 59) Savidge, Heywood & Gordon (1963) report one record for *E. atherica* from the south bank of the Ribble estuary near Southport. However a voucher for this has not been found. On the other hand a plant collected by W.G. Travis in 1911 on the north bank of the Mersey estuary at Hale (NMW) was confirmed as *E. ×oliveri* although apart from Travis, opinion at the time suggested it was *E. repens* (Travis, 1912). De Tabley (1899) and Newton (1971) reported *E. atherica* as occurring on both the Mersey and Dee estuaries in v.c. 58. Specimens from the Dee shore at LIV suggest that both *E. ×oliveri* (coll. J.H. Lewis, 1877) and *E. atherica* from clay banks (coll. Robert Brown, c.1870s) were present. At that time the shore was sandy and the only salt marshes were 6 or 7kms upstream of where the specimens were collected. W. Harrison collected another specimen of *E. ×oliveri* in 1914 on the north Wirral shore at Meols again when only sandy shores were present. In northern Wales Wynne (1993) reported four records of *E. atherica*, one dating from 1850, for the Flint (v.c. 51) shore of the Dee estuary. Goronwy Wynne has a voucher specimen for one of these records but this is *E. ×oliveri*.

With this background of confusion it was decided to collect voucher material from all the major salt marshes in v.c. 60 and from further afield where possible. In v.c. 60 no *E. atherica* was found. However in addition to *E. ×oliveri*, confirmed as occurring commonly and extensively, *E. ×obtusiuscula* (*E. atherica* × *E. juncea*), *E. ×laxa* (*E. repens* × *E. juncea*) and *E. repens* (Common Couch) were also found, sometimes abundantly.

In v.c. 60, *E. ×oliveri* often forms a characteristic monoculture, or occasionally with a few plants of *Aster tripolium* (Sea Aster) and *Suaeda maritima* (Annual Sea-blite), on the highest parts of ungrazed or lightly grazed salt marshes on muddy substrates. There it often occurs in a zone 1 – 3m or more wide and up to 1km or more in length above the mid-marsh communities and where inundation occurs by most spring tides. This community is probably ascribed to the '*Elymus pycnanthus*' salt marsh community (SM 24) of Rodwell (2000) who indicates that it occurs on generally well-drained substrates in salt marshes from the Ribble estuary to Morecambe Bay. However it is more characteristic of salt marshes in south-eastern England. This would be in accordance with *E. atherica* belonging to the coastal European Southern Temperate floristic element (Preston & Hill, 1997), which might be expected to reach its northern limits in north-western England.

Closely related to SM 24 is the '*Elymus repens*' salt marsh community (SM 28). This occupies a similar zone and Rodwell (2000) suggests it is less consistently confined to well drained sites and occasionally occurs on waterlogged clays. It is however characteristic of salt marshes in western England and Wales and in south-western Scotland. This community occurs in north-western England from the Dee to Morecambe Bay where it occupies a variety of substrates ranging from mud to stabilised shingle.

On the north bank of the Dee estuary the upper salt marsh is often dominated by a mosaic of communities in which the background is formed by *E. repens* and within which there are islands of hybrid *Elytrigia*. These are both *E. ×oliveri* and *E. ×obtusiuscula*. In v.c. 60 *E. ×obtusiuscula* was usually found in different parts of the marsh to *E. ×oliveri*. Towards the mouth of the Dee estuary the shore becomes progressively sandier and less muddy with fore dunes dominated by *E. juncea* forming the '*Elymus farctus* ssp. *boreali-atlanticus*' fore dune community, SD 4 (Rodwell, 2000). *E. juncea* is common along the sandy and shingle shore of north-western England and it seemed likely that it might form hybrids with *E. repens*. This proved to be correct and a few plants were found scattered in v.c. 60 ranging from sandy salt marshes to mobile sand dunes. In v.c. 59 *E. ×laxa* was found more frequently with colonies on sandy ground at Seaforth, Liverpool at the mouth of the Mersey estuary and on sandy salt marshes at Marshside, Southport at the mouth of the Ribble estuary.

Nevertheless *E. atherica* still grows in north-western England. Using the label data for specimens of *E. atherica* from Wirral it was possible to identify the precise location of 19th century records. At that time there was no salt marsh in the vicinity and the colonies were found on wet clay banks or sandy ground by the shore. Today *E. atherica* grows in the same area and so far three extant colonies have been identified; one on wet clay, another on sandy ground and a third by a sea wall at the top of a salt marsh. Salt marsh now covers extensive areas of the Dee estuary in front of the *E. atherica* colonies. However whilst the plants are male fertile no seed is produced.

As *Elytrigia atherica* is a member of the European Southern Temperate element of the British flora the possibility that summer maximum temperatures could limit seed viability was considered. Pigott & Huntley (1981) showed how important this was for *Tilia cordata* (Small-leaved Lime) also reaching its northern limits in north-western England. They demonstrated that for good seed set three or more consecutive days when the temperature reached 20°C were required at specific periods following pollination and that this approximated to the 20°C isotherm for mean daily maximum temperatures for August. They published a map based on the *Climatological Atlas of the British Isles* published in 1952 that showed that the average means of daily maximum air temperature along the coast of north-western England for the period 1901 – 1930 was between 18°C and 19°C. This might indicate that maximum summer temperature were not high enough on Wirral for *Elytrigia atherica* to set seed. However since then the Central England Temperature series shows that whilst summers have become warmer by 0.2°C (mean summer temperature) during the 20th century there has also been a significant increase in the incidence of 'hot' days (maximum temperature over 20°C, especially during the 1990s (Hulme & Jenkins, 1998). Since 1966 the University of Liverpool has kept temperature records at their botanic garden at Ness, some 7kms upstream of the *Elytrigia atherica* sites. These show that the mean maximum temperature for both July and August is above 20°C and that in the warm summer of 2003 these were 21.4°C for July and 21.1°C for August. Furthermore there were few days in these two months when maximum temperatures did not reach 20°C. Thus given the significant summer warming that has taken place in recent years then if summer maximum temperature were a limiting factor Wirral populations of *Elytrigia atherica* might have been expected to set seed, at least in 2003. That no seed was set suggests other factors are involved.

Discussion

A number of issues are raised by these observations. *Elytrigia atherica* was always a rare plant in north-western England with only a few of the older records being confirmed whereas the previously unrecorded hybrid *E. ×oliveri* was present since at least from the second half of the 19th century. However whilst *E. ×oliveri* dominates some salt marshes other taxa are involved. These include, besides a few colonies of *E. atherica*, an abundance of *Elytrigia repens*, often in a glaucous form, *E. juncea*, *E. ×obtusiuscula* and *E. ×laxa*. It may be that further work will show that at least some of the glaucous leaved *E. repens* is *E. repens* ssp. *arenosa* recorded for the Sefton Sand dunes at Formby (v.c. 59) (Leach, 2002).

Presumably fertile *Elytrigia atherica* was present in north-western England at some time but at the moment it is not known what governs fertility. Nevertheless the pollen of existing colonies looks good so presumably repeated hybridisation events may occur. However vigorous rhizomatous species do

not require seed to disperse when bits of rhizomes can get detached and be spread by currents and tides. Furthermore reference has already been made to the relatively recent formation of salt marshes on the Dee estuary. Elsewhere a similar pattern of change has been noted over many years (Adam, 2000) and as long ago as the 17th century William Stout commented on the changes in Morecambe Bay (Marshall, 1967). Overall, whilst erosion occurs in places, there seems to be a net increase in the extent of salt marshes in the region. (Doody, 1999).

Traditionally salt marshes in north-western England were grazed mainly by sheep but also by cattle. In addition some of the Morecambe Bay marshes were used for lawn turf. Whilst grazing still occurs its intensity is reduced (Adam, 2000) and this favours the growth of grazing sensitive species including *Elytrigia* taxa. Thus once the hybrid events have taken place it is easy to envisage that if suitable habitats become available the various taxa will be able to take advantage of them. With the highly dynamic nature of the north-western coastal marshes and changes in marsh management *Elytrigia* hybrids have taken full advantage of the new opportunities.

Unfortunately it has not been possible to extend this study to other marshes in the British Isles. Reference was made earlier to Halliday's doubts about *Elytrigia atherica* in Cumbria and vice country recorders on the Scottish shores of the Solway are also now unsure of the identity of coastal *Elytrigia* (*pers. comm.*). Further south the map in the *New Atlas* suggests that *Elytrigia atherica* is a well-known and common coastal species. However the hybrids *E. ×obtusiuscula* and *E. ×laxa* are less well known and under recorded and a map for *E. ×oliveri* was not published. Had it been published it would have shown a remarkably disjunct distribution centred on Lancashire and Essex (Fig. 2). Cox (2003), using *E. ×oliveri*'s new name *E. ×drucei*, provides a further instance in Dorset as to how this hybrid can remain unrecorded for many years. Given the experience in north-western England it seems that many coastal populations of *Elytrigia* are hybrids and that at least in the north of its range *E. atherica* is much over recorded or probably absent in areas where it is said to occur.

There are many questions that arise from these observations but a start could be made by making a more critical evaluation of British and Irish populations of coastal *Elytrigia* taxa.

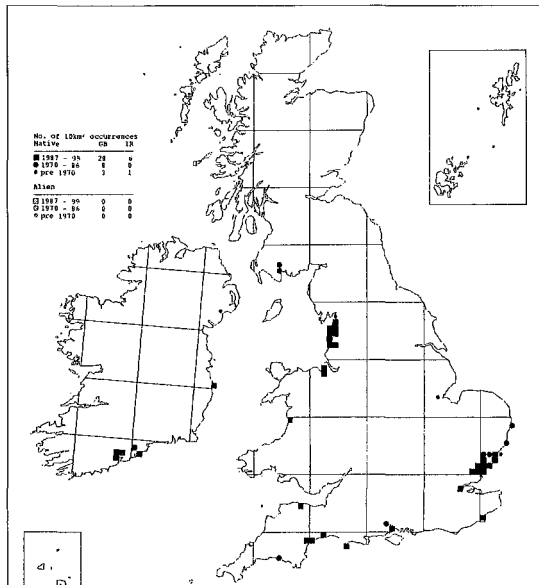


Figure 2. 10×10km square distribution map of *Elytrigia ×oliveri* in the British Isles.

Map prepared by and reproduced with permission of H.R. Arnold, Biological Records Centre, CEH, Monkswood.

Acknowledgements:

I am grateful to Dr G. Halliday for drawing my attention to the problem, to the curators of herbaria who let me examine their *Elytrigia* collections and to Keith Hatton of Liverpool University for providing meteorological data. Also to my wife, Barbara, for map preparation. I am especially grateful to Dr T.A. Cope who identified old and freshly gathered material as well as tutoring me in the diagnostic features of this group.

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PLANTS AT THE EDGE - THE SOUTHERN LIMIT OF *ERIGERON BOREALIS*

On 12th August 2003, with not a grouse in sight, Theo Loizou, Leslie Tucker and I climbed Meall na Samhna, west of Killin on Loch Tay. Theo was surveying squares north of Glen Dochart on behalf of Scottish Natural Heritage. After an interesting day on this rarely-visited ground just south of the main

Breadalbane ridge between Glens Dochart and Lochay, Theo struck south-west for his final quest, a historic record of the montane eyebright (*Euphrasia frigida*) near the summit of Meall Eòghainn in the 1km square NN4733. Arriving on a grassy ledge near a rocky outcrop at 880m OD, we soon spotted the *Euphrasia*. While Theo made notes I walked a few metres towards the rocks and came face-to-face with a fine plant of Alpine Fleabane (*Erigeron borealis*) (see colour section, plate 1), with another further up the rockface. Despite Theo's excitement at this find (see below) it was only later that it dawned on me that the plant in the photo may be the most southerly *E. borealis* in the world.

There is no lack of plants that reach their northern limit in the British Isles, including many of the hundred or so species belonging to the (sub)Mediterranean-(sub)Atlantic 'floristic elements' defined by Preston & Hill (1997). Presumably our equable climate, tempered by the Gulf Stream, is the main reason. By contrast, the number of non-endemic species whose southern limit lies in Britain can be counted (almost) on the fingers of one hand. Their occurrence here when their main populations lie far to the north is still not understood to everyone's satisfaction, so individual examples of extreme plants may be of some interest, and not totally trivial.

Such species are found among those included by Preston & Hill in the most northerly of their four biomes, the Arctic-montane, and specifically among those eighteen species which do not grow on Eurasian mountains south of Britain. Eleven of these species occur in the contiguous United States (USDA 2002), and several in Canada as far south as Newfoundland (Meades, Gay & Brouillet 2000), while another, Woolly Willow (*Salix lanata* ssp. *lanata*), grows, according to Anderberg (2003), in the southern Irkutsk region of Siberia. This leaves six Arctic-montane species having their global southern limit in Britain: Arctic Mouse-ear (*Cerastium arcticum*) (found also in Greenland and Labrador), Mountain Willow (*Salix arbuscula*) and Whortle-leaved Willow (*S. myrsinites*), Arctic Sandwort (*Arenaria norvegica*), Norwegian Mugwort (*Artemisia norvegica*), and *Erigeron borealis* (whose English name is a misnomer — unlike a related plant, *E. neglectus*, it is not found in the Alps). To these should be added a few plants from Preston & Hill's Boreal-montane biome, including some in critical genera such as *Euphrasia* raising difficult questions of taxonomy. I am inclined to accept only three — Long-stalked Orache (*Atriplex longipes*) and Rock Whitebeam (*Sorbus rupicola*) certainly, and Northern Knotgrass (*Polygonum boreale*) probably — as distinct species, non-endemic to the British Isles and with their southern limit here. (The Lady's-mantle (*Alchemilla wichurae*), with a single outlier in the Sudeten Mountains, just fails this test).

These three, and the first three of the six Arctic-montane species, are relatively widely distributed, with post-1987 *New Atlas* records from 27,59,70,28,26 and 38 hectads (10-km squares) respectively (Preston, Pearman & Dines 2002). It would be fruitless, except in (possibly) the Mouse-ear's Snowdonia stations, and (probably) those of the Whitebeam in Devon, to attempt to identify the most southerly colony, let alone pinpoint a particular plant. The remaining three species are much rarer. *Arenaria norvegica* occurs as two subspecies whose populations fluctuate but in most years number several thousand, both ssp. *anglica* and ssp. *norvegica* behaving as annuals or biennials (Wigginton 1999). For this reason, and putting aside the question of whether, following for example Anderberg (2003) both taxa should be treated as subspecies of the widespread Fringed Sandwort (*Arenaria ciliata*), the concept of 'most southerly plant' is a moving target. This leaves two perennials of which *Artemisia norvegica* (the British plant is var. *scotica*, var. *saxatilis* being widespread in the United States (USDA 2002)) is known from just three Ross-shire mountains. At each site there are hundreds, and in one case many thousands, of plants, including one colony extending over 9 hectares (Wigginton 1999). *E. borealis*, by contrast, is not subdivided and has a small British population that can be monitored down to individual plants.

The *New Atlas* records six post-1987 hectads for Alpine Fleabane, in Breadalbane (M. Perth) and the Eastern Highlands (Angus and S. Aberdeen). Breadalbane, the more southerly of the two districts, supports a population of about 600, the Eastern Highlands fewer than 300 (Wigginton 1999). There are post-1987 Breadalbane records from NN64 (which includes Ben Lawers) and NN65, a pre-1970 record from Meall nan Tarmachan in NN54, and a further post-1987 record in NN43. Richard Thomas tells me that *E. borealis* was found here in 1999, probably by Clive Dixon, on an eastern outlier of Ben Heagsarnich. Meall Eòghainn is about 5km further south, in a square for which SNH has no record,

old or new (this accounts for Theo's excitement). It seems that this site for *E. borealis* at latitude N56° 27' 37", and the particular plant in the photo, is indeed the southernmost in the world.

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WHAT LIES ACROSS THE CHANNEL?

Since recently moving to Brussels, I have been mentally comparing the floras of Belgium and Britain. As the two countries are so close geographically and climatically, you may be interested in my observations. Brussels has an average annual temperature of 10°C and an annual rainfall of about 80cm. This is similar to southern Britain, for example the average yearly temperature at Kew is 10.4°C, though it is dryer in southern England at around 60cm per year. Summer maximum temperatures are also similar, though winter averages are about a degree colder in Belgium. As it is late in the season I have only had an opportunity to look at the urban flora, but this has some interesting differences, when compared to the UK.

The most obvious difference was the complete lack of *Senecio squalidus*, instead, in all the same habitats, is found *S. inaequidens*. As far as I have found there is no record of *S. squalidus* in Belgium. *S. inaequidens* has been recorded in Britain and has occasionally naturalised. Its further spread across Britain has long been prophesied, but for some reason it has not yet increased.

There are many other introduced weeds that may be familiar to British Botanists, though they appear more common here. For example, *Portulaca oleracea*, *Amaranthus retroflexus*, *Setaria viridis*, *Echinochloa crus-galli* and *Bidens frondosa*. These species are all well naturalised here and some are serious weeds in gardens and farms. Many of these plants are weeds on a global scale and as our climate warms one would expect to see them increase in Britain.

A species I had not seen before was *Duchesnea indica* (Yellow-flowered Strawberry), which has escaped from gardens all over Brussels. I first took it for *Fragaria vesca* until I saw its yellow flowers and larger fruits.

So far I have seen little difference in the native Belgian flora to that of southern Britain. However, *Cirsium oleraceum*, is common in woods and waysides, whereas it is an uncommon introduction to Britain. Also, *Epipactis helleborine* is a weed of gardens and parks, much like is in the north-eastern USA and only a few parts of the UK.

During 2004 I hope to visit more of the native habitats of Belgium. There are many places of Botanical interest here. The Ardennes has a good limestone flora and extensive forests. In the north-west there are large moorlands and bogs, while along the coast there are salt marshes and dunes. Hopefully, I shall report my findings at a later date.

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A KEY TO BROMEAE IN THE MEDITERRANEAN CLIMATIC ZONES OF SOUTHERN EUROPE, SOUTH WEST ASIA, AND NORTH AFRICA

The key is designed to assist the identification of Bromeae in the Mediterranean climatic zones below 1000 metres of altitude of Portugal, Spain, France, Italy, the Balkan countries including Greece, Turkey, Syria, Lebanon, Israel, Egypt, Libya, Tunisia, Algeria, Morocco and the Mediterranean islands. In these zones most Bromeae growth occurs following rainfall during the mild October to April winter and ceases in the hot summer droughts. The key is written primarily for British botanists visiting these countries and the nomenclature is as in Stace (1997), Tzvelev (1976), Holub (1973) and Tutin (1962).

The key has been developed and tested by:

1. a detailed study of the existing Floras and much other published data,
2. examining over 2000 (mostly herbarium) specimens of Bromeae species that were collected in the countries listed above,
3. cultivating all the grasses in the key (except *Bromus pumilio*, *B. chrysopogon* and *Bromopsis cappadocica*) and studying their growth.

KEY TO GENERA

1. Lower glume with 3-5(7) veins; upper glume with 5-7 (9) veins 2
1. Lower glume with 1 (3) veins; upper glume with 3(5) veins 3
2. Annuals without sterile shoots at flowering; spikelets ovate to linear-lanceolate, not flattened 2
Bromus
2. Annual or biennial; spikelets broadly-lanceolate, strongly flattened because the lemmas fold longitudinally along the thickened central vein (keel); awns 0-3(-4)mm long 2
Ceratochloa cathartica
3. Perennials with sterile shoots at flowering; spikelets narrowly oblong, tapering near the apex; awns not longer than the lemmas or absent 3
Bromopsis
3. Annuals without sterile shoots at flowering; spikelets lanceolate becoming wider at the apex as they begin to open and thus then wedge-shaped; lemmas narrow with long awns 3
Anisantha

BROMUS

1. Some upper lemmas with 3 or more awns; awns often reddish or purple and eventually curving out or spreading 2
1. Lemmas with fewer than 3 awns 3
2. Upper lemmas with 3(-5) awns, lateral awns often shorter and thinner 2
B. danthoniae
2. Most lemmas with 5-9 awns 2
B. pumilio (Section Boissiera)
3. Awns arising from the bottom of a deeply cleft lemma apex; lemmas 8-9mm long 2
B. bidentatus
3. Awns arising on the back of the lemmas 4
4. Panicle 10-20cm wide with very long branches; anthers >3mm long 5
4. Panicle <10cm wide not with very long branches; anthers <3mm long 6
5. Spikelets linear-lanceolate, 3-4mm wide; lemmas 7-9mm long; awns arising <2mm below the apex of the lemmas; paleas as long as the lemmas 7
B. arvensis
5. Spikelets narrowly-elliptical to oblong, 5-9mm wide; lemmas 9-13mm long; awns arising >2mm below the apex of the lemmas; paleas shorter than the lemmas 7
B. macrocladus
6. Lemmas papery, usually with protruding veins when dried 7
6. Lemmas leathery, usually without protruding veins when dried 11
7. Panicle erect, and dense; all pedicels much shorter than their spikelets; awns curving out at fruiting 8
7. Panicle lax, some pedicels/branches longer or shorter than their spikelets 10

8. Panicle narrowly-oblong; spikelets 25-45 mm long; lemmas 11-18mm long; awns arising >4mm below the apex of the lemmas *B. alopecurus*
8. Panicle broadly-oblong to ovate; spikelets 8-25mm long; lemmas 7-11.5mm long; awns arising 1.5-4mm below the apex of the lemmas 9
9. Spikelets 20-25mm long; lemmas 9-11.5mm long; awns arising 3-4mm below the apex of the lemmas *B. chrysopogon*
9. Spikelets 8-20mm long; lemmas 7-8mm long; awns arising 1.5-2.5mm below the apex of the lemmas *B. scoparius*
10. Panicle with slender flexuous pedicels/branches; awns arising 2-3.5mm below the apex of the lemmas; awns always strongly curved out, at least at fruiting, and often some twisted *B. intermedius*
10. Pedicels/branches not slender and flexuous; awns arising <1.5mm below the apex of the lemmas; awns straight, occasionally weakly curved out at fruiting, but never twisted *B. hordeaceus*
11. Awns arising 2-5mm below the apex of the lemmas, awns strongly curved out, at least at fruiting and often some twisted 12
11. Awns arising <2 mm below the apex of the lemmas; awns straight, not curved out and never twisted 14
12. Panicle lax, stiffly erect with stout, usually rigid pedicels, mostly shorter than their spikelets; upper glume 8-12mm long *B. lanceolatus*
12. Panicle lax, erect, or spreading or drooping; pedicels/branches not stout or rigid; upper glume 6-9mm long 13
13. Panicle usually racemose; pedicels/branches usually shorter than the few broadly-oblong or broadly ovate-lanceolate spikelets; lemmas >5mm wide, marginal angle halfway *B. squarrosus*
13. Panicle compound; pedicels/branches mostly longer than the many ovate to ovate-lanceolate spikelets that they bear; lemmas <5mm wide, marginal angle absent or above middle *B. japonicus*
14. Lower leaf-sheath glabrous or with sparse, thin usually short hairs; spikelets widening substantially by divergence of the florets as fruit forms; many rachillas becoming visible as the lemmas wrap around the caryopses which are U or V shaped in section; rachillas becoming tough and slow to disarticulate *B. secalinus*
14. Lower leaf-sheath with long patent hairs; spikelets not widening substantially as fruit forms; lemmas continuing to obscure most rachillas; caryopses flat or crescent shaped 15
15. Panicle narrow ±lax, usually unbranched; pedicels/branches <4cm long; lemmas glabrous, often minutely scabrid; all awns more or less equal in length; anthers 1.5-3 (-3.5)mm long *B. racemosus*
15. Panicle broad and spreading; some pedicels/branches >4cm long; lemmas glabrous or pubescent; awn of the lowest lemma shorter than the others; anthers 1.3-2.5mm long *B. commutatus*

BROMOPSIS

1. Basal leaf-sheaths decaying into a complex network of interlocking fibres; leaves up to 1.5(-2.5) mm wide, usually inrolled, rigid and glaucous *B. cappadocica*
1. Basal leaf-sheaths remaining intact or decaying into parallel fibres only 2
2. Plant densely tufted with a short rhizome; lower leaves <4mm wide; panicle narrow ± stiffly erect; anthers 5-8mm long *B. erecta*
2. Lower leaves >4mm wide; panicle lax or erect; anthers <5mm long 3

3. Plant in patches with long creeping rhizomes; panicle \pm erect; awns 0-2.5mm long *B. inermis*
3. Plant loosely tufted without long creeping rhizomes; panicle lax; with long branches; awns >3mm long 4
4. Upper leaf-sheath usually with long soft hairs; panicle very lax and spreading, with long patent branches; several thick cilia usually present on the edge of the culm at the lowest panicle-node *B. ramosa*
4. Upper leaf-sheath usually with minute patent hairs (30 \times); panicle erect, lax, and narrow with shorter branches, often swept to one side; thick cilia usually absent or only a few on the edge of the culm at the lowest panicle-node *B. benekenii*

ANISANTHA

1. Panicle stiffly erect and compact; all pedicels shorter than their spikelets 2
1. Panicle erect, lax or compact; at least some pedicels/branches longer than their spikelets 4
2. At least one pedicel >10mm long *A. madritensis*
2. Panicle dense with no pedicels >10mm long 3
3. Panicle obovate, very dense and congested with many spikelets; lemmas lanceolate, 2-4mm wide; awns straight *A. rubens*
3. Panicle narrowly fan-shaped, less dense with fewer spikelets; lemmas linear 1.5-2mm wide; awns curving out and often twisted at fruiting *A. fasciculata*
4. Panicle erect, lax or dense; culm at lowest panicle-node scabrid or with minute hairs (30 \times) upper glume 20-42mm long; callus scar at the base of the lemma oval/elliptic; awns >35mm long *A. diandra*
4. Panicle lax, and spreading; upper glume 7-18(-20)mm long; awns <35mm long 5
5. Panicle with long branches, each bearing only 1(-3) large spikelets; culm at lowest panicle-node glabrous (30 \times); upper glume 8-18(-20)mm long; callus scar at the base of the lemma uniformly rounded *A. sterilis*
5. Panicle usually crowded with many branches, several bearing >2 small spikelets or one-sided with several spikelets from the rachis; culm at lowest panicle-node minutely pubescent (30 \times); upper glume 7-12mm long *A. tectorum*

NOTES

- Dissection and especially the assessment of lemma texture is facilitated if spikelets are first soaked for an hour or more in water with a few drops of detergent.
- Lemma texture is determined by gently prodding pre-soaked lemmas with a blunt needle as described in Spalton(2001). Protruding veins should not be used as the sole determinant of lemma texture because sometimes leathery lemmas can be quite thin and thus veins can be protruding (this is frequent in *B. japonicus*) and, in others, pubescence can mask protruding veins. If a Caryopsis is present, it should be removed before doing this test.
- Measurements that are not consistent should be averaged and more than one specimen should be examined.
- Where there is an overlap in the measurements used to distinguish taxa, the character should only be used if the measured lengths are outside the overlapping lengths.
- 'Panicle-branches' are measured from the node on the rachis to the base of the terminal spikelet.
- 'Pedicels/branches' means pedicels or branches or both combined.
- Spikelet lengths and widths are measured before fruit has formed.
- Spikelet and lemma measurements exclude the awns.
- The lemma measured is the lowest lemma or the second lowest, whichever is longer.
- Anther measurements refer to mature undehiscent anthers from the lowest florets; other anthers are smaller.

- Determinations should be checked against the more detailed descriptions in the publications listed in the Bibliography.
- Immature plants can be confusing. Immaturity is indicated in Bromaeae when the glumes appear to be unusually long in relation to the length of the spikelet. On investigation it will be found that the glumes, which always mature early to protect the immature spikelet, are of normal length and it is the rest of the spikelet which is short because it is still immature. Microscopic examination will reveal fragile translucent anthers and immature pollen.
- The key does not include some very rare species but the author would be pleased to examine and determine specimens (whole plants, please).

Two new combinations are now published:

Anisantha fasciculata (C.Presl), Spalton **comb. nov.** Basionym: *Bromus fasciculatus* C.Presl, *Cyp. Gram. Sic.* **39** (1820).

Anisantha diandra var. *rigida* (Roth), Spalton **comb. nov.** Basionym: *Bromus rigidus* Roth in *Bot. Mag. (Roemer & Usteri)* **4(10)**: 21 (1790).

I thank Robert Portal and Clive Stace for valuable comments on an earlier draft of the key, the Curators of E, K, LTR, NMW, and RNG for the loan of specimens and all those botanists from Britain and abroad who have sent me specimens. I hope that they will continue to do so.

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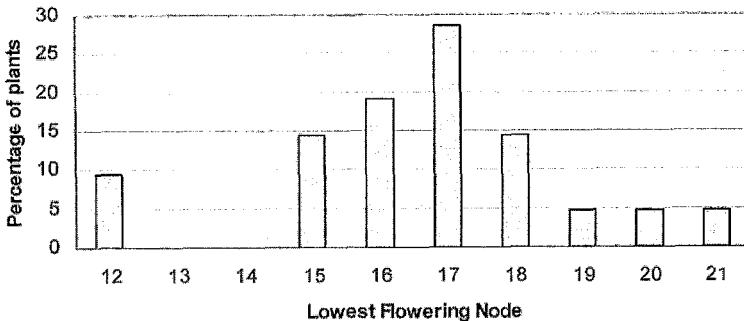
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THE FEN NETTLE, *URTICA GALEOPSIFOLIA*, IN STAFFORDSHIRE

In 1997 Andrew Leak found a form of nettle at Jackson's Marsh, an area of wooded marshland in Staffordshire (SJ787298), which he believed, on morphological grounds, to be *Urtica galeopsifolia* Wierzb. ex Opiz. This was accepted by the then BSBI County Recorder, Brian Fowler, as *Urtica dioica* ssp. *galeopsifolia*. As Martin Godfrey had also noticed that it appeared to flower rather later than the local *U. dioica* (Common Nettle), in mid July rather than mid June, we decided to make a fuller study of the plant. Although not covered by either of the 'standard' British Floras the plant is recognised as a species in *Flora Europaea* (Tutin *et al.* 1993) and Geltman (1992) gives reasons for recognising it as a 'good' species in Britain. There is also an identification guide in the *Plant Crib 1998* (Rich and Jermy, 1998). The Staffordshire plants fit the descriptions in the above publications very well; late flowering and tall with narrow stingless leaves having a soft tomentum on the underside. A key character is the lowest flowering node — in *U. dioica* this being at the 7th to 14th node and in *U. galeopsifolia* at 13th to 22nd node. We measured a sample of 35 plants in the marsh and found the mean lowest flowering node to be 17, well within the range of *U. galeopsifolia* and outside the range of *U. dioica*. To further confirm our identification Martin Godfrey carried out chromosome counts on specimens of the plant. Fresh root tips were fixed for 8 hours in 3:1 acetic alcohol, macerated for 10 mins at 60°C in 1N HCL then squashed in aceto-carmine. The chromosome count was found to be $2n = 26$, the published number for *U. galeopsifolia*. We are therefore content that the Fen Nettle, *Urtica galeopsifolia*, occurs in Staffordshire.

Lowest Flowering Node - *Urtica galeopsifolia*



It will be seen from the above figure that there is an 'outlier' in the lowest flowering node of 12, well within the range of *U. dioica* even though all of the plants in our sample had a similar morphology. Throughout the area surrounding Jackson's Coppice were many nettle plants which exhibited characters intermediate between the two species and it is tempting to speculate that they may hybridise — the hybrids possibly crossing with the parents to give a range of morphological types. Unfortunately Martin Godfrey was not able to get good quality chromosome preparations for any putative hybrid specimens but such counts as were made seemed to show counts in the mid 30s, indicative of a hybrid.

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SCROPHULARIA SCORODONIA (SCROPHULARIACEAE): NATIVE IN SOUTH HAMPSHIRE?

I first recorded *Scrophularia scorodonia* (Balm-leaved Figwort) on Burrow Island, Portsmouth, SU620007, v.c. 11 (S. Hants.) on 29th June 1996. The plants were growing just behind the shore with *Urtica dioica* (Common Nettle), on a low scrubby bank covered in *Hedera helix* (Common Ivy). Burrow Island is a small, wooded, uninhabited island, about 125m long and 50m wide, situated on the west side of Portsmouth Harbour. It is accessible on foot only during the low tide period, using an exposed shingle spit. It is the site of the historic Fort St James.

I did not realise the significance of this find, being the first record in Hampshire, until quite some time later during a conversation with Eric Clement. Although he originally dismissed my identification, on the basis that the species had not previously been recorded in Hampshire, he later visited the location with me and duly confirmed the record.

When first assessing whether the record was native or introduced Eric and I both came to the conclusion that it had probably arrived naturally, and as *S. scorodonia* was considered native at that time we concluded that it marked an easterly outpost. After the *Red Data Book* (Wiggington 1999) was published, I concurred with Eric's suggestion that it could be an eastward extension of the native range in Britain, i.e. 'the Isles of Scilly, Cornwall, Devon and Dorset'. Although the *New Atlas* (Preston *et al.* 2002) treats it as a neophyte and also shows scattered records for South Wales and eastern England, I still believe it should be considered native in its core range, although reasoned assessment should be applied beyond that.

Two issues need to be considered: (a) whether *S. scorodonia* is native in Britain, and (b) whether it is native on Burrow Island. I will attempt to explain the reasoning behind my conclusion that it is native in both cases.

Possible reasons for its presence are deliberate human introduction, accidental human introduction or natural arrival, the relevant factors involved in each are considered, with my assessment of likelihood for Britain and Burrow Island.

There is a lack of records any distance inland, the plant lacks any outstanding visual appeal, and does not seem to have any less obvious applications, as a medicinal, crop, or ground-cover plant, for example, which would make it useful. It shows no preference for inhabited over uninhabited situations (Wiggington 1999). All these facts lead me to the conclusion that deliberate human introduction to Britain was highly unlikely, and on Burrow Island, which is virtually unknown even to locals, even more unlikely.

There seems to me to be a very small likelihood of seeds transferring from a boat, car or person to its typical 'rather scruffy coastal or near-coastal habitats' as described by Wiggington (1999). If human elements were a contributory factor I would expect it to be found at used railway lines and active quarries, rather than disused/abandoned sites as mentioned by Wiggington. and more often in the vicinity of larger docks and resorts rather than (smaller?) ports and estuaries. It think it unlikely to be a result of accidental human introduction in Britain, and highly unlikely on Burrow Island.

The fact that it favours port areas is probably incidental, and greater importance should be attached to the sheltered position for which port areas are selected, and the milder climate and less extreme weather conditions found in sheltered positions. These factors naturally increase the likelihood of any plant with oceanic requirements finding a niche. There is also a possibility of bird-assisted arrival, especially on coastal sites. A plant which has a known preference for coastal areas must surely have a fairly high possibility of arriving aided by no more than the tide and waves, or among flotsam. Natural arrival seems to be the most likely explanation for the presence of *S. scorodonia* in Britain.

All things considered I think that natural arrival in Britain seems most likely, and therefore feel it should be considered a native here. I am also of the opinion that it has colonised Burrow Island by natural means and should also be considered native at this site. The distribution of *Poa infirma* (Early

Meadow-grass), which is similar to that of *S. scorodonia*, and yet is considered native in its core range, only strengthens my decision.

Vaguely related, and not to be missed: On the day that Eric finally did confirm my find, he became intent on exploring the inner part of the island, ignoring my hints about time and tide . . . I went to where I could see the spit, and when I informed him that the spit was 'rapidly-disappearing' he finally took note, and we ended up racing along the spit in ankle-deep seawater.

My thanks to Eric Clement and John Norton for comments and suggestions on this article.

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GERANIUM PURPUREUM SUBSPECIES

With regard to the article by Peter Yeo in *BSBI News* 93, I am one of those responsible for doubts about the distinctiveness of the two subspecies.

When I moved to Hampshire in 1978 the late Lady Anne Brewis introduced me to 'ssp. *purpureum*' growing upright on the S shore of the lagoon N of Hayling Golf Course, and to ssp. *forsteri* growing prostrate on the shingle S of the course. I could not see any difference in the sculpturing of the mericarp, only in the growth forms. The colonies by the lagoon died out due to scrub shading, but I found other upright plants in a sheltered position on the golf course, and later the late Paul Bowman found some similar N of the lagoon in a roofless ruined wartime building.

As stated in Rich and Jermy (1998) page 212, Dr D. Eaton (not Easton) (of the then Portsmouth Polytechnic Biology Department) grew plants from the seed from the prostrate population on the shingle, and found that in cultivation they grew upright like the 'ssp. *purpureum*' plants on and to the N of the golf course. I therefore concluded that ssp. *forsteri* was merely a prostrate form induced by habitat.

However what I have described as 'upright' growth above was upright in a zigzag fashion, and not with a single vertical stem as Yeo describes. I never realised that crucial difference in the growth forms, and I am grateful to him for clarifying this. All the Hayling plants were and are therefore ssp. *forsteri*.

In the quotation that Yeo makes from Baker, the latter is wrong both in stating that *forsteri* is defined by its prostrate habit, and in stating that it only grows at the rear of certain shingle beaches. Given shelter it grows upright in other localities, but in zigzag fashion.

Even great men make mistakes, and I think that the late E.F. Warburg was probably wrong when he confirmed a (presumably upright) specimen from near the Hayling (Sinah Common) golf clubhouse as ssp. *purpureum* (Brewis *et al.* p.188).

In the light of my experience I would not be surprised if the past and present colonies in W. Sussex to which Yeo refers, are all ssp. *forsteri*, and that ssp. *purpureum* is a plant of SW Britain.

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BEE ORCHID (*OPHRYS APIFERA*) IN AYRSHIRE (V.C. 75)

Historically Bee Orchid (*Ophrys apifera*) has always been exceedingly rare in Scotland, with no recent confirmed records in print. The earliest record in print for *O. apifera* is a 1908 record from Southwick (v.c. 73) with a voucher at Edinburgh, while Summerhayes mentions an old occurrence in Lanarkshire v.c. 77. More recently the first edition of the *Atlas of British Flora* makes reference to unlocalised records from v.c.c. 72, 73, 74, 75, 76 & 77 and there is a 1980 record from Dolbeattie. There are no current records shown in Scotland in the *New Atlas of the British & Irish Flora*.

It was thus, with great excitement that a single plant of *O. apifera* was discovered on the 18th of August 2003 on an old industrial site in east Ayrshire. The single plant consisting of two stems had finished flowering and was fruiting profusely. The location has a rich flora including Broad-leaved Helleborine (*Epipactis helleborine*), Twayblade, (*Listera ovata*) and Common Spotted-orchid (*Dactylorhiza fuchsii*). The plant was growing in coarse grassland amongst *Salix* with the closest associates being Hedge-bedstraw (*Galium mollugo*), Red Clover (*Trifolium pratense*), Fairy Flax (*Linum catharticum*), Mouse-ear-hawkweed (*Pilosella officinarum*) and Glaucous Sedge (*Carex flacca*).

Geographically the nearest locations are on the north coast of Ireland, and this leads one to speculate that the Scottish plant has arisen from seed blown on the south-westerly winds from Ireland. Generally the location has much open ground and appears suitable for further colonisation by *O. apifera* specially in view of the run, of mild winters, it will be interesting to see if this becomes a biological reality.

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CLEAVERS: SIZE, SEEDLINGS & FROST RESISTANCE

On arable land, Cleavers (*Galium aparine*) is now classified as 'one of the world's worst weeds' (Holm *et al.* 1977). According to Grime *et al.* (1988) its seeds need a brief exposure to chilling, but subsequent germination can occur over a protracted period. Spring seedlings consist of some well-advanced plantlets with large cotyledons, and others with just the emergent radicle.

I use circles of Glyphosate to control the main perennial weeds (Nettles (*Urtica dioica*), Creeping Thistle (*Cirsium arvense*) in preparation for individual tree planting. Frost or fine, wet or dry, Cleavers seedlings appear on these patches **every single month of the year**, as well as on areas disturbed by moles, pheasants and badgers. Severe or prolonged frost can cause the seedlings to change colour or become flaccid, and even to collapse. This sequence, almost invariably lethal to vertical seedlings of other species (excepting flattened rosettes, e.g. some frost-resistant thistle seedlings), is not fatal to Cleavers seedlings. They spring back, resuming rapid growth when less cold.

The family Rubiaceae consists of 630 genera and over 10,200 species (Mabberley 1997); most members are tropical. However the *Galium* genus, with 300 species in all is cosmopolitan: Europe has nearly 150 species, and Turkey over 100 (Hanf 1983; Mabberley 1997). The vigorous, widespread, frost-tolerant, annual Cleavers is remarkable when compared with its numerous tropical rainforest relatives, trees, shrubs and lianes.

As usual with phosphate- and nitrate-loving herbs, the average maximum heights given in most textbooks are grossly inadequate. Enfeebled maxima for Cleavers are 1.2m (Grime *et al.* 1988), and 1.5m, (Hanf 1983) presumably based on crop heights. Stace (1977) gives the more realistic maximum of 3m. Some of my young 3–4m trees are heavily festooned to the top with Cleavers by late summer, or bent double by contracted dried tangles, usually mixed in with 2m+ stinging nettles. September weeding involves snapped saplings (if careless), stings to the face; and hair downwards smothered in the small burrs! Under the tangles, next year's Cleavers seedlings and young plants have already

begun. When weeded, new ones appear in October, November, December; and January onwards in the following year.

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LEMNA MINUTA V: ROOT CAPS AND ROOT CHLOROPLASTS

In the early 1990s, Least Duckweed (*Lemna minuta*) was spreading very rapidly on canals (Smith 1990; Last 1990; Oliver 1991; Briggs 1992). Since that time, *L. minuta* seems to have become the most common duckweed in Wilts., whether in water troughs and small ponds, or in rivers and lakes. Usually, but not always, the single root beneath the frond looks green, often with an intensified yellow-green colouration just above the root tip (compare Oliver 1993). I thought this worthy of further investigation, and of comparisons with Common Duckweed (*L. minor*).

Fig. 1 (all figs. on colour section, plate 4), taken through a microscope, shows two doubled-back *L. minuta* roots, clearly illustrating the root caps which are 1mm long. (*L. minor* root caps (not pictured) measure 2-3mm). Slight greening can be seen behind the growing points.

Fig. 2 shows another much greener *L. minuta* root tip under higher magnification. Behind the meristematic area (already green) and surrounding the central vascular cylinder (stele) there seem to be dense masses of chloroplasts measuring 3-5µ (microns, or 3-5mm) across. This microphotography was on living wet preparations; but when coverslips were used and pressed down, the root caps can often be neatly squeezed off. No chloroplasts were seen in the cells of the extruded root caps.

Fig. 3 shows the central parts of the single root of *L. minuta* (width 0.1mm) and *L. minor* next to each other. The *L. minor* rootlet is twice the width of the *L. minuta* rootlet, but the latter is much more intensely green. At this magnification, the cell walls and stele are both very clear. Although not easily discernible, there were a few scattered chloroplasts in some of the *L. minor* cells. Chloroplasts were abundant in the *L. minuta* root tissues, often several per cell.

Fig. 4 again shows the central part of a *L. minuta* root under the highest magnification possible with a living wet preparation. Chloroplasts (3-5µ across) are clearly visible within the cells. Refocusing at various depths into the root cylinder seems to show that the chloroplasts are in all root tissues (excepting the root-cap cells, see above), including the central vascular cylinder.

It would be neat to explain the success of *L. minuta* in competition with *L. minor* in terms of its greener roots. However, the roots of *L. minuta* are not always green; and *L. minor* roots often are green, sometimes strongly so! The possible advantage is that *L. minuta* appears to grow faster in colder weather; under comparable conditions, *L. minuta* also seems to mobilise the chloroplasts behind the green meristematic root-tip region more rapidly than *L. minor*.

Acknowledgement: Appreciation is given to Brian & Joan Davies for their help and expertise in selection and processing the digital photographs.

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CAREX MURICATA SSP. MURICATA IN SOUTHERN ENGLAND

Carex muricata (Prickly Sedge) is part of the difficult spiked sedge complex and has two subspecies. The common ssp. *lamprocarpa* occurs generally on 'roadsides, and waste ground, more often on the heavier and damper soils, though also found on chalk' (Jermy, Chater & David, 1982). It is 'frequent' throughout southern and especially midland England and its distribution has, of course, been recently updated (Preston, Pearman & Dines, 2002). The rare ssp. *muricata* occurs on limestone and was thought to be restricted to this substrate and when its distribution was reviewed in the *Red Data Book* (Roberts, 1999) it was known from only 4 localities, having disappeared from Gloucestershire in 1983. In 2000 and 2001 it was discovered in two adjoining sites in Shropshire, where it grows, as in the other localities, in fairly open limestone grassland. I have seen it at the latter sites, in Yorkshire and in North Wales, thanks to the help of Sarah Whild, Mike Porter & Michael Foley and Jean Green respectively, and so by 2001 I was fairly familiar with the appearance of the rare subspecies.

In 2002 I was asked by the Berks., Bucks. & Oxon. Wildlife Trust to produce updated plant lists for the two reserves which I manage, Millfield Wood, near High Wycombe (SU89S) and Windsor Hill, near Princes Risborough (SP80G). Both these reserves are in Bucks. (v.c. 24), both are on SW facing slopes on chalk (though both with an acid top) and both have an area of roughly cleared woodland with equally rough grassy patches. In neither reserve had *C. muricata* ssp. *lamprocarpa* been previously recorded; it is an uncommon plant in S. Bucks. and I know of it from only three sites, one in each of 3 different hectads. Richard Fitter had once shown it to me some 600m from the reserve at Windsor Hill but this site was destroyed long ago during timber working.

So it was with some surprise that, early in 2002, I discovered *C. muricata* at the lower edge of the cleared woodland in Millfield Wood. I was even more surprised to find it again a few weeks later, in a similar situation, at Windsor Hill and more so, when, looking at the plants carefully they all appeared to be ssp. *muricata*. Specimens were sent to Mike Porter and Michael Foley, both very familiar with the subspecies. They in turn showed them to Arthur Chater and Clive Jermy and all four confirmed the identification. In 2003 Mike and Michael visited Millfield Wood and several more clumps were found, bringing the total to about 10 (and 5 for Windsor Hill). David Pearman was subsequently sent specimens and agreed with the identification. The fruiting stems are tall and stiff, just as in the northern plants but need to be protected from Muntjac, which, in 2002, ate all the Windsor Hill plants and most at Millfield Wood.

BBOWT's well-known Warburg Reserve is at Bix Bottom, near Henley (SU78D) in Oxfordshire (v.c. 23) and is well-studied and well-recorded. In older plant records *C. muricata* ssp. *muricata* was listed but subsequently removed (no doubt since someone pointed out that this could not possibly be correct!). It seemed therefore worthwhile investigating and in July 2003 I visited the reserve. Precise localities for *C. muricata* of either subspecies were vague but the last possible site, the edge of a grassy ride, shaded by trees at the edge of woodland on chalk, looked promising. The sedge was here and it too proved to be ssp. *muricata* (confirmed by Mike Porter) albeit rather spindly, due presumably to the shading.

Thus in the past two years *Carex muricata* ssp. *muricata* has been found in open woodland on chalk in three localities. I can hardly believe that I have found the only sites for it. There must be more, and I hope this note will encourage others to go looking for it in 2004 and subsequently. It may well be worth looking at areas of recently felled or thinned woodland on chalk and limestone, as in several of the known sites there has been a reappearance, or marked increase in abundance, following opening up of woodland. It could be that the sites are known but examination has been superficial 'because it can't be *muricata*' or even worse, it has been overlooked 'because it's only a sedge'!

My thanks to all those mentioned for steering me to the right places and for identifying specimens. Full information on the localities referred to is being collated and a review of the distribution of the taxon is in preparation

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BOTANY (TALKING FLOWERS) IN LITERATURE

With the holidays in mind, herewith by way of entertainment, an extract (pp 98-101) from the surreal world of Lewis Carroll's (i.e. Charles Lutwidge Dodgson; 1832-98) *Through the Looking-Glass and What Alice Found There* (1872).

Having declared that she [Alice] 'should see the garden far better' from 'the top of that hill' and having more than once walked towards it (only, because she is in Looking-Glass Land, she is walking away from it) and repeatedly ended up at a house instead, she tries once more:

... This time she came upon a large flower-bed, with a border of daisies, and a willow-tree growing in the middle.

'O Tiger-lily,' said Alice, addressing herself to one that was waving about gracefully in the wind, 'I *wish* you could talk!'

'We *can* talk,' said the Tiger-lily: 'when there's anybody worth talking to.'

Alice was so astonished that she couldn't speak for a minute: it quite seemed to take her breath away. At length, as the Tiger-lily only went on waving about, she spoke again, in a timid voice almost in a whisper. 'And can *all* the flowers talk?'

'As well as *you can*,' said the Tiger-lily. 'And a great deal louder.'

'It isn't manners for us to begin, you know,' said the Rose, 'and I really was wondering when you'd speak! Said I to myself, "Her face has got *some* sense in it, though it's not a clever one!" Still, you're the right colour, and that goes a long way.'

'I don't care about the colour,' the Tiger-lily remarked. 'If only her petals curled up a little more, she'd be all right.'

'Alice didn't like being criticised, so she began asking questions: 'Aren't you sometimes frightened at being planted out here, with nobody to take care of you?'

'There's the tree in the middle,' said the Rose. 'What else is it good for?'

'But what could it do, if any danger came?' Alice asked.

'It could bark,' said the Rose.

'It says "Bough-wough!"' cried a Daisy: 'that's why it's branches are called boughs!'

'Didn't you know *that*?' cried another Daisy, and here they all began shouting together, till the air seemed quite full of little shrill voices. 'Silence, every one of you!' cried the Tiger-lily, waving itself passionately from side to side and trembling with excitement. 'They know I can't get at them!' it panted, bending its quivering head towards Alice, 'or they wouldn't dare do it!'

'Never mind!' Alice said in a soothing tone, and stooping down to the daisies, who were just beginning again, she whispered, 'If you don't hold your tongues, I'll pick you!'

There was silence in a moment, and several of the pink daisies turned white.

'That's right!' said the Tiger-lily. 'The daisies are worst of all. When one speaks, they all begin together, and it's enough to make one wither to hear the way they go on!'

'How is it you can all talk so nicely?' Alice said, hoping to get it into a better temper by a compliment. 'I've been in many gardens before, but none of the flowers could talk.'

'Put your hand down, and feel the ground,' said the Tiger-lily. 'Then you'll know why.'

Alice did so. 'It's very hard,' she said, 'but I don't see what that has to do with it.'

'In most gardens,' the Tiger-lily said, 'they make the beds too soft – so that the flowers are always asleep.'

This sounded a very good reason, and Alice was quite pleased to know it. 'I never thought of that before!' she said.

'It's *my* opinion you never think *at all*,' the Rose said in a rather severe tone.

'I never saw anybody that looked stupider,' a Violet said, so suddenly, that Alice quite jumped; for it hadn't spoken before.

'Hold *your* tongue!' cried the Tiger-lily. 'As if *you* ever saw anybody! You keep your head under the leaves, and snore away there till you know no more what's going on in the world, than if you were a bud!'

'Are there any more people in the garden besides me?' Alice said, not choosing to notice the Rose's last remark.

'There's one other flower in the garden that can move about like you,' said the Rose. 'I wonder how you do it –' ('You're always wondering,' said the Tiger-lily), 'but she's more bushy than you are.'

'Is she like me?' Alice asked eagerly, for the thought crossed her mind, 'There's another little girl in the garden somewhere!'

'Well, she has the same awkward shape as you,' the Rose said: 'but she's redder – and her petals are shorter, I think.'

'Her petals are done up close, almost like a dahlia,' the Tiger-lily interrupted, 'not tumbled about-anyhow, like yours.'

'But that's not *your* fault,' the Rose added kindly: 'you're beginning to fade, you know – and then one can't help one's petals getting a little untidy.'

Alice didn't like this idea at all: so, to change the subject, she asked, 'Does she ever come out here?'

'I dare say you'll see her soon,' said the Rose. 'She's one of the thorny kind.'

'Where does she wear the thorns?' Alice asked with some curiosity.

'Why, all round her head, of course,' the Rose replied. 'I was wondering *you* hadn't got some too. I thought it was the regular rule.'

'She's coming!' cried the Larkspur. 'I hear her footstep, thump, thump, along the gravel-walk!'

Alice looked round eagerly, and found that it was the Red Queen. 'She's grown a good deal!' was her first remark. She had indeed: when Alice first found her in the ashes, she had been only three inches high – and here she was, half a head taller than Alice herself!

'It's the fresh air that does it,' said the Rose: 'wonderfully fine air it is, out here.'

'I think I'll go and meet her,' said Alice, for though the flowers were very interesting, she felt that it would be far grander to have a talk with a real Queen.

'You can't possibly do that,' said the Rose: 'I should advise you to walk the other way.'

Reference:

CARROLL, L. 1995. *Alice in Wonderland*. Ware, Hertfordshire: Wordsworth Editions Limited.

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BOTANICAL CROSSWORD NO 4

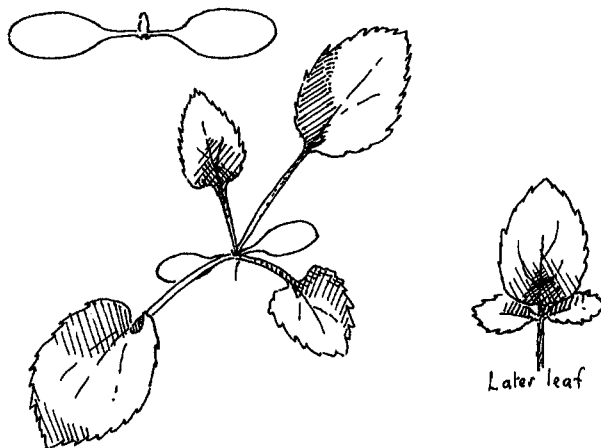
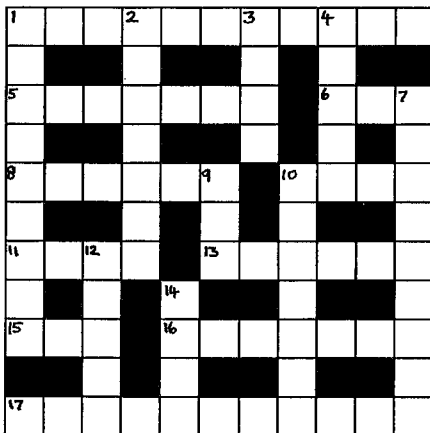
by *Cruciada*

ACROSS

1. *Pyrola* lozenge (11)
5. Fragrant beauty in the garden, taking a drink with Francis (3 - 4)
6. Steep, with *Isatis tinctoria* maybe (3)
8. *Endymion* as *Hyacinthoides*, for example (6)
10. Family one found in wood? (4)
11. Original garden project (4)
13. Gwynn Ellis, in this case (6)
15. Bullace loses child but becomes mother (3)
16. *Antennaria* ever thus (7)
17. Remember me? (6-2-3)

DOWN

1. Sprinkle tobacco plant in pond and stream (9)
2. Queen in coach makes the going (7)
3. Indistinct area could be spodochrous (4)
4. *Aegopodium* loses ground to church officer (5)
7. Smart underneath, I cite specifically Campbell, Marshall, Ostenfeld, Heslop-Harrison *et al.* (9)
9. She lived in No. 11 (3)
10. Rewrite the list for Scottish national plant (7)
12. Early wheat named after Jane's heroine (5)
14. Bitter plant Vera makes into fashionable cure-all (4)



Sambucus niger seedlings del. S. Evans © 2004

(see *BSBI News* 83: 68 & 90: 60 for a more detailed explanation of these drawings)

CONSERVATION NEWS & VIEWS

NEW PLANT STATUS LISTS FOR GREAT BRITAIN

The Species Status Assessment Project at JNCC is responsible for maintaining and updating Red Data Lists, and also the list of 'Species of Conservation Concern'. As a part of this project, the JNCC website (<http://www.jncc.gov.uk/species/Plants/default.htm>) includes lists of all vascular plants, charophytes, bryophytes and lichens for which there is statutory protection or which are considered threatened, rare or scarce. The lists of threatened, rare and scarce species have all recently been updated, and the lists for vascular plants now take account of the *New Atlas of the British & Irish Flora* (Preston, Pearman & Dines, 2002).

The IUCN criteria have been used to assess the threat status of species. For vascular plants, the result of this was the publication of the Red Data List, included in *British Red Data Books 1: Vascular plants* (3rd Edn., Wigginton, 1999). The IUCN categories currently used for vascular plants are:

- Extinct (EX)
- Extinct in the Wild (EW)
- Critically Endangered (CR)
- Endangered (EN)
- Vulnerable (VU)
- Data deficient (DD)

Those taxa in the categories CR, EN and VU are considered to be *threatened*. This work has not been updated during the recent review, although one species has been removed from the Extinct category (*Hydrilla verticillata*: now Nationally Rare) and several species have been removed because the *New Atlas* has classified them as neophytes. Only those taxa which are classified as 'native', 'native or alien', or as 'archaeophyte' are included in the new status lists. Further review of the Red Data List may occur following the report of the Vascular Plant Working Group in 2005 (this group is working on the list of Species of Conservation Concern rather than the Red Data List, it includes David Pearman representing the BSBI and is chaired by Lynne Farrell). In particular, the criteria used for the 'Near threatened' category will be reviewed, this review has already occurred for lichens (see *A Conservation Evaluation of British Lichens*, Woods & Coppins, 2003). It is also hoped that all British taxa will be assessed using IUCN criteria in the near future, currently only rare taxa and a few others have been assessed.

In addition to the threat status, the new lists also show the rarity status. This has been based entirely on the data from the *New Atlas*. Two categories are in use: Nationally Rare (NR) and Nationally Scarce (NS). The definition for these categories is currently the following:

- NR Occurring in fewer than 16 hectads in Great Britain and the Isle of Man
- NS Occurring in 16-100 hectads in Great Britain and the Isle of Man

These definitions are also under review by the Vascular Plant Working Group, and it is likely that they will be changed following the report by that group in 2005. In the interim, new lists have been prepared from the number of hectads in the *New Atlas* in the most recent date class (1987-1999) for all mapped taxa classified as 'native', 'native or alien', or as 'archaeophyte'. Only those hectads in which the taxon is considered native have been counted for native taxa, for archaeophytes all current records have been counted. For those taxa which are considered to be under-recorded in the *New Atlas*, records from all date classes have been included. A few taxa are considered to be so under-recorded that they cannot currently be assigned a rarity status, these may well be classified as Data deficient when the Red Data Lists are reviewed. Maybe the BSBI could organise some field meetings to try to target records for these poorly known taxa?

There are some notable changes compared to the old Nationally Rare and Nationally Scarce lists (Nationally Rare was based on the Near threatened as defined in *British Red Data Books 1: Vascular plants* and Nationally Scarce was based on *Scarce Plants in Britain*, Stewart, Pearman & Preston, 1994). A number of archaeophytes are included for the first time, these include: *Briza minor*, *Camelina sativa*, *Carum carvi*, *Chenopodium glaucum*, *Chenopodium urbicum*, *Lolium temulentum*, *Mespilus germanica*, *Peucedanum ostruthium* and *Rumex pseudoalpinus*. A considerable number of subspecies are also included for the first time.

Acknowledgements

I would like to thank Simon Leach of English Nature and Deborah Procter of JNCC for their input into this review. Other members of the Vascular Plant Working Group have also provided comments. In particular I would like to acknowledge the tremendous work of the BSBI in producing the *New Atlas*, without which this review would have been impossible.

References

- PRESTON, C.D., PEARMAN, D.A. & DINES, T.D. 2002. *New Atlas of the British & Irish Flora*. OUP, Oxford.
- STEWART, A., PEARMAN, D.A. & PRESTON, C.D. 1994. *Scarce Plants in Britain*. JNCC, Peterborough.
- WIGGINTON, M.J. 1999. *British Red Data Books 1: Vascular plants*. 3rd Edn. JNCC, Peterborough.
- WOODS, R.G. & COPPINS, B.J. 2003. *A Conservation Evaluation of British Lichens*. British Lichen Society, London.
- CHRIS CHEFFINGS, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough, PE1 1JY.

NEW STATUS LISTS

Extinct

- | | |
|--|---|
| <i>Arnoseria minima</i> (lamb's succory) | <i>Pinguicula alpina</i> (alpine butterwort) |
| <i>Carex davalliana</i> (Davall's sedge) | <i>Rubus arcticus</i> (arctic bramble) |
| <i>Galeopsis segetum</i> (downy hemp-nettle) | <i>Spiranthes aestivalis</i> (summer lady's-tresses) |
| <i>Holosteum umbellatum</i> (jagged chickweed) | <i>Tephroseria palustris</i> ssp. <i>congestus</i> (marsh fleawort) |
| <i>Neotinea maculata</i> (dense-flowered orchid) | <i>Trichophorum alpinum</i> (cotton deergrass) |
| <i>Otanthus maritimus</i> (cottonweed) | |

Extinct in the Wild

- | | |
|--|--|
| <i>Agrostemma githago</i> (corncockle) | <i>Euphorbia peplis</i> (purple spurge) |
| <i>Bromus interruptus</i> ¹ (interrupted brome) | <i>Sagina boydii</i> (Boyd's pearlwort) |
| <i>Bupleurum rotundifolium</i> (thorow-wax) | <i>Saxifraga rosacea</i> ssp. <i>rosacea</i> (Irish saxifrage) |

¹Classed as a neophyte by the *New Atlas*, but not currently known from outside the UK.

Critically Endangered

- | | |
|---|---|
| <i>Alisma gramineum</i> (ribbon-leaved water-plantain) | <i>Galium tricornutum</i> (corn cleavers) |
| <i>Apium repens</i> (creeping marshwort) | <i>Gentianella ciliata</i> (fringed gentian) |
| <i>Atriplex pedunculata</i> (pedunculate sea-purslane) | <i>Gnaphalium luteoalbum</i> (Jersey cudweed) |
| <i>Carex depauperata</i> (starved wood-sedge) | <i>Schoenoplectus triquetra</i> (triangular club-rush) |
| <i>Carex muricata</i> ssp. <i>muricata</i> (prickly sedge) | <i>Scleranthus perennis</i> ssp. <i>perennis</i> (perennial knawel) |
| <i>Cephalanthera rubra</i> (red helleborine) | <i>Senecio paludosus</i> (fen ragwort) |
| <i>Corrigiola litoralis</i> (strapwort) | <i>Sorbus domestica</i> (service-tree) |
| <i>Cypripedium calceolus</i> (lady's-slipper) | <i>Sorbus leptophylla</i> (a whitebeam) |
| <i>Dactylorhiza incarnata</i> ssp. <i>ochroleuca</i> (early marsh-orchid) | <i>Sorbus leyana</i> (Ley's whitebeam) |
| <i>Epipogium aphyllum</i> (ghost orchid) | <i>Sorbus wilmottiana</i> (a whitebeam) |
| <i>Filago gallica</i> (narrow-leaved cudweed) | <i>Valerianella rimosa</i> (broad-fruited cornsalad) |

Endangered

Alchemilla subcrenata (a lady's-mantle)
Allium sphaerocephalon (round-headed leek)
Arabis alpina (alpine rock-cress)
Artemisia campestris (field wormwood)
Bupleurum baldense (small hare's-ear)
Centaurea cyanus (cornflower)
Clinopodium menthifolium (wood calamint)
*Cotoneaster cambricus*¹ (wild cotoneaster)
Crepis foetida (stinking hawk's-beard)
Crepis praemorsa (leafless hawk's-beard)
Dactylorhiza incarnata ssp. *cruenta* (early marsh-orchid)
Damasonium alisma (starfruit)
Echium plantagineum (purple viper's-bugloss)
*Epipactis youngiana*² (Young's helleborine)
Euphrasia rotundifolia (an eyebright)
Filago pyramidata (broad-leaved cudweed)
Homogyne alpina (purple colt's-foot)
Juncus pygmaeus (pygmy rush)
Lactuca saligna (least lettuce)

Leersia oryzoides (cut-grass)
Liparis loeselii (fen orchid)
Minuartia stricta (Teesdale sandwort)
Orobanche artemisiae-campestris (oxtongue broomrape)
Petrorhagia nanteuilii (childing pink)
Polygonum maritimum (sea knotgrass)
Pyrus cordata (Plymouth pear)
Ranunculus ophioglossifolius (adder's-tongue spearwort)
Ranunculus reptans (creeping spearwort)
Rumex rupestris (shore dock)
Scleranthus perennis ssp. *prostratus* (perennial knawel)
Sorbus bristolensis (Bristol whitebeam)
Stachys germanica (downy woundwort)
Veronica triphyllos (fingered speedwell)
Viola canina ssp. *montana* (heath dog-violet)
Viola persicifolia (fen violet)
Woodsia ilvensis (oblong woodsia)

¹Classed as a neophyte by the *New Atlas*, taxonomy needs to be clarified.

²Included in the Red Data Book, but recent research suggests that this is not a species.

Vulnerable

Adonis amnea (pheasant's-eye)
Ajuga chamaepitys (ground pine)
Alchemilla micans (a lady's-mantle)
Alchemilla minima (a lady's-mantle)
Arabis glabra (tower mustard)
Arabis scabra (Bristol rock-cress)
Arenaria norvegica ssp. *anglica* (English sandwort)
Armeria maritima ssp. *elongata* (tall thrift)
Artemisia norvegica (Norwegian mugwort)
Asparagus officinalis ssp. *prostratus* (wild asparagus)
Astragalus alpinus (alpine milk-vetch)
*Athyrium flexile*¹ (Newman's lady-fern)
Calamagrostis scotica (Scottish small-reed)
Carex buxbaumii (club sedge)
Carex chordorrhiza (string sedge)
Carex flava (large yellow-sedge)
Carex microglochin (bristle sedge)
Carex norvegica (close-headed alpine-sedge)
Carex recta (estuarine sedge)
Carex vulpina (true fox-sedge)
Centaurea calcitrapa (red star-thistle)
Centaurium scilloides (perennial centaury)
Centaurium tenuiflorum (slender centaury)
Cerastium fontanum ssp. *scoticum* (Scottish mouse-ear)
Cerastium nigrescens (Shetland mouse-ear)
Chenopodium vulvaria (stinking goosefoot)
Cicerbita alpina (alpine sow-thistle)
Cirsium tuberosum (tuberous thistle)
Coincya wrightii (Lundy cabbage)
Crassula aquatica (pygmyweed)
Cynodon dactylon (Bermuda-grass)
Cynoglossum germanicum (green hound's-tongue)
Cyperus fuscus (brown galingale)
Cystopteris dickieana (Dickie's bladder-fern)
Cytisus scoparius ssp. *maritimus* (prostrate broom)
Dianthus armeria (Deptford pink)
Dianthus gratianopolitanus (Cheddar pink)
Diapensia lapponica (diapensia)
Eleocharis parvula (dwarf spike-rush)
Erigeron borealis (alpine fleabane)
Eriophorum gracile (slender cottongrass)
Eryngium campestre (field eryngo)
Euphorbia hyberna (Irish spurge)
Euphorbia serrulata (upright spurge)
Euphrasia cambrica (Welsh eyebright)
Euphrasia vigursii (an eyebright)
Festuca longifolia (blue fescue)
Filago lutescens (red-tipped cudweed)
Gagea bohemica (early star-of-Bethlehem)
Gentiana nivalis (alpine gentian)
Gentianella uliginosa (dune gentian)
Helianthemum oelandicum ssp. *levigatum* (hoary rock-rose)
Himantoglossum hircinum (lizard orchid)
Hypochaeris maculata (spotted cat's-ear)
Limonium binervosum ssp. *cantianum* (a rock sea-lavender)
Limonium binervosum ssp. *mutatum* (a rock sea-lavender)

- Limonium dodartiforme* (a rock sea-lavender)
Limonium loganicum (a rock sea-lavender)
Limonium paradoxum (a rock sea-lavender)
Limonium parvum (a rock sea-lavender)
Limonium procerum ssp. *cambrense* (a rock sea-lavender)
Limonium procerum ssp. *devoniense* (a rock sea-lavender)
Limonium recurvum ssp. *portlandicum* (a rock sea-lavender)
Limonium recurvum ssp. *recurvum* (a rock sea-lavender)
Limonium transwallianum (a rock sea-lavender)
Limosella australis (Welsh mudwort)
Lloydia serotina (Snowdon lily)
Lobelia urens (heath lobelia)
Luzula pallidula (fen wood-rush)
Lychnis alpina (alpine catchfly)
Lychnis viscaria (sticky catchfly)
Lythrum hyssopifolium (grass-poly)
Maianthemum bifolium (May lily)
Matthiola sinuata (sea stock)
Mentha pulegium (pennyroyal)
Moneses uniflora (one-flowered wintergreen)
Muscari neglectum (grape-hyacinth)
Najas marina (holly-leaved naiad)
Ononis reclinata (small restharrow)
Ophioglossum lusitanicum (least adder's-tongue)
Ophrys fuciflora (late spider-orchid)
Orchis militaris (military orchid)
Orchis simia (monkey orchid)
Orobanche caryophyllacea (bedstraw broomrape)
Orobanche purpurea (yarrow broomrape)
Oxytropis campestris (yellow oxytropis)
Phyllodoce caerulea (blue heath)
Physospermum cornubiense (bladderseed)
Phyteuma spicatum (spiked rampion)
Pilosella flagellaris ssp. *bicipitata* (Shetland mouse-ear hawkweed)
Pilosella peleteriana (shaggy mouse-ear hawkweed)
Poa flexuosa (wavy meadow-grass)
Polygala amarella (dwarf milkwort)
Polygonatum verticillatum (whorled Solomon's-seal)
Potamogeton acutifolius (sharp-leaved pondweed)
Potamogeton epihydrus (American pondweed)
Potentilla rupestris (rock cinquefoil)
Pulicaria vulgaris (small fleabane)
Pulmonaria obscura (Suffolk lungwort)
Ranunculus tripartitus (three-lobed crowfoot)
Romulea columnae (sand crocus)
Rumex aquaticus (Scottish dock)
Sagina nivalis (snow pearlwort)
Salix lanata (woolly willow)
Saxifraga cernua (drooping saxifrage)
Saxifraga cespitosa (tufted saxifrage)
Saxifraga hirculus (marsh saxifrage)
Scheuchzeria palustris (Rannoch-rush)
Schoenus ferrugineus (brown bog-rush)
Scirpoides holoschoenus (round-headed club-rush)
Scorzonera humilis (viper's-grass)
Selinum carvifolia (Cambridge milk-parsley)
Seseli libanotis (moon carrot)
Sorbus anglica (a whitebeam)
Sorbus arranensis (Arran whitebeam)
Sorbus eminens (a whitebeam)
Sorbus minima (lesser whitebeam)
Sorbus pseudofennica (Arran service-tree)
Sorbus subcuneata (a whitebeam)
Sorbus vexans (a whitebeam)
Tephrosia integrifolia ssp. *maritima* (South Stack fleawort)
Teucrium scordium (water germander)
Thlaspi perfoliatum (perfoliate penny-cress)
Trichomanes speciosum (sporophyte) (Killarney fern)
Trifolium bocconeii (twin-headed clover)
Trifolium incarnatum ssp. *molinerii* (long-headed clover)
Trifolium strictum (upright clover)
Tuberaria guttata (spotted rock-rose)
Veronica spicata ssp. *spicata* (spiked speedwell)
Veronica verna (spring speedwell)
Viola kitaibeliana (dwarf pansy)

¹ Included in the Red Data Book, but recent research suggests that this is not a species.

Data deficient

Asplenium trichomanes ssp. *pachyrachis* (lobed maidenhair spleenwort)

Cochlearia atlantica (atlantic scurvy-grass)

Nationally rare taxa not in an IUCN category

Alchemilla acutiloba (a lady's-mantle)
Alchemilla monticola (a lady's-mantle)
Anthyllus vulneraria ssp. *corbierei*¹ (kidney vetch)
Arenaria norvegica ssp. *norvegica* (arctic sandwort)
Aster limosyris (goldilocks aster)
Bartsia alpina (alpine bartisia)
Bunium bulbocastanum (great pignut)
Buxus sempervirens (box)

Calamagrostis purpurea (Scandinavian small-reed)
Calamagrostis stricta (narrow small-reed)
Campanula rapunculus (rampion bellflower)
Carex atrofusca (scorched alpine-sedge)
Carex filiformis (downy-fruited sedge)
Carex lachenalii (hare's-foot sedge)
Carex ornithopoda (bird's-foot sedge)
Carex rariflora (mountain bog-sedge)

- Chenopodium urbicum* (upright goosefoot)
Corynephorus canescens (grey hair-grass)
Crepis mollis (northern hawk's-beard)
Cystopteris montana (mountain bladder-fern)
Dactylorhiza lapponica (Lapland marsh-orchid)
Dactylorhiza majalis (western marsh-orchid)
Diphasiastrum complanatum (Issler's clubmoss)
Draba aizoides (yellow whitlowgrass)
Dryopteris cristata (crested buckler-fern)
Eleocharis austriaca (northern spike-rush)
Erica ciliaris (Dorset heath)
Erica vagans (Cornish heath)
Eriocaulon aquaticum (pipewort)
Euphrasia campbelliae (an eyebright)
Euphrasia heslop-harrisonii (an eyebright)
Euphrasia marshallii (an eyebright)
Euphrasia rivularis (an eyebright)
Galium constrictum (slender marsh-bedstraw)
Galium pumilum (slender bedstraw)
Genista pilosa (hairy greenweed)
Genista tinctoria ssp. *littoralis* (dyer's greenweed)
Gentiana verna (spring gentian)
Gladiolus illyricus (wild gladiolus)
Helianthemum apenninum (white rock-rose)
Herniaria ciliolata (fringed rupturewort)
Herniaria glabra (smooth rupturewort)
Hierochloa odorata (holy-grass)
Hydrilla verticillata (Esthwaite waterweed)
Hypericum linariifolium (toadflax-leaved St John's-wort)
Illecebrum verticillatum (coral-necklace)
Isoetes histrix (land quillwort)
Juncus capitatus (dwarf rush)
Juniperus communis ssp. *hemisphaerica* (juniper)
Kobresia simpliciuscula (false sedge)
Koeleria vallesiana (Somerset hair-grass)
Koenigia islandica (Iceland-purslane)
Lamiastrum galeobdolon ssp. *galeobdolon* (yellow archangel)
Limonium bellidifolium (matted sea-lavender)
Limonium binervosum ssp. *anglicum* (a rock sea-lavender)
Limonium binervosum ssp. *binervosum* (a rock sea-lavender)
Limonium binervosum ssp. *saxonicum* (a rock sea-lavender)
Limonium britannicum ssp. *britannicum* (a rock sea-lavender)
Limonium britannicum ssp. *celticum* (a rock sea-lavender)
Limonium britannicum ssp. *coombense* (a rock sea-lavender)
Limonium britannicum ssp. *transcanalis* (a rock sea-lavender)
Limonium recurvum ssp. *humile* (a rock sea-lavender)
Lithospermum purpureocaeeruleum (purple gromwell)
Lolium temulentum (darnel)
Ludwigia palustris (Hampshire-purslane)
Luzula arcuata (curved wood-rush)
Melampyrum cristatum (crested cow-wheat)
Mibora minima (early sand-grass)
Minuartia rubella (mountain sandwort)
Myosotis alpestris (alpine forget-me-not)
Ornithopus pinnatus (orange bird's-foot)
Orobanche reticulata (thistle broomrape)
Oxytropis halleri (purple oxytropis)
Peucedanum officinale (hog's fennel)
Phleum phleoides (purple-stem cat's-tail)
Polemonium caeruleum (Jacob's-ladder)
Polycarpon tetraphyllum (four-leaved allseed)
Potamogeton nodosus (Loddon pondweed)
Potamogeton rutilus (Shetland pondweed)
Potentilla fruticosa (shrubby cinquefoil)
Ranunculus flammula ssp. *minimus*² (lesser spearwort)
Rumex acetosa ssp. *hibernicus*² (sorrel)
*Salicornia obscura*² (glaucous glasswort)
Saxifraga rivularis (highland saxifrage)
Senecio cambrensis (Welsh groundsel)
Serapias parviflora (small-flowered tongue-orchid)
Silene otites (Spanish catchfly)
Sorbus lancastriensis (a whitebeam)
Stellaria nemorum ssp. *montana*² (wood stitchwort)
Stratiotes aloides (water-soldier)
Thymus serpyllum (Breckland thyme)
Trichophorum cespitosum ssp. *cespitosum*² (deerglass)
Trinia glauca (honewort)
Viola rupestris (Teesdale violet)
Woodsia alpina (alpine woodsia)

¹ Included in the New Atlas, but recent research suggests that this is not a subspecies.

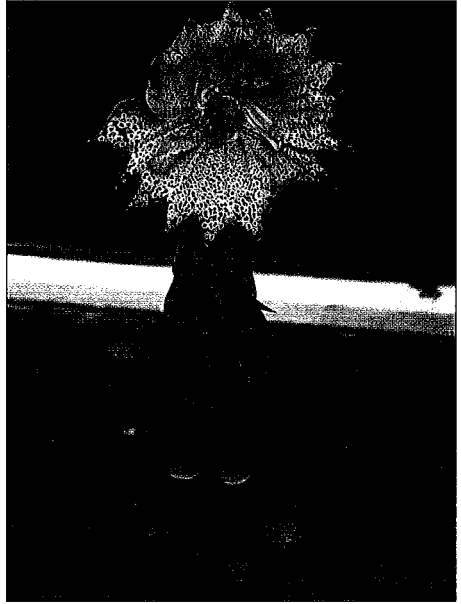
² In fewer than 16 hectads if all date classes are included.

Nationally scarce taxa not in an IUCN category

- Aceras anthropophorum* (man orchid)
Aconitum napellus ssp. *napellus* (monk's-hood)
Actaea spicata (baneberry)
Adiantum capillus-veneris (maidenhair fern)
Ajuga pyramidalis (pyramidal bugle)
Alchemilla glaucescens (a lady's-mantle)
Alchemilla glomerulans (a lady's-mantle)
Alchemilla wichurae (a lady's-mantle)
Allium ampeloprasum (wild leek)
Allium schoenoprasum (chives)
Alopecurus borealis (alpine foxtail)
Alopecurus bulbosus (bulbous foxtail)
Athaea officinalis (marsh-mallow)
Anagallis arvensis ssp. *foemina* (blue pimpernel)



Erigeron borealis at Meall na Samhna, its most southerly world location.
Photo J.A. Edgington © 2003



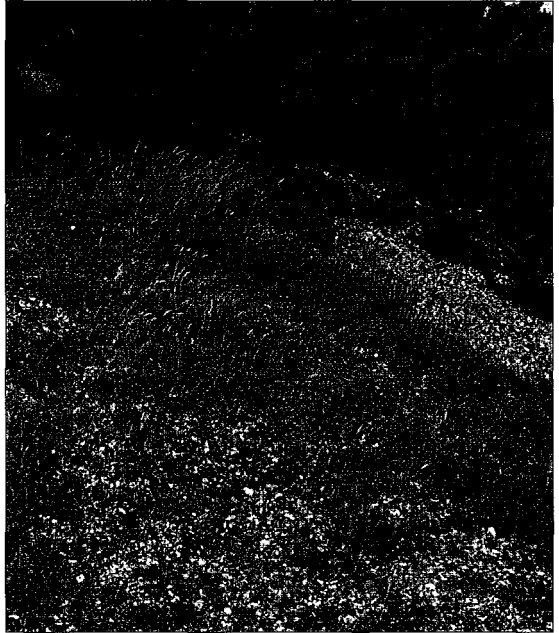
Digilalis with aberrant terminal flower, found in a London garden.
Photo J. Moore © 2003



Pete Selby and friends (L to R Kathryn Hart, Eric Clement, Pete Selby & Debbie Allan) botanising at Priddy's Hard, Gosport, shortly before his death. The plant in the foreground is *Amaranthus bouchonii*.
Photo J.A. Norton © 2003



Trifolium stellatum flowers and fruit at
Browdown, Gosport, v.c. 11.
Photo J.A. Norton © 2002



Disturbed habitat of *Trifolium stellatum* with *Ulex europaeus*
in background. Photo J.A. Norton © 2002



Malva alcea × *M. moschata* in garden,
Burgess Hill, Sussex.
Photo B. Radcliffe © 2003



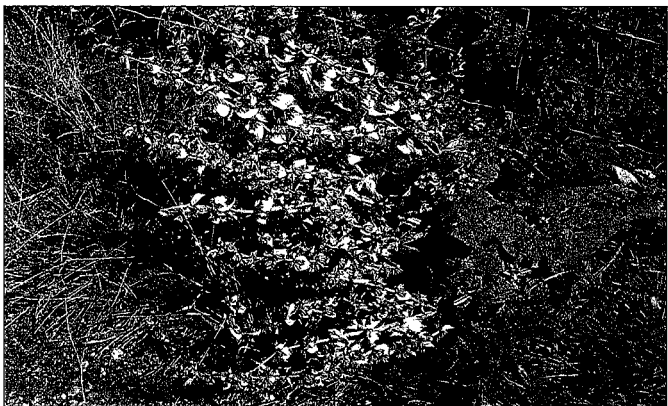
A wild plant of Praeger's Heath (*Erica* × *stuartii*) with
coloured young shoots, near Roundstone, Connemara,
Co. Galway. Photo E.C. Nelson © 1999



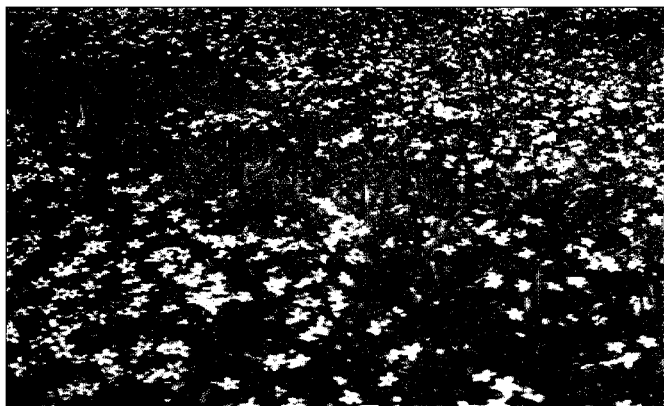
Euphrasia rivularis showing glandular hairs, Llanddeusant, v.c. 44.
Photo R.D. Pryce © 2003



Ranunculus acris with green petals, Brean Down, Somerset.
Photo J. Fielding © c.1965



Salvia sclarea at Hardway, S. Hants.
Photo J.A. Norton © 2003



Pratia pedunculata, garden lawn, Aughton, v.c. 59.
Photo R. Gordon © 2002

Lemna minuta V : root caps and root chloroplasts



fig 1

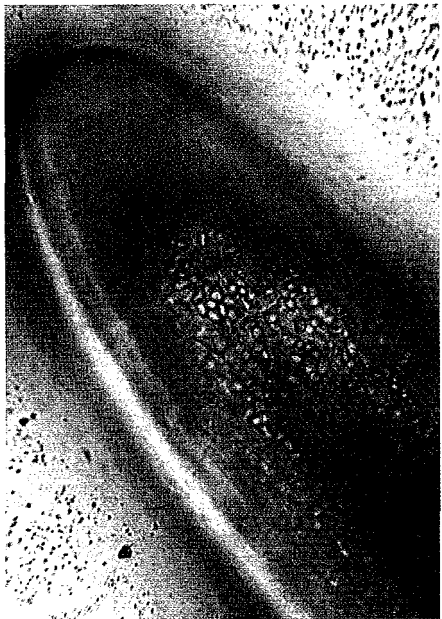


fig 2

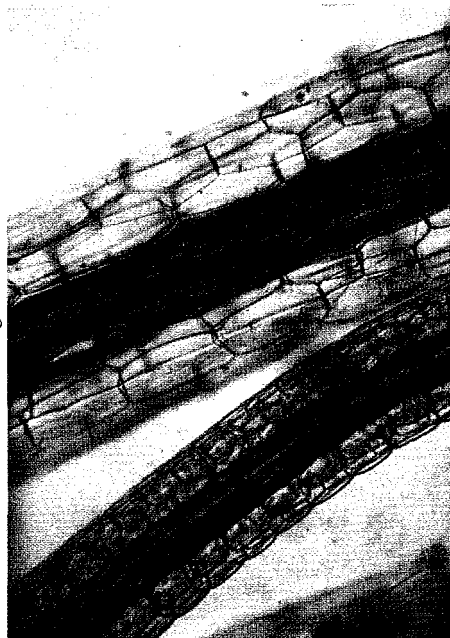


fig 3



fig 4

- Arabis petraea* (northern rock-cress)
Arctostaphylos alpinus (alpine bearberry)
Arum italicum ssp. *neglectum* (Italian lords-and-ladies)
Asplenium obovatum (lanceolate spleenwort)
Asplenium septentrionale (forked spleenwort)
Athyrium distentifolium (alpine lady-fern)
Atriplex longipes (long-stalked orache)
Atriplex praecox (early orache)
Betula nana (dwarf birch)
Brassica oleracea (wild cabbage)
Briza minor (lesser quaking-grass)
Bromopsis benekenii (lesser hairy-brome)
Bromus hordeaceus ssp. *ferronii* (soft-brome)
Bromus hordeaceus ssp. *thominei*¹ (soft-brome)
Bromus secalinus (rye brome)
Bupleurum tenuissimum (slender hare's-ear)
Callitriche truncata (short-leaved water-starwort)
Calystegia sepium ssp. *roseata*¹ (hedge bindweed)
Camelina sativa (gold-of-pleasure)
Campanula patula (spreading bellflower)
Cardamine bulbifera (coralroot)
Cardamine impatiens (narrow-leaved bitter-cress)
Carex appropinquata (fibrous tussock-sedge)
Carex atrata (black alpine-sedge)
Carex capillarıs (hair sedge)
Carex digitata (fingered sedge)
Carex divisa (divided sedge)
Carex elongata (elongated sedge)
Carex ericetorum (rare spring-sedge)
Carex humilis (dwarf sedge)
Carex magellanica (tall bog-sedge)
Carex maritima (curved sedge)
Carex montana (soft-leaved sedge)
Carex punctata (dotted sedge)
Carex rupestris (rock sedge)
Carex saxatilis (russet sedge)
Carex vaginata (sheathed sedge)
Carum carvi (caraway)
Centaurium littorale (seaside centaur)
Cephalanthera longifolia (sword-leaved helleborine)
Cerastium alpinum (alpine mouse-ear)
Cerastium arcticum (arctic mouse-ear)
Cerastium cerastoides (starwort mouse-ear)
Cerastium pumilum (dwarf mouse-ear)
Chenopodium chenopodioides (salt marsh goosefoot)
Chenopodium glaucum (oak-leaved goosefoot)
Cicendia filiformis (yellow centaury)
Cicuta virosa (cowbane)
Circaea alpina (alpine enchanter's-nightshade)
Clinopodium calamintha (lesser calamint)
*Cochlearia micacea*¹ (mountain scurvygrass)
Coincya monensis ssp. *monensis* (Isle of Man cabbage)
Corallorhiza trifida (coralroot orchid)
Crassula tillaea (mossy stonecrop)
Cuscuta europaea (greater dodder)
Cyperus longus (galingale)
- Dactylorhiza incarnata* ssp. *coccinea* (early marsh-orchid)
Dactylorhiza traunsteineri (narrow-leaved marsh-orchid)
Daphne mezereum (mezereon)
Daucus carota ssp. *gummifer* (sea carrot)
Deschampsia setacea (bog hair-grass)
Dianthus deltooides (maiden pink)
Draba muralis (wall whitlowgrass)
Draba norvegica (rock whitlowgrass)
Dryas octopetala (mountain avens)
Dryopteris submontana (rigid buckler-fern)
Elatine hydrophiper (eight-stamened waterwort)
Epipactis atrorubens (dark-red helleborine)
Epipactis leptochila (narrow-lipped helleborine)
Epipactis phyllanthes (green-flowered helleborine)
Equisetum pratense (shady horsetail)
Equisetum variegatum (variegated horsetail)
*Erodium lebelii*¹ (sticky stork's-bill)
Euphrasia arctica ssp. *arctica*¹ (an eyebright)
Euphrasia foulaensis (an eyebright)
*Euphrasia ostenfeldii*¹ (an eyebright)
Euphrasia pseudokernerii (an eyebright)
Euphrasia rostkoviana ssp. *montana*¹ (an eyebright)
Fallopia dumetorum (copse-bindweed)
Festuca arenaria (rush-leaved fescue)
Frankenia laevis (sea-heath)
Fritillaria meleagris (fritillary)
Fumaria occidentalis (western ramping-fumitory)
Fumaria parviflora (fine-leaved fumitory)
Fumaria purpurea (purple ramping-fumitory)
Fumaria vaillantii (few-flowered fumitory)
Galeopsis angustifolia (red hemp-nettle)
Galium parisiense (wall bedstraw)
Gastridium ventricosum (nit-grass)
Gaudinia fragilis (French oat-grass)
Gentiana pneumonanthe (marsh gentian)
Gentianella anglica (early gentian)
Gentianella germanica (Chiltern gentian)
Geranium purpureum (little-robin)
Gnaphalium norvegicum (highland cudweed)
Gymnocarpium robertianum (limestone oak-fern)
Helianthemum oelandicum ssp. *incanum* (hoary rock-rose)
Helleborus foetidus (stinking hellebore)
Herminium monorchis (musk orchid)
Hippophae rhamnoides (sea buckthorn)
Hordelymus europaeus (wood barley)
Hordeum marinum (sea barley)
Hornungia petraea (hutchinsia)
Hypericum undulatum (wavy St John's-wort)
Iberis amara (candytuft)
Impatiens noli-tangere (touch-me-not balsam)
Inula crithmoides (golden-samphire)
Isatis tinctoria (woad)
Juncus acutus (sharp rush)
Juncus alpinoarticulatus (alpine rush)

- Juncus balticus* (Baltic rush)
Juncus biglumis (two-flowered rush)
Juncus castaneus (chestnut rush)
Juncus filiformis (thread rush)
Lathyrus aphaca (yellow vetchling)
Lathyrus japonicus (sea pea)
Lathyrus palustris (marsh pea)
Lepidium latifolium (dittander)
Leucopodium aestivum ssp. *aestivum* (summer snowflake)
Limonium humile (lax-flowered sea-lavender)
Limonium procerum ssp. *procerum* (a rock sea-lavender)
Limosella aquatica (mudwort)
Linnaea borealis (twinflower)
Linum perenne (perennial flax)
Lotus angustissimus (slender bird's-foot-trefoil)
Lotus subbiflorus (hairy bird's-foot-trefoil)
Luronium natans (floating water-plantain)
Lycopodiella inundata (marsh clubmoss)
Lycopodium annotinum (interrupted clubmoss)
Lysimachia thysiflora (tufted loosestrife)
Marrubium vulgare (white horehound)
Meconopsis cambrica (Welsh poppy)
Medicago minima (bur medick)
Medicago polymorpha (toothed medick)
Medicago sativa ssp. *falcata* (sickle medick)
Melampyrum sylvaticum (small cow-wheat)
Melittis melissophyllum (bastard balm)
Mentha suaveolens (round-leaved mint)
Mertensia maritima (oysterplant)
Mespilus germanica (medlar)
Meum athamanticum (spignel)
Minuartia hybrida (fine-leaved sandwort)
Minuartia sedoides (cyphel)
Minuartia verna (spring sandwort)
Myosotis stolonifera (pale forget-me-not)
Najas flexilis (slender naiad)
Nuphar pumila (least water-lily)
Nymphoides peltata (fringed water-lily)
Odontites vernus ssp. *litoralis*¹ (red bartisia)
Oenanthe silaifolia (narrow-leaved water-dropwort)
Ophioglossum azoricum (small adder's-tongue)
Ophrys sphegodes (early spider-orchid)
Orchis purpurea (lady orchid)
Orchis ustulata (burnt orchid)
Ornithogalum pyrenaicum (spiked star-of-Bethlehem)
Orobanche alba (thyme broomrape)
Orobanche rapum-genistae (greater broomrape)
Parapholis incurva (curved hard-grass)
Pedicularis sylvatica ssp. *hibernica*¹ (lousewort)
Persicaria mitis (tasteless water-pepper)
Peucedanum ostruthium (masterwort)
Peucedanum palustre (milk-parsley)
Phleum alpinum (alpine cat's-tail)
Phyteuma orbiculare (round-headed rampion)
Pilularia globulifera (pillwort)
Pinus sylvestris (scots pine)
Poa alpina (alpine meadow-grass)
Poa bulbosa (bulbous meadow-grass)
Poa glauca (glaucous meadow-grass)
Poa infirma (early meadow-grass)
Polygonatum odoratum (angular Solomon's-seal)
Polygonum boreale (northern knotgrass)
Polygonum monspeliensis (annual beard-grass)
Potamogeton coloratus (fen pondweed)
Potamogeton compressus (grass-wrack pondweed)
Potamogeton filiformis (slender-leaved pondweed)
Potentilla crantzii (alpine cinquefoil)
Potentilla neummanniana (spring cinquefoil)
Primula elatior (oxlip)
Primula farinosa (bird's-eye primrose)
Primula scotica (Scottish primrose)
Puccinellia distans ssp. *borealis* (reflexed saltmarsh-grass)
Puccinellia fasciculata (Borrer's saltmarsh-grass)
Puccinellia rupestris (stiff saltmarsh-grass)
Pulmonaria longifolia (narrow-leaved lungwort)
Pulsatilla vulgaris (pasqueflower)
Pyrola media (intermediate wintergreen)
Pyrola rotundifolia ssp. *maritima* (round-leaved wintergreen)
Pyrola rotundifolia ssp. *rotundifolia* (round-leaved wintergreen)
Ranunculus flammula ssp. *scoticus*¹ (lesser spearwort)
Ranunculus penicillatus ssp. *penicillatus*¹ (stream water-crowfoot)
Rhynchospora fusca (brown beak-sedge)
Ribes alpinum (mountain currant)
Ribes spicatum (downy currant)
Rorippa islandica (northern yellow-cress)
Rosa agrestis (small-leaved sweet-briar)
Rumex crispus ssp. *uliginosus*¹ (curled dock)
Rumex pseudoalpinus (monk's-rhubarb)
Ruppia cirrhosa (spiral tasselweed)
Sagina saginoides (alpine pearlwort)
*Salicornia fragilis*¹ (yellow glasswort)
*Salicornia nitens*¹ (shiny glasswort)
*Salicornia pusilla*¹ (one-flowered glasswort)
Salix arbuscula (mountain willow)
Salix caprea ssp. *sphacelata*¹ (goat willow)
Salix lapponum (downy willow)
Salix myrsinites (whortle-leaved willow)
Salix reticulata (net-leaved willow)
Salvia pratensis (meadow clary)
Sarcocornia perennis (perennial glasswort)
Saxifraga nivalis (alpine saxifrage)
Scilla autumnalis (autumn squill)
Scleranthus annuus ssp. *polycarpus*¹ (annual knawel)
Sedum forsterianum (rock stonecrop)
Sedum villosum (hairy stonecrop)
Sesleria caerulea (blue moor-grass)
Sibbaldia procumbens (sibbaldia)
Sibthorpia europaea (Cornish moneywort)
Silene conica (sand catchfly)

<i>Silene gallica</i> (small-flowered catchfly)	<i>Trifolium suffocatum</i> (suffocated clover)
<i>Silene nutans</i> (Nottingham catchfly)	<i>Ulmus plotii</i> (Plot's elm)
<i>Sium latifolium</i> (greater water-parsnip)	<i>Vaccinium microcarpum</i> (small cranberry)
<i>Sonchus palustris</i> (marsh sow-thistle)	<i>Verbascum lychnitis</i> (moth mullein)
<i>Sorbus devoniensis</i> (a whitebeam)	<i>Verbascum pulverulentum</i> (hoary mullein)
<i>Sorbus porrigentiformis</i> (a whitebeam)	<i>Veronica alpina</i> (alpine speedwell)
<i>Sorbus rupicola</i> (a whitebeam)	<i>Veronica fruticans</i> (rock speedwell)
<i>Spartina maritima</i> (small cord-grass)	<i>Veronica spicata</i> ssp. <i>hybrida</i> (spiked speedwell)
<i>Spiranthes romanzoffiana</i> (Irish lady's-tresses)	<i>Vicia bithynica</i> (Bithynian vetch)
<i>Suaeda vera</i> (shrubby sea-blite)	<i>Vicia lutea</i> (yellow-vetch)
<i>Tephrosia integrifolia</i> ssp. <i>integrifolia</i> (field fleawort)	<i>Vicia orobus</i> (wood bitter-vetch)
<i>Thelypteris palustris</i> (marsh fern)	<i>Vicia parviflora</i> (slender tare)
<i>Thesium humifusum</i> (bastard-toadflax)	<i>Viola lactea</i> (pale dog-violet)
<i>Thlaspi caerulescens</i> (alpine penny-cress)	<i>Viola palustris</i> ssp. <i>juressi</i> (marsh violet)
<i>Tilia platyphyllos</i> (large-leaved lime)	<i>Vulpia ciliata</i> ssp. <i>ambigua</i> (bearded fescue)
<i>Torilis arvensis</i> (spreading hedge-parsley)	<i>Vulpia fasciculata</i> (dune fescue)
<i>Trifolium glomeratum</i> (clustered clover)	<i>Wolffia arrhiza</i> (rootless duckweed)
<i>Trifolium occidentale</i> (western clover)	<i>Zostera angustifolia</i> (narrow-leaved eelgrass)
<i>Trifolium ochroleucon</i> (sulphur clover)	<i>Zostera noltei</i> (dwarf eelgrass)
<i>Trifolium squamosum</i> (sea clover)	

¹ In fewer than 101 hectads if all date classes are included.

Other rare or scarce taxa which are too poorly understood currently to receive a conservation status

<i>Deschampsia cespitosa</i> ssp. <i>alpina</i> (tufted hair-grass)	<i>Gymnadenia conopsea</i> ssp. <i>borealis</i> (fragrant orchid)
<i>Eleocharis palustris</i> ssp. <i>palustris</i> (spike-rush)	<i>Hypericum maculatum</i> ssp. <i>maculatum</i> (imperfurate St John's-wort)
<i>Elytrigia repens</i> ssp. <i>arenosa</i> (couch)	<i>Rhinanthus minor</i> ssp. <i>borealis</i> (yellow-rattle)
<i>Festuca lemanii</i> (confused fescue)	<i>Rhinanthus minor</i> ssp. <i>calcareus</i> (yellow-rattle)
<i>Festuca rubra</i> ssp. <i>arctica</i> (red fescue)	<i>Rhinanthus minor</i> ssp. <i>lintonii</i> (yellow-rattle)
<i>Festuca rubra</i> ssp. <i>litoralis</i> (red fescue)	
<i>Festuca rubra</i> ssp. <i>scotica</i> (red fescue)	

GNAPHALIUM LUTEOALBUM NEEDS NO SPECIAL PROTECTION

Jersey Cudweed (*Gnaphalium luteoalbum* L.) is a serious pest throughout most of the warmer countries of the world, a 'weed of poor and waterlogged soils, arable lands and over-grazed pastures; harmful to sheep if grazed in early stages of growth' (Reed, 1977). It is therefore surprising, and probably unwise, that in Great Britain we should deem that it deserves special protection by an Act of Parliament (Schedule 8, 1981 as amended) that prevents anyone from picking or destroying any part of the plant.

This species has repeatedly entered Britain for centuries as a rare adventive by means of many vectors, and often overlooked because of its depauperate growth. Native colonies in Norfolk and Kent (Dungeness) have lingered on, not liking our climate.

However, the recent decade of hot summers have greatly favoured its growth. Seed probably blown or flown over the English Channel by winds or birds, respectively, have given rise to new *native* populations. Horticulture and other sources have indicated some undoubtedly *alien* colonies. All now prosper, and could soon explode astronomically in numbers of individuals. At Chesterton sidings (Cambs) 40-50 plants in 1999 became c.2000 in 2000 — see *Watsonia* 24(4): 568 (2003).

This year I heard of plants in new localities stretching from the Scilly Islands and E. Kent up to Cheshire, where it was in a nursery at Burton. In Surrey it occurred as a weed in both RHS Gardens (Wisley) and RBG (Kew). Do the gardeners know that it is protected?

In S. Hants the late P.J. Selby discovered three huge plants at Gull Coppice, Whiteley during Aug. 2003. They grew in a field marked out as a building plot on heathy ground churned up by earth-movers. A further visit in September revealed the plants in wire cages, and all building work had apparently ceased. With an estimated 15 stems per plant, each with about 60 capitula of, maybe, 80 florets each — some 216,000 ($=3 \times 15 \times 60 \times 80$) seeds could be set, each one protected! Three species of alien *Conyza* were also present close by vying in potential progeny, but the *Gnaphalium* could have been of native origin. We will never know for certain.

But, I am convinced that the justification for protection by English Law is not warranted. I feel that this species should rapidly be removed from its cosseted protective status; local protection on a designated reserve is the best that it deserves.

Reference:

REED, C.F. 1977. *Economically important foreign weeds. Potential problems in the United States*. US Dept. Agriculture Handbook no. 498. Washington, DC.

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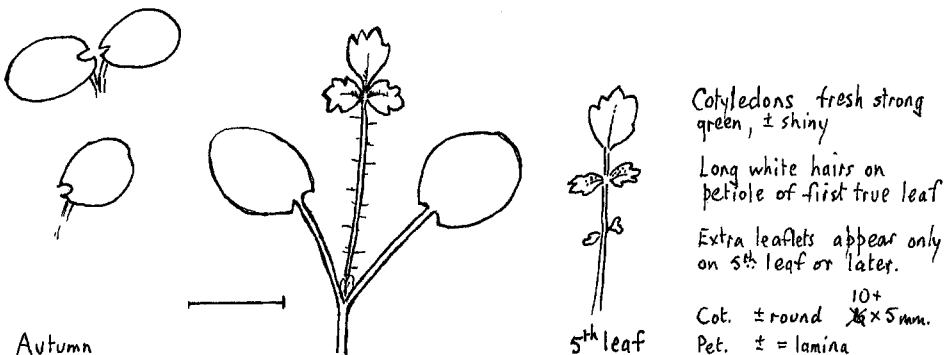
CAREX VULPINA AND BIODIVERSITY ACTION PLANS

A stumbling block has appeared in efforts to reintroduce *Carex vulpina* (True Fox-sedge) into what is thought to have been a former site near Norton-on-Derwent in v.c. 62. There is a national biodiversity action plan for the plant and reintroduction into former sites and support of existing populations are integral parts of this plan. Three local biodiversity action plans exist one of them being for the Yorkshire site. It seems that one of the things standing in the way of the plants reintroduction in v.c. 62 is some evidence, in the form of an herbarium sheet, of plant material originating from this site. The plant collected from the site by Tom Medd in 1957 is said to have been sent to E.C. Wallace who seemed to think it was *C. vulpina*. Does anyone know where the sheet might be now?

We have some hundreds of *C. vulpina* plants propagated here at Edge Hill College from various English sites whose authenticity is guaranteed. So providing plant material is not a problem. These are a by-product of our research into the sedge genus here at the college.

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email: smithco@edgehill.ac.uk



Sanguisorba minor seedlings del. S. Evans © 2004

(see *BSBI News* 83: 68 & 90: 60 for a more detailed explanation of these drawings)

ALIENS

AKEBIA QUINATA (HOULT.) DECNE. (LARDIZABALACEAE) NEW TO WEST KENT AND SPREADING?

While Local Change recording in West Kent (v.c.16; TQ46J) on 28th September 2003, we noticed a woody climber on a railway bank. Recognising the plant as something exotic but not having much to go on, we took a specimen (**Herb. JOR/CCO**). Eric Clement determined the plant as *Akebia quinata* (Chocolate Vine). This species is native to temperate regions of China, Korea and Japan and is grown as an ornamental for its unusual vanilla-scented, although short-lived, flowers.

We found only one plant, trailing over scrub at the foot of a railway bank, SE of Chislehurst station (TQ434693). Associated species included *Humulus lupulus* (Hop) and *Tamus communis* (Black Bryony). There were no other obvious garden escapes in the immediate vicinity. The habitat was semi-shaded and damp, on a neutral, nutrient-enriched, compact substrate.

We have identified five other records of *A. quinata* from the British Isles. The earliest confirmed record was from an old railway bridge at Sandling, East Kent (v.c.15), recorded in 1977 by John Palmer (*Wild Flower Magazine* **382**: 23, cited in Clement & Foster 1994, although not mentioned in Philp 1982). There is mention of an earlier record from an unspecified locality in 1967, dismissed as 'of transient worth only' by David McClintock (*Wild Flower Magazine* **352**: 28). There are also records from Banstead Downs, Surrey in 1995, from 'Cuddington Way', Surrey in 1998 (probably the same locality as the 1995 record) (Rodney Burton *pers. comm.*), and from Bookham Common, Surrey in 1998. At Bookham, a plant of *Akebia quinata* has escaped from an adjacent garden and 'has rooted copiously and is competing successfully with a bramble patch' (Radcliffe & Page 2003). However, there has been no write-up or illustration for any of these finds in *BSBI News*. There are no other Kent records (Eric Philp *pers. comm.*) and EJC is not aware of any other British records.

The genus *Akebia* Decne. contains around five taxa, the other frequent garden plants being *A. trifoliata* (Thunb.) Koidz. and the hybrid between this and *A. quinata*, *A. × pentaphylla* (Mack.) Mack. The *RHS Plant Finder 2002-3* lists over 30 suppliers of *A. quinata*, therefore it is a relatively well-known garden plant. Its leaflets are 4-7cm long, ± obovate, usually in clusters of five, with distinctive retuse apices, cuneate bases and entire margins. There are excellent colour photographs in Phillips & Rix (2002) at p.74 and in Phillips & Rix (1989) at p.86. A full botanical description can be found in the European Garden Flora at pp.397-398. The sausage-shaped blue-purple pulpy fruits are edible but insipid (Mabberley 2002) although it rarely sets fruit in this country (Phillips & Rix 2002). *A. quinata* is 'common' naturalised in eastern North America (Phillips & Rix 2002) and, significantly, it is referred on the University of Connecticut botanic garden web site with the warning 'do not let this plant out of the greenhouse; it is potentially highly invasive'. *A. quinata* has become a serious problem in several eastern states, primarily spreading by vegetative means, aided by humans. 'It grows so quickly that it can kill off existing ground level vegetation, understory shrubs and trees, and even some canopy trees, by overtopping and smothering them. Once established, its dense growth prevents seed germination and seedling establishment of native plants.' (Alien Plant Working Group 1998). The plant at Bookham, rather ominously, has already started to climb a birch tree (Radcliffe & Page 2003)

It will be interesting to see if this is just a casual record or whether this 'garden romper' (to quote EJC) can be found established elsewhere, especially if recent exceptionally warm summers continue.

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Acknowledgement: Thanks to Eric Philp and Rodney Burton for checking their records, and to Eric Clement for his determination of the *Akebia* and for his encouragement and tireless tuition about both British and alien plants.

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ANOTHER LAWN LOBELIA: *PRATIA PEDUNCULATA*

Stace's *New Flora* (2nd edn., 1977) describes (p.642) the white-flowered *Pratia angulata* (G.Forst.) Hook.f. (Lawn Lobelia) and states that it is 'becoming established on damp lawns'. It does not mention that a 'tougher brother' is now spreading even more rampantly in some gardens, and will undoubtedly soon convincingly escape from captivity. Mike Grant (Senior Botanist, RHS Gardens, Wisley) tells me that it is now a regular query sent in for identification: it is *Pratia pedunculata* (R.Br.) Benth. (Matted *Pratia*), a native of Australia (SA, NSW, Qld, Vic) and Tasmania. It has also been recently found naturalised in New Zealand — see *NZ J. Bot.* **33**: 170 (1995).

It is a 'highly variable species', the flowers varying in colour from a pale shade of blue or lilac to predominantly white — hence at least six clones are being sold in Britain under cultivar names (*RHS Plant Finder*, 2000-01). This species is, surprisingly, normally dioecious (unlike *P. angulata*), so fruit set on colonies is usually zero, but this is no handicap since any stem fragment is likely to root in damp turf.

A good description, by T.J. Ayers, can be found in *The European Garden Flora* **6**: 498 (2000), where 'leaves hairy' versus 'leaves hairless' is the simple character used to separate *P. pedunculata* from *P. angulata*, respectively.

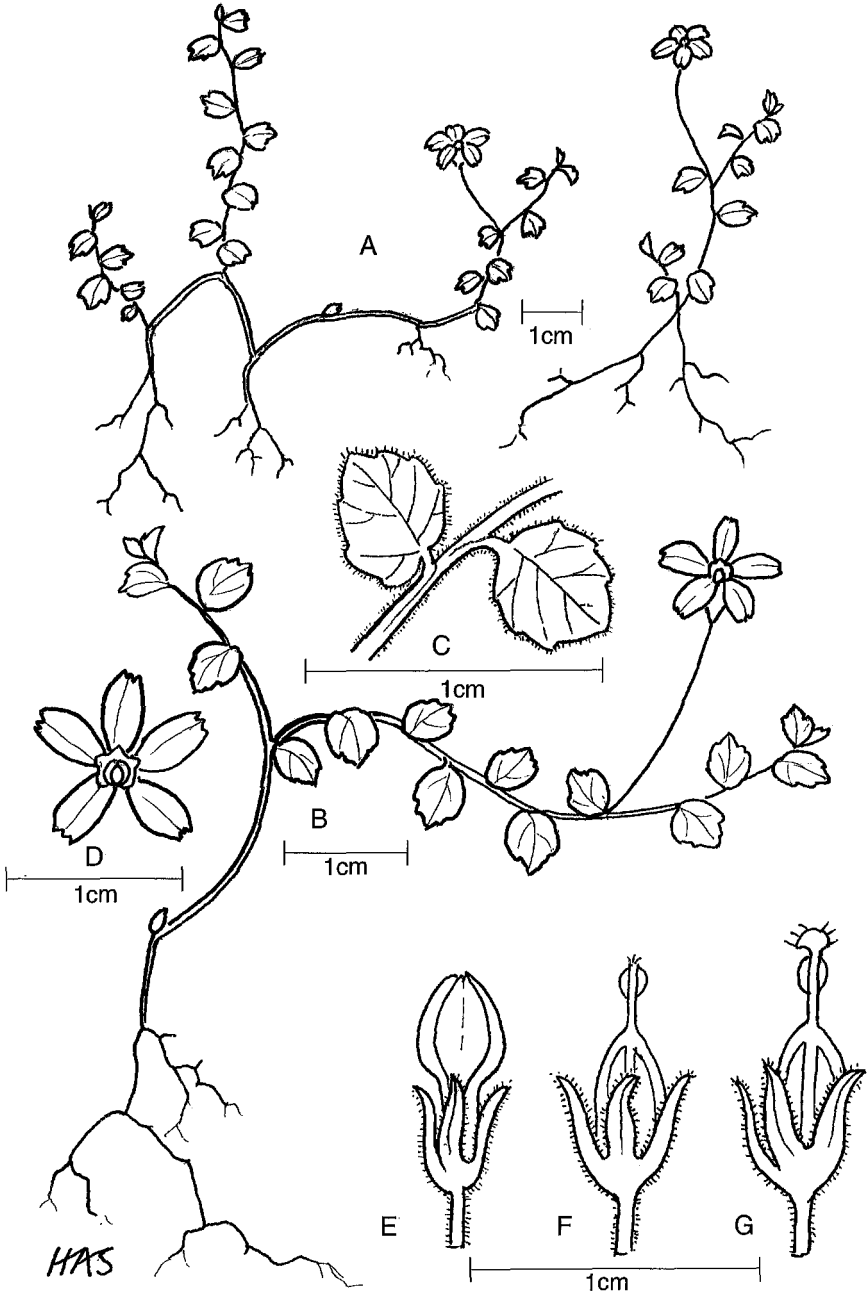
In **Herb. EJC** I have vouchers for four British colonies that perch on the borderline of being 'wild', which I will now list below (in date order):

- v.c. 69 Westmorland.** Front garden, Lingmoor Rise, Kendal. Aug. 1999, Mrs A.M. Boucher. 'It completely covers the lawn and the flower beds, and must have been growing like that for years'.
- v.c. 58 Cheshire.** Bulkeley village, SJ531545, July 2000, G. Kay. On a mown area outside a garden, forming a patch c12×6ft. Flowers pale blue.
- v.c. 59 S. Lancs.** Garden lawn, Aughton. July 2002, V. Gordon. 'Flowers of a palest blue, and showing no signs of having a berry'. See colour section plate 3 for a photo by Ronnie Gordon.
- v.c. 59 S. Lancs.** Garden lawn, Ormskirk, 2002, P.S. Gateley. (No specimen seen by EJC).
- v.c. 37 Wores.** Belbroughton, SO919770, Sept. 2003, W.A. Thompson. 'It has taken over a lawn. Flowers a striking pale blue, 11-12mm diameter.'

This delicate and tiny plant does not travel well, but Vera Gordon kindly posted an Aughton root to our artist Heather Salzen, who has nicely captured its characteristics for us. On the plate (p. 47), A and B (×2) show its habit; C enlargement of two leaves on stem, showing the minute pubescence; D plan view of the corolla, which is almost actinomorphic; E flower in bud; F young flower (with corolla removed); G same flower matured, showing the expanded style and stigma. The plant is clearly female, no anthers or pollen being discovered.

Will more of our damp grass turn to this beautiful shade of pale blue over the next decade or so?

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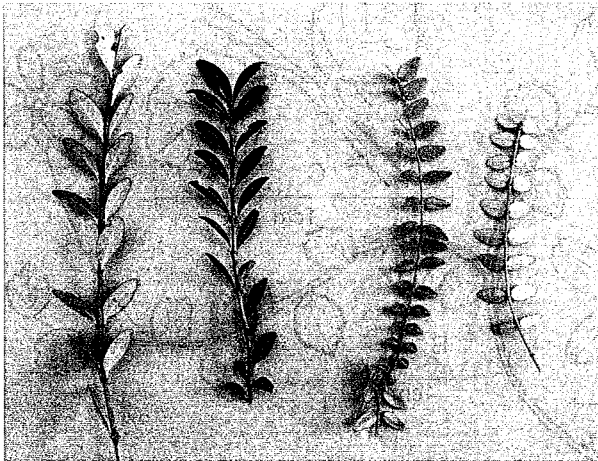


Pratia pedunculata (R.Br.) Benth. del. H. Salzen © 2003

DISTINGUISHING *LONICERA NITIDA* AND *L. PILEATA*

In my experience it is straightforward to distinguish *Lonicera nitida* and *L. pileata* in the field (c.f. Eric Clement's article in *BSBI News* 94: 34). The leaves of *L. nitida* are much smaller and spread almost at right angles to the stem, while the bigger leaves of *L. pileata* are angled forwards at about 45° degrees to the stem (see photo below). The leaf vein character mentioned in *Flora Europaea* is OK but rather unnecessary; the point is that the central vein stands proud of the upper leaf surface in *L. pileata*, but is flush with the leaf surface, and relatively indistinct in *L. nitida*. Close attention to stem hairiness will clinch it (see below). The plants that I have measured show a smaller range of leaf sizes than the measurements given by Stace (6–16mm and 12–32mm respectively).

Character	<i>Lonicera nitida</i>	<i>Lonicera pileata</i>
Leaf length incl. petiole	12–14mm	20–26mm
Leaf angle to stem	c.90°	c.45°
Upper mid vein of leaf	flush, indistinct	raised, distinct
Leaf shape	pointed egg-shaped	more narrowly elliptic
Stem hairs	pale, distinctly of 2 lengths, the denser, short hairs patent	brown, all more or less the same length, most of them bent forward towards the shoot tip



Non-flowering shoots of *Lonicera pileata* (far left: under-surface; left: upper-surface) and *Lonicera nitida* (right: upper-surface; far right under-surface).

MICK J. CRAWLEY, Imperial College, Silwood Park, Ascot, SL5 7PY

ECHINOCHLOA CRUS-GALLI AND MAJOR ROADS

To add another plant to the group associated with (?salted) major roads, has anyone else encountered the alien grass *Echinochloa crus-galli* (Cockspur) in such places? I first noticed it on 2nd September 2001 while driving along the M26 east of Maidstone. A little respect for the law and a great deal of it for the union of body and soul prevented me from obtaining a specimen for critical identification, so I noted it and apart from thinking it was unusual took it no further. On the 8th September 2002 I was driving along the A3 south of the Hog's Back, near Guildford and again noticed strips of *E. c-g* along the central reservation. The law was permissive and the road was quieter so I was able to obtain a sample for determination. Again, on the 8th August 2003 I passed swathes of a grass which appeared to be *E. c-g* along the middle of the M5 not too far north of Exeter. These plants also remained unsampled!

I had thought that perhaps these were casual occurrences (maybe as a result of a series of accidents involving convoys of lorries carrying bird seed) but the A3 colony was present again and thriving on the 9th October 2003. I would be interested to hear if similar colonies exist elsewhere in the country. *Echinochloa crus-galli* is occasionally naturalised in cultivated ground, as stated in Stace's *New Flora* and as observed in maize fields near Pyrford, where cultivation buries the seeds, conferring frost protection, but that situation is not comparable with motorways. One could speculate that the species is salt-tolerant and that motorway salinity protects it from freezing, but at present it is just speculation. Incidentally, in the colonies I have seen the plants seem to be confined entirely to the central reservation, although I may be mistaken as it is not easy to botanise thoroughly both sides of the road at motorway speeds, especially from the driving seat.

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IS *SALVIA SCLAREA* DECLINING?

Salvia sclarea L. (Clary) has long been cultivated in England as an ornamental and medicinal herb, but very much less frequently these days. I have never seen it in gardens in Gosport, so it was a surprise hearing that Debbie Allan had found one plant of it at Hardway (S. Hants) in 2003. The large wrinkly leaves in a rosette (somewhat Hollyhock-like) had caught her attention on 14 June, and by 27 July flowers and fruits were present. It emitted a fruity fragrance detectable from a few feet away, and grew beside a rural pathway, but close to gardens. No records appear in *The Flora of Hampshire* (1996) — although J.F. Rayner had found it 'abundant' at Hamble Common in 1924.

Stace's *New Flora* (ed. 2, 1997, p.578) gives a good description, but provides no figure. Our splendid cover illustration by Gaham Easy (GMSE) was completed back in 1977, but due to an oversight, was never published. It was drawn from a plant at Thriplow tip (Cams) found in July 1974, and it was also at Milton gravel pits during infilling in June 1976. More surprising was GMSE's record in June 1998 of it as a crop on the experimental farm at Mepal.

No other recent records exist in my card index. Is it still well established on old walls, as recorded, e.g., at Cliveden (1958), Wateringbury (1978), Sissinghurst Castle (1978) and Oxford (pre-1983)? The CD-Rom of the *New Atlas* (2002) tells us of just seven records during 1987-1999 and thirteen earlier ones, dating from 1918. Much earlier records do exist; it was certainly at Arniston, Dalkeith (Midlothian) in c.1840 — see *BEC Report* 4: 426 (1917).

There was an early reluctance to record garden escapes, especially of attractive ones, and that still persists today.

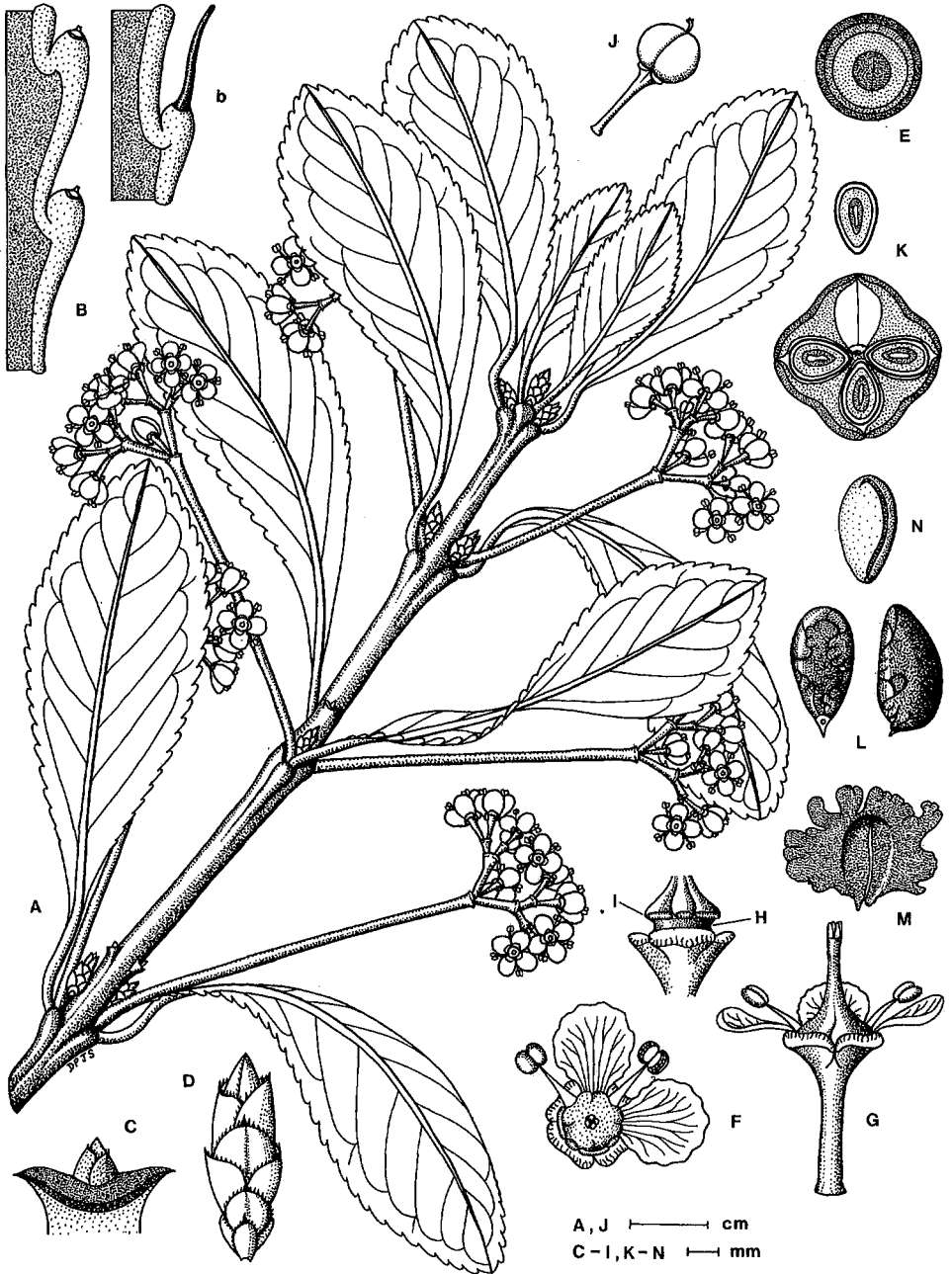
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EUONYMUS JAPONICUS — HOW FAST IS IT INCREASING?

Euonymus japonicus L.f. (Evergreen Spindle) is one of several shrubs vaguely known to the public (and even some botanists!) as 'privet' or even 'laurel', a generic term for similar dense shrubs with evergreen leaves. British Floras, even up to 1987, simply regarded this species as 'much planted near the sea' and did not even put it into their index (Clapham *et al.*, 1987). Yet, Dr D.P. Young regarded it as 'naturalised in large quantity' in plantations above the sea-cliffs at Durlstone, Swanage, v.c. 9, June 1960, **BM**.

Our current, weighty *New Atlas* (2002) gives a surprising 187 records mostly sited near our coastline. This plant thrives on sea air and thus makes a useful windbreak or hedge. It spreads easily by layering, and can readily root from any broken or cut stems, e.g. hedge trimmings.

It often sets abundant fruits, but bird-sown seedlings are unusual. J.R. Palmer has found them in Kent, at Stone Halt station (1973), Darenth Wood (1973) and Greenhithe (1975), and on a wall at Trevarrack (1981) in W. Cornwall. In the Isles of Scilly 'it does not set seed every year and seedlings are rare (*pers. comm.* Clare Harvey, 1978). I have failed to find one anywhere for myself!



Euonymus japonicus L. fil. del. D.P.J. Smith © 2001

Stace's *New Flora* (ed. 2, 1997, p. 456) gives a good description, but published line drawings are scarce, hence the special value of Delf Smith's (DPJS) excellent rendition opposite that concentrates on both the vegetative and reproductive characters. The plate shows:

- | | |
|--|--|
| A Flowering branch | G Flower viewed from the side (one petal removed to show pistil) |
| B Detail of mature leaf margin | H Nectar-secreting disc at base of pistil |
| b Detail of young leaf margin | I Petal and stamen scars |
| C Leaf scar and incipient bud | J Fruit (capsule) unopened |
| D Winter bud | K T.S. of fruit (with one seed detached) |
| E T.S. of twig | L Two views of a seed enwrapped by its aril |
| F Flower viewed from above (two petals and two stamens removed to show petal and stamen scars) | M Orange-coloured aril removed from seed and opened out |
| | N Seed |

DPJS observed that 'it seems quite rare for all four ovules to develop, most capsules having 2-3 developed seeds, and occasionally a capsule will produce only one seed. The fruits ripen to a pink or dark reddish-pink, but on the yellow-leaved cultivars they usually remain a pale yellowish-green or whitish colour.'

This plant is easy to recognise and should not be confused with any other wild one. The crenate-serrate, evergreen, opposite leaves on glabrous, green twigs define it uniquely.

But, the correct (first) author citation is in dispute. This taxon was apparently first diagnosed by E. Kämpfer in *Amoen. exot. fasc.* (1712), which is pre-Linnaean and discountable. *Index Kewensis* (1895) indicates two descriptive sources: Linn. f. *Suppl.* 154 (Oct. 1781) and Thunb. *Fl. Jap.* 100 (Aug. 1784). But, it appears that Thunb., *Nov. Act. Soc. Sci., Upsal.* 3: 208 (1780) is earlier still, if we follow *Fl. New Zealand* 4: 514-515 (1988), and hence the correct citation is *E. japonicus* Thunb., which is contrary to Stace's *New Flora*. Furthermore, Bean's *Trees and Shrubs*, etc., all imply that this species is an endemic of Japan, but its native distribution includes Ryukyus, Korea and China.

Reference:

CLAPHAM, A.R., TUTIN, T.G. & MOORE, D.M. 1987. *Flora of the British Isles*, 3rd edn. Cambridge University Press.

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THREE *SEDUM* ESCAPES IN ENGLAND AND SCOTLAND

The following three articles first appeared in the *Sedum Society Newsletter* 67: 16-18, October 2003 and, because of their potential interest to BSBI members, are reproduced here at the kind suggestion of the Editor of that journal, Ray Stephenson.

SEDUM KIMNACHII IN KENT

Jesse Tegale [of Bradford] sent me a specimen of *Sedum* which was found at the edge of a small wood near Shoreham in Kent TQ529608 on the 28th May 2003 during a *Bradford Botany Group* field meeting, and although most certainly a garden throw-out, it seems to be becoming established with a large patch of mainly sterile shoots. There were only a few flowers that were yellow but the leaves were quite distinctive, fleshy bright green, not at all glaucous – with no teeth. This plant is *Sedum kimmachii* that interestingly is being offered in bulk by the UK trade this year as *S. praealtum* — not such a bad guess! Like *S. confusum* (Lesser Mexican-stonecrop) it is perfectly hardy in the UK but as its old name (*S. decumbens*) suggests it is much lower than *S. confusum*, which often is 40cm+ high. *Sedum praealtum* (Greater Mexican-stonecrop) has much larger pale green leaves and is upright like *S. confusum*, and can, if not cut down by frosts, become a tall plant.

RAY STEPHENSON,

PHEDIMUS STOLONIFERUS (SEDUM STOLONIFERUM) NATURALISED IN SCOTLAND

I recently made the exciting discovery of a thriving colony of *Phedimus stoloniferus* (*Sedum stoloniferum* (Lesser Caucasian-stonecrop)) naturalised in Scotland. I am reasonably confident of the plant's identity, as specimens key out unequivocally as this species in Stace (1997). I first discovered the colony in 2000 but returned to collect material this year when I noticed that according to the *New Atlas* this species is not recorded at all from Scotland.

I now have pressed material and a photo of the flowers, and if anyone would like to see these to check the identity, please contact me. The site is a damp, south-facing rock face together with some loose gravelly substrate below it, in an enclosed miniature Glen below a waterfall in the River Devon, which carves a steep sided shady gorge through the lowlands immediately south of the Ochil hills.

The grid reference is NT004988, at the extreme edge of v.c. 87, near Dollar, between Perth and Stirling. The rock face the plants grow on and below is quite high (50m) and might be directly below a garden or former garden. There is also some sort of pumping station beside the site, standing on ground that may have been artificially constructed to house it. Thus the source of introduction could be gravel brought in to build up this base, or from the garden above. I would guess the plants have been present for a decade at least. There are twenty separate patches and it looks very at home. The only other vaguely unusual alien in the vicinity is a small patch of *Saxifraga* × *urbium* (*S. umbrosa* × *S. spathularis*) (Londonpride) on the other side of the river.

I'd be interested to know if this species has been recorded from Scotland since the *New Atlas* was produced, or if mine is indeed the first Scottish record. [Yes as far as we can tell – Ed. SSN]

DR RICHARD MILNE

SEDUM BREVIFOLIUM — ANOTHER ESCAPE IN SCOTLAND

In August we took our extended family to Scotland for a caravan holiday. Strangely the part of Scotland we visited is further south than where we live in England. The Mull of Galloway is almost as far south as Durham City, 50km south of our home in Northumberland.

Having been born and bred near the foreshore, seaside holidays hold no fascination for me, so as the children busied themselves looking for shells or crabs and building sandcastles, I took the opportunity to explore Rockcliffe for *Sedum anglicum* (English Stonecrop) a plant which is not particularly hardy for me back home. This plant is commonly found on the Dumfries and Galloway, and Cumbrian coastlines.

Joyce my wife pointed to a granite outcrop and said 'I bet it grows there'. She's becoming too clever! I have only ever spotted this species in highly acid places and here it was growing in profusion. Green plants in shade were a real contrast to those in full sun. Record temperatures for this English summer made most plants a deep wine colour. But alongside it was another acid-loving species – an alien!

Of course I have found these species frequent bedfellows in alpine Portugal on granite tors. Though I never did expect to see *Sedum brevifolium* growing (as if) wild in the UK.

RAY STEPHENSON

TRIFOLIUM STELLATUM IN HAMPSHIRE

In May 1998, Mervyn Southam and I came across some *Trifolium stellatum* (Starry Clover) growing at Browndown, Gosport (South Hants, v.c. 11). I thought this merited a belated mention in *BSBI News*, particularly in view of the opportunity of publishing some colour photographs of this striking plant (see colour section plate 2) but also to raise the possibility that the species may be native in the UK.

What is now an established colony, occurs as two patches, about 15m apart, on a south-facing, moderately steep, consolidated bank of gravel and shingle, next to the sea. At the time of the discovery, each of these patches held fewer than 10 flowering plants, but by July 1998 many more plants had developed. In early July 2002 several hundred were present covering a combined area of more than five square metres, but in June 2003, only small numbers occurred, perhaps because dry weather had reduced germination and growth.

Known also as Star Clover, *Trifolium stellatum* is an annual plant found throughout the Mediterranean in a range of dry, sandy or stony habitats including roadsides and waste ground (*Flora Europaea* & other sources). It is clearly a plant of warm, dry conditions and infertile soils. At Browndown, the parts of the bank on which it occurs remain sparsely vegetated, the clover tending to dominate the particular areas over which it grows. The same bank, however, also supports a range of small herbs and annual grasses, including *Lotus corniculatus* (Bird's-foot-trefoil), *Plantago coronopus* (Buck's-horn Plantain) and several other *Trifolium* species.

The Browndown colony is the second established in the UK; the other being at Shoreham, W. Sussex, where the species has remained for nearly 200 years since its discovery in 1804. The plant grows in a similar habitat there, on the shingle beach, where it is believed to have originated from the ballast of ships returning from the Mediterranean (Coulcher 2001, British Marine Life Study Society website).

The Browndown colony is unlikely to have originated from a deliberate introduction, garden escape or casual occurrence. Eric Clement (*pers. comm.*) told me he has never seen it in cultivation in the UK, though I did find it listed in one seed catalogue during a brief search of the internet. According to the data presented in the *New Atlas* (Preston *et al.* 2002), *Trifolium stellatum* is effectively extinct as a casual, wool alien in the UK. Most of the records were made prior to the 1930s.

At the time of the Browndown discovery the then v.c. Recorder, the late Paul Bowman, commented (*in litt.*) that a garden escape was unlikely and that 'perhaps the seeds had been brought in on imported gravel, shingle or on military training vehicles'. The last of these is a distinct possibility, since Browndown houses an army training camp. However, this theory can probably be discounted because the area where vehicles are used is at least 1km to the south-east of the colony and prevailing south-westerly winds would tend to blow seeds in the wrong direction. In fact, the colony occurs at the very western end of the Browndown site, and one would expect that the reverse should be true, i.e., seeds should be blown from the existing colony and the species should spread to other parts of the site. Despite regular searching, however, it has not been found anywhere else over the area, even though large expanses of consolidated shingle occur.

Paul Stanley (*pers. comm.*) has commented that the species may well be native at both Shoreham and Browndown. He has pointed out that the fact that the Browndown colony has not spread is a behaviour more characteristic of native species rather than of aliens. He thinks it is possible that the plant has originated from long-buried seed and mentioned that he has been finding *Trifolium glomeratum* (Clustered Clover) on the Isle of Wight in sites where it had not been seen for 100 or 150 years. This is interesting, because *T. glomeratum* was found by myself and Debbie Allan 1km east of the *T. stellatum* site in June 2000, and in May 2002, it also appeared up at the top of the same bank where the *T. stellatum* grows. *T. glomeratum* was previously reported for the Gosport coast by Townsend (1904), so it is at least 100 years since it has been recorded.

There is a possibility that the bank on which the *Trifolium stellatum* occurs had been disturbed in some way prior to 1998, which would lend support to the buried seed theory. Immediately to the east, the bank is covered with Gorse (*Ulex europaeus*) (see colour section plate 2), so perhaps some of this Gorse, along with a layer of shingle, had been removed from the bank prior to the appearance of the clover. Debbie Allan (*pers. comm.*) informs me that a nearby shingle butt was removed at about the same time as the discovery, so perhaps equipment or vehicles used for this operation also resulted in disturbance or reshaping of the bank on which the *Trifolium* appeared.

I am a little sceptical, however, that *Trifolium stellatum* could ever have escaped notice by Townsend and other Hampshire botanists if it had occurred at Browndown in the past. My belief is

that it arrived by natural means, either by wind, waves (?) or perhaps by seed-eating birds. Since it is virtually unknown in the UK, there must be a strong possibility that seeds came from the Shoreham colony. The two sites are separated by 50 miles (80km) of coastline and about the same distance by road.

Human transferral from Shoreham or further afield must also be considered, but I think this is unlikely. The fact, as mentioned above, that the Browndown plants have not spread to other parts of the site is remarkable, considering that the area is open access and extremely popular with dog walkers. If the seeds or fruits were carried around on people's shoes or the feet of dogs, it would be appearing in other parts of the site by now and I therefore believe that the possibility of accidental human introduction from Shoreham is very remote.

I cannot really make an informed judgement on whether *Trifolium stellatum* is native in Britain until I investigate the history and ecology of the Shoreham colony, which I have not yet visited, in more detail. However, I think the possibility should certainly be considered. I would be interested in other people's opinions on this or for any further information.

It should be mentioned that a number of other Mediterranean species do occur along the south coast, including some presumed native and some not. Furthermore, several are currently on the increase, probably due to the recent series of mild winters and warm summers. Mediterranean species that have recently spread across south Hampshire include *Poa infirma* (Early Meadow-grass), *Hirschfeldia incana* (Hoary Mustard), *Erodium moschatum* (Musk Stork's-bill), *Polypogon viridis* (Water Bent) and *Gaudinia fragilis* (French Oat-grass). *Gaudinia* occurs on the beach only 100m or so W of the *T. stellatum* colony (a single plant found in 2002 by Eric Clement and Debbie Allan and still present in 2003).

One other Mediterranean species worth mentioning is *Centaurea calcitrapa* (Red Star-thistle). This has declined on the south coast where it is 'probably native' (Wiggington 1999, Preston *et al.* 2002). Browndown is the site of the last known record in Hampshire for this species in 1984. However, this was only a single plant. In fact, the species died out from established sites in the county in the 1930s (Brewis *et al.* 1996). This is a species that could start increasing again.

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- JOHN A. NORTON, 215 Forton Road, Gosport, PO12 3HB; email: john-norton@ntlworld.com

A HYBRID MALLOW WITH GARDEN POTENTIAL

A hybrid between *Malva moschata* and *M. alcea* received a brief mention in Clement and Foster (1994.) It is possible that this was based on the note by Graham Easy in *BSBI News* 23 (1979) in which he expressed surprise over atypical characters of herbarium specimens, with the implication of hybrid origin.

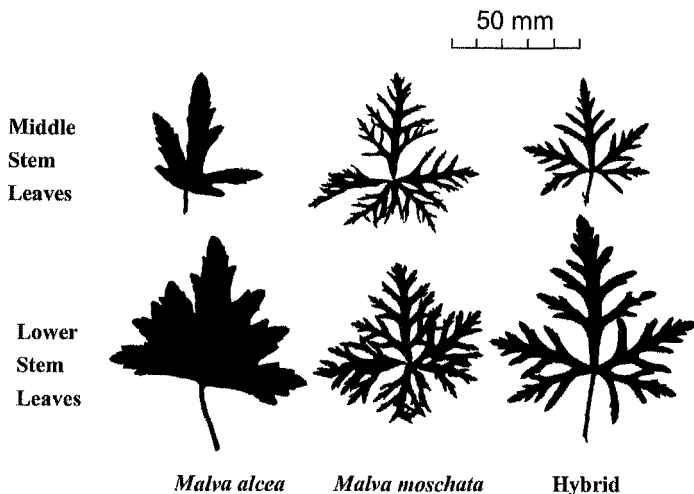
For many years I have grown *Malva alcea* (Greater Musk-mallow) and the white form (alba) of *Malva moschata* (Musk Mallow) in my garden. No hybrids occurred. In 1999 I added the wild pink form (*M. moschata moschata*) to my stock.

I must confess to being a rather untidy gardener, tending to leave self-sown garden subjects where they germinate, provided their position is not unduly inconvenient. Such a plant (at first uncritically assumed to be *Malva alcea*) began to appear somewhat unusual in the second half of 2002. It grew much taller than usual, reaching a height of 1.6m by midsummer. The fastigiate form of *M. alcea* is

usually less than 1.2m, while *M. moschata* scarcely reaches 0.5m. Flowering commenced in late June and continued until the end of December! Not a single seed was produced from the many hundreds of blooms, although there had been ample opportunity of fertilisation from plants of the two species in the garden.

The combination of very long flowering period and total absence of seed led me to conclude that this must be a hybrid, and further that *M. moschata* was one of the parents. The flowering periods of the two species are largely different but there is sufficient overlap to provide the opportunity for crossing. In Sussex *Malva moschata* begins flowering in the last week of May and ceases in the second week of July. *M. alcea* starts in the first week of July and goes on until the end of August. The flowers of all three taxa are virtually identical in colour and size, but whereas *Malva moschata* and the hybrid present a flat face, those of *M. alcea* present a somewhat bowl-shaped outline. All three close their flowers at night. Flowers of the hybrid appear singly from an umbel-like cluster, and in succession. Shortly after fading the petals fall as a unit. Some time later the capitulum including calyx and epicalyx drops off also, leaving a tiny umbel of pedicels on the plant.

A reliable method of distinguishing between the taxa is by the leaves (see below). Primary and basal leaves if present should be discounted because they are prone to great variation in shape and size. The lower stem leaves of *Malva alcea* are shallowly lobed, and the degree of lobing increases only gradually up the stem, reaching completion only near the apex. On the stems of both *M. moschata* and the hybrid there is an immediate transformation to fully dissected lobing of the leaves over the whole of the stem. The latter species and hybrid can be differentiated by the fact that *all* leaves of *M. moschata* have an additional pair of subsidiary lobes, nowhere present in the hybrid. They are noticeably smaller than the other parts of the lamina, and are directed backwards (i.e. in a direction opposite to the main trend of the leaf). They are frequently not coplanar with the lamina.



Some minor degree of instability of the hybrid is suggested by the appearance, late in the season, of a single shallowly lobed leaf in the upper part of the plant, similar to that of *Malva alcea*. The remainder of the leaves, whether in dozens or hundreds are all typical of the hybrid. This has been observed on five of the eight hybrids present.

It seems probable that the first hybrid plant germinated in 2001; four more in 2002, followed by three in 2003. It is not known whether this resulted from a single hybridisation event, with intermittent germination over three years, or several events. In the first year, although producing a few flowers the plant does not manage a height of more than 0.7m. It achieves its full glory in two years, producing stems to 1.6m and hundreds of flowers over a long period (see colour section, plate 2). The length of its life is of course at present unknown, but the fact of its total sterility points to the probability of a long life.

The taxa differ also in the three-lobed epicalyx of the flower. In *Malva alcea* the epicalyx lobes are broadly ovate and as long as the calyx lobes. In *M. moschata* the epicalyx lobes are linear-lanceolate (i.e. grass-like) and much shorter than the calyx lobes. The epicalyx of the hybrid is intermediate, with narrow-ovate lobes slightly shorter than those of the calyx.

In April 2003 the hybrid originally found was dug out, firstly to separate it from a small rose with which it was intimately growing, and secondly to obtain material for propagation. It was assumed that removing a 30cm cube of soil would be adequate to extract both plants successfully. It was a great surprise to find therefore that the hybrid had formed a large tap root, and this had broken during extraction, leaving a substantial portion still in the soil. In shape, size and texture the tap root resembled a large parsnip, but with several thick secondary roots radiating horizontally from the axis. Two of these rose to ground level and appeared to have taken on the character of rhizomes. Basal cuttings, root cuttings and 'rhizome' cuttings were taken to attempt propagation. Another tall hybrid plant has appeared at the site, though whether this is re-growth from the residual tap root or from a 'rhizome' is not known.

Of the cuttings, no success was obtained from root or 'rhizome' cuttings. All of the basal cuttings prospered however, as did side stem cuttings later from other plants, despite initial defoliation following snail attack.

It has not yet been established which species is the female parent of the hybrid and until this is known the appropriate sequence of specific epithets cannot be applied to name the hybrid. Samples of seed set during the flowering overlap period have been sown in the hope of eliciting an answer. However, owing to the inability to segregate plants in the garden the chance of success in this first trial is slight.

Having observed the behaviour of the hybrid for two seasons it seems apparent that the period of flowering is likely to be variable, perhaps due to atmospheric conditions and/or degree of exposure to sunlight. The first tall plant, in 2002 grew in a position exposed to full sun for about two hours in the morning and three hours before sunset. For the remainder of the day it was fully shaded by house or trees. 2002 was a year in which sunny days were plentiful, but there was no long period without adequate rainfall. Flowering was continuous from late June until the end of December. Another tall plant, in the same location in 2003, is still well in flower but appears likely to finish in early December. The other tall plant, in a position this year which receives full sun all day has flowered well, but has no more flower buds and will finish by the end of October. It is possibly significant that this year has seen record amounts of sunshine and prolonged periods of dry weather, verging on drought conditions in mid-Sussex.

Key to distinguish the two species and hybrid

- | | | |
|---|--|-----------------------|
| 1 | Lower stem leaves with few shallow lobes, cut 1/3-1/2 way to stalk.
Epicalyx lobes broad-ovate, equalling calyx lobes | <i>Malva alcea</i> |
| | Lower stem leaves very deeply lobed, almost to stalk | 2 |
| 2 | Lower stem leaves with 7 primary lobes (incl. 2 directed backwards)
Epicalyx lobes linear lanceolate | <i>Malva moschata</i> |
| | Lower stem leaves with 5 primary lobes
Epicalyx lobes narrow-ovate | hybrid |

Some gardeners may balk at the prospect of flowers at heights up to 1.6m but it must be pointed out that it would combine advantageously with shrubs of a similar height whose flowering would, at best, be confined to a few weeks. The hybrid would provide a very long period of colour, in favourable circumstances in excess of six months. The colour is not confined to the apex, because many side branches flower during the season. In its second year the plant achieves a diameter of about 0.7m. The foliage is mid-green and elegantly dissected. It seems inevitable that once the horticultural trade become aware of its potential it will appear in many garden centres.

Re-examination of Graham Easy's note raises the possibility that the plant collected as long ago as 1828 by Professor J.S. Henslow (Darwin's mentor) was the hybrid, though unrecognised at the time. If lower stem leaves survive on the herbarium specimen it would be possible to confirm or refute this possibility

References:

CLEMENT, E.J. & FOSTER, M.C. 1994. *Alien Plants of the British Isles*. BSBI.

EASY, G.M. 1979. *Malva alcea* & *M. moschata* in *Cambis. BSBI News*: 23

BRYAN RADCLIFFE 14, Manor Close, Burgess Hill, Sussex RH15 0NN

NOTICES (BSBI)

PICOS DE EUROPA

There is one place left on the BSBI trip to the Picos de Europa, May 31 to June 9 2004. If you are interested, please contact Lynne Farrell at lynne.farrell@snh.gov.uk or phone 01738-444177 as soon as possible for further information.

NOTICES (NON-BSBI)

FLORA LOCALE

Native flora: local projects web pages and database

Thanks to contributions from the Heritage Lottery Fund and Esmée Fairbairn Foundation, Flora locale has recently re-launched its website, which aims to provide a one-stop-shop source of information on using and sourcing native flora for projects that have planting with wildlife in mind.

A new feature of the website is an interactive map of the UK, where you can find out about projects happening in regions throughout the British Isles and Ireland. Each case study will have brief information about the project, and a link to the project website if there is one.

Any organisation currently involved in a restoration project, where good practice in sourcing and using native flora is being observed, is invited to complete a proforma describing their project. General information about broader restoration initiatives across the UK may also be submitted. This information will also be used to compile a database about different projects, the types of plants or seed used and the habitats involved.

The completeness of this information resource, which will be available free to anyone visiting the website, is ultimately dependent on receiving information about projects. So, if you are involved with restoring a heathland using local seed, replanting Water Crowfoot in a chalk stream, harvesting meadow seed or creating new native woods through natural regeneration or local seed collections - please contact Flora locale now.

The proforma is available from info@floralocale.org and the address of the website, which will be launched in January 2004 is www.floralocale.org

SUE EVERETT, Projects Coordinator & Secretary, Flora locale

PLANT EVOLUTION IN MEDITERANEAN CLIMATE ZONES

IXth IOPB Meeting 2004

16 – 19 May 2004

Botanical Garden of Valencia University, Spain

The International Organization of Plant Biosystematics (IOPB) will hold its IXth Symposium in May 2004 in Valencia, Spain, under the main Topic *Plant Evolution in Mediterranean Climate Zones*. The Symposium will consist of 10 organised scientific sessions each addressed by an invited speaker. Contributions are welcome either as short oral communications or as posters. Two different post-Symposium excursions are also available.

For more information please visit the Symposium website: www.jardibotanic.org/iopb.html

PLANT IDENTIFICATION COURSES

Rare Plants Group

Ashmolean Natural History Society of Oxfordshire

Again in 2004, the Rare Plants Group of the Ashmolean Natural History Society of Oxfordshire is running its plant identification courses. These very well-received courses teach the use of plant ID keys (mainly in Stace's *New Flora of the British Isles*) entirely from scratch in a friendly and encouraging class with a very high tutor-student ratio. No-one gets left behind and we have enabled all our students to make progress whatever their ability or background.

We start with easier-to-identify families and deal with more difficult families as the year progresses. Students are expected to use hand lenses, binocular microscopes are available and we discuss current identification books.

The course is split into six Saturday-morning indoor sessions from April to September but we will expect students to do some work in between sessions; they will be able to bring difficulties to the next session. There is also an optional, free, field session.

We also run advanced courses for our alumni or those with equivalent skills. This year we will be doing a two-session course on Willows and Poplars and a one-day field course on chalk grassland plants.

For more details, including dates and costs, email frances.watkins@anthriscus.co.uk or ring 01865 863660.

WILD FLOWERS AND THEIR IDENTIFICATION

Perhaps you're one of the many people who find wild flowers beautiful and fascinating, but not easy to name. If you've made a first attempt at looking them up in a field guide, you'll know that it's not straightforward. The pages seem to be full of similar-looking pictures, and unfamiliar words. Quite likely, you couldn't sort out the petioles from the pedicels from the peduncles, and you gave up in frustration.

Sounds familiar? Then this short course is for you! You will learn some of the local flowers, of course, but the emphasis will be on the general techniques of accurate identification, rather than trying to fill your head with too many species. The key skills are knowing how to look at the plant, and how to use the field guide properly. With these fundamentals mastered, you will become confident in using a field guide on your own, and can look forward to the satisfaction of finding and identifying new species.

The Course will be run on three Wednesday evenings at Market Bosworth High School & Community College, Leicestershire, 19.30 – 21.30, between May and July 2004, each followed by a Saturday afternoon, 14.00 – 17.00 out in the field. Exact dates to be finalised by Christmas 2003.

The Course tutor is Steve Woodward, an amateur botanist with 25 years experience who has contributed to local and national surveys. He has published a book about the plant ecology of

Swithland Wood and is an active member of Botanical Society of the British Isles and a volunteer reserve manager for the local Wildlife Trust.

For more information please contact:

STEPHEN WOODWARD, 19 Highfield Road, Groby, Leicester LE6 0GU; tel.: (home), 0116 287 1679
email: grobysteve@aol.com

TAXONOMISTS

Your National Focal Point Needs You for Services to Biodiversity Conservation

Taxonomic expertise is vital for biodiversity conservation. Species cannot be identified, monitoring is impossible, and conservation measures are doomed to failure without basic taxonomic information on insect, plant and animal species.

The Global Taxonomy Initiative (GTI) has been set up under the Convention on Biological Diversity to ensure that this taxonomic expertise is maintained. This will enable the UK to conserve its own biodiversity and use its expertise and collections to help other countries conserve their biodiversity

The Natural History Museum is the UK's National Focal Point for the GTI and is compiling a register of UK taxonomists. This register will serve as a repository of information on practising taxonomists in the UK and will be used to assess the UK's taxonomic capabilities, and match these to the biodiversity conservation needs of the UK and other countries.

IF YOU ARE A TAXONOMIST, WE NEED YOU!

**PLEASE CONTACT THE NATIONAL FOCAL POINT OFFICER, Alistair Taylor,
SO THAT YOU CAN BE INCLUDED IN THE REGISTER**

biodiversity@nhm.ac.uk

Tel: 0207 942 5372

Fax: 0207 942 5841

ALISTAIR TAYLOR, Biodiversity Liaison Officer, National Focal Point for the Global Taxonomy Initiative, Research and Consulting Office, Science Directorate, Natural History Museum, Cromwell Road, London SW7 5BD

HEMIPARASITES SYMPOSIUM 15-16 APRIL 2004

1st International symposium on the biology of hemiparasitic Scrophulariaceae?
Wageningen, 15-16 April 2004

Hemiparasitic Scrophulariaceae form a special group of plants. Many people study the weedy taxa (Striga, Orobanche) and regularly meet, but fewer scientists, sometimes in a fairly isolated position, work with the, often endangered, non-weedy genera. Therefore, it was decided to organise a workshop /small symposium, to meet and discuss the 'state of the art', and define open questions with respect to the biology of the non-weedy hemiparasitic Scrophs.

We hope that the attendance will include both settled scientists as well as starting PhD's, and anybody in between. This would offer chances for a wide exchange of experiences and discussion of problems, as well as transfer of information between generations. We are trying to keep costs as low as possible, and are searching for funds.

The meeting will be held in Wageningen (The Netherlands), Thursday-Friday, 15-16 April 2004, just after Easter. We plan to have proceedings published as a special issue of a refereed journal.

Full information can be found on the web: www.hemiparasites.nl

The organisers: Siny ter Borg (Wageningen University, NL); Renate Wesselingh (Université catholique de Louvain, B); Manja Kwak (University of Groningen, NL); Jan van Groenendael (University of Nijmegen, NL); Juul Limpens (Wageningen University, NL); Jelle Ferwerda, (Bio-Vision, Enschede, NL) (webmaster); Ben Post, (Organisation BureauPost, Doorwerth, NL) (registration, finances etc.)

INSECT-PLANT INTERACTIONS: FROM PARASITISM TO MUTUALISM

9 March 2004 17.30

Associations between insects and plants are remarkably diverse, ranging from antagonism to mutualism. This meeting aims to bring together research on insect-plant interactions, with an emphasis on the importance of having robust phylogenies for both insects and plants to understand the patterns and processes that have generated the current diversity of plant-insect associations. The talks will take us on a tour of plant-insect interactions research, from highly co-evolved systems, such as the fascinating fig-fig wasp systems, to the highly specialized leaf-mining moths and gall wasps.

Organised by Dr Carlos Lopez Vaamonde, Institute of Zoology, ZSL

EXPLAINING SPECIES ABUNDANCE DISTRIBUTIONS: BIODIVERSITY OVER TIME

8 June 2004 17.30

The relative abundance of species in ecological assemblages is a topic that has intrigued biologists for decades. Why, for example, do communities contain many more rare than common species? This meeting reveals how a better understanding of changes in community composition and structure over time can help elucidate empirical patterns of abundance, improve methods of biodiversity and inform conservation policy.

Organised by Professor Anne Magurran, Gatty Marine Laboratory, University of St Andrews

All lectures take place in the Meeting Rooms, The Zoological Society of London, Regent's Park, London

Admission to Scientific Meetings is FREE

PETER FAY, Hon. Assistant Secretary, the Zoological Society of London, Regent's Park, London
NW1 4RY

WORLD WETLANDS DAY CONFERENCE 2004

Wetlands: Policy into Action

2nd & 3rd February, 2004

School of Oriental & African Studies, Russell Square, London

World Wetlands Day (WWD) marks the signing of the Convention on Wetlands on 2nd February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea. The Ramsar Convention was a major milestone in the recognition of the importance of wetlands both to society and biodiversity. The challenges we face today are no less real than when the convention was signed in 1971. WWD was celebrated for the first time in 1997. Each year, government agencies, non-governmental organisations, and groups of citizens at all levels of the community have taken advantage of WWD to undertake actions aimed at raising public awareness of wetland values and benefits in general and the Ramsar Convention in particular. This will be the third WWD conference in the UK and is building on the experience we have developed so far.

Aims and Objectives of this conference

The aim of the conference is to bring together all the key organisations in the UK involved in wetlands issues to share knowledge, discuss innovative techniques, network, consider good practice case studies and promote business and wetland biodiversity. During the WWD 2003 conference we canvassed delegates for ideas on what they saw as the function of the conference. Not surprisingly this resulted in a mix of differing objectives. We have worked these into this year's programme with a view to helping structure the way we approach the conference and take forward important themes. The objectives of the WWD 2004 conference are to:

- Understand the state of wetlands in order to identify where progress needs to be made
- Explore how major policy initiatives and investment programmes should be developed to benefit wetland habitats
- Share plans on how the World Wetlands Day could be broadened and developed to promote wetlands on a much larger scale than at present - we will be seeking you help in developing this programme
- Develop an understanding of how best practice can help resolve key issues in practice in order to help take forward key themes such as partnership, the role of project officers etc.
- Promote the RSPB/CIWEM Living Wetlands Award and to promote the importance of an international view of wetlands
- Produce a CD of the event in order to structure the way wetland issues from the event are communicated and put into practice, and developed with a sense of continuity.

The meeting will be chaired by Dr Peter Spillett, Thames Water, Geoff Bateman OBE, Environment Agency and Dr Chris Spray Northumbrian Water.

Further details from Bob Earll: Phone/Fax 01531 890415 Joining details – maps, directions and hotels – and programme are on the CMS website: www.coastms.co.uk or Email bob.earll@coastms.co.uk

REQUESTS

BOTANICAL ENGLISH EDITOR REQUIRED FOR *WILLOWS OF THE URALS*

We have recently completed the text for a book on the *Willows of the Urals*, Russia, after five years of study. The book includes an introduction, keys, descriptions of 35 species (many of which occur in Britain), one or two photographs of each species, illustrations, distribution maps and an index in Latin, Russian and English. It will be about 260 pages in total.

The book is being translated into English by a non-botanist, but about 80 pages of text requires editing into proper botanical English (including the descriptions) for publication in June 2004. If anyone is able to help, would they please contact me at the address below. We may be able to provide some limited funding.

SVIATLANA TRYBUSH, Rothamsted Research, Harpenden, Hertfordshire AL5 2JQ; Tel.: 01582-763133 ext. 2191. Email: sviatlana.trybush@bbsrc.ac.uk

PHOTOGRAPHS OF BRITISH PLANTS

Hopefully, many of you will have seen my website devoted to the identification of the British flora. You can find it at www.reticule.co.uk. It has proved popular and it receives well over 1500 visits per week. The website contains information and illustrations of 2020 native and naturalised species. The illustrations are a mixture of drawings, scanned prints, digital photographs and direct scans of leaves. Many people have contributed pictures and now about 60% are illustrated in some form or another.

The website is set-up so that each species can be illustrated with up to 2 pictures, though most have only one. I am hoping that there are BSBI members who would like to donate pictures. I have made a webpage of the species that currently have no illustration, it can be found at www.reticule.co.uk/flora/content/missingpics.asp. Many of these species are rare such as *Anogramma leptophylla*, others are rather obscure like the various *Limonium* species and still others are just plain unphotogenic like *Festuca rubra* and *Rumex crispus*.

I am not fussy about the artistic quality of the photographs, as long as it illustrates the plant. Members can send me digital photographs and scanned pictures as attachments to emails. I can also scan photographic prints if you can lead me a copy. However, I have no facility for scanning slides. To make the picture suitable for the Internet, I may reduce the pictures size, crop superfluous detail and adjust its brightness and contrast. The name of the owner of the picture is displayed on the website with the picture; their name will also be listed in the credits. If you have suitable pictures please write or email me at the address below.

QUENTIN GROOM, Rue Jean Baptiste de Keyser 157A, 1970 Wezembeek-Oppem, BELGIUM; email: qgroom@reticule.co.uk

EROPHILA

Like Alan Showler (*BSBI News* 94) I have never seen *Erophila majuscula* (Hairy Whitlowgrass) but I would like to do so. Can anyone help please?

However in response to a request, Elizabeth Young kindly sent me a piece of *E. glabrescens* (Glabrous Whitlowgrass) to see last Spring, after which I began to distinguish it in Purbeck. I had my first 8 finds confirmed by the Referee, Dr. T. Elkington, after which I made 15 more, and so the Dorset records increased from 2 to 25! Here it occurs on sand or on thin soil over limestone, often with *E. verna* (Common Whitlowgrass). Despite what Floras say, the petals can be divided to very slightly over halfway. I am not qualified to pronounce, but it would not surprise me if it is reduced to a subspecies sometime.

EDWARD PRATT, 7 Bay Close, Swanage, Dorset, BH19 1RE

OFFERS

NEW ATLAS OF THE BRITISH & IRISH FLORA FOR SALE

I have purchased this wonderful new book, but, in my ignorance, I did not realise what it was like and for what purpose. It really has no value to me whatsoever and it seems a dreadful shame for it to sit in my house for years on end and finally go to the tip!

If any member would like to take it off my hands at a reduced price, say £30.00 + p&p, I would be delighted to hear from them.

PETER WATTS, Oaktrees, Wood Lane, South Heath, Great Missenden, Bucks. HP16 0RB;
Tel. 01494863487; fax 01494 728064; email: peter.watts8@btopenworld.com

FREE BOTANICAL PUBLICATIONS FROM NATIONAL MUSEUMS & GALLERIES OF WALES

We have a limited number of copies of two NMGW publications which are being withdrawn from sale. Anyone who would like one (or both) for free, please send a stamped addressed envelope of appropriate size to me at the address below by end of February 2004:

PARDOE, H.S. & THOMAS, B.A. (1992). *Snowdon's Plants since the glaciers – a vegetation history*. National Museum of Wales. 32pp. (also available in Welsh, please specify).

- A5 envelope with 46p Second Class stamps.

HARRISON, S.G. (1985). *Index of Collectors in the Welsh National Herbarium*. National Museum of Wales. 140pp.

- A4 size envelope with £1.42p Second Class stamps.

TIM RICH, National Museums & Galleries of Wales, Cathays Park, Cardiff CF10 3NP

SEEDS FROM WARE — 2003

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

Agastache rugosa (Scotland)

Amaranthus dubius (Tobago)

A. hybridus (wool alien)

A. viridis (Israel)

Atriplex micrantha (Austria)

Bidens pilosa (Madeira)

Bowlesia incana (cult.)

Bromus commutatus (USA)

B. hordaceus (New Zealand)

Bupleurum longifolium (cult.)

B. trichopodium (cult.)

Centaurea solstitialis (Turkey)

Chaerophyllum azoricum (cult.)

Chenopodium foliosum (Herts.)

Cleome hasseleriana (cult.)

Conyza bonariensis (Argentina)

Cynoglossum germanicum (cult.)

Cypella herbertii (S. Africa)

Cyperus fuscus (ex Middlesex)

Datura tatula (bird seed)

Digitaria ternata (Mexico)

Emex spinosa (Spain)

Eryngium cygnorum (wool alien)

E. moschatum (wool alien)

Euphorbia squamigera (Majorca)

Galinsoga parviflora (wool alien)

G. quadriradiata (wool alien)

Galium verrucosum (bird seed)

Hystrix patula (cult.)

Jacaranda mimosifolia (Madeira)

Luzula ? flaccida (Australia)

Malva arborea (Isle of Wight)

Melanoselinum decipiens (Madeira)

Mirabilis nyctaginea (USA)

Meum athamanticum (cult.)

Misopates orontium (bird seed)

Nicotiana sylvestris (Madeira)

Ortegaia hispanica (Portugal)

Phytolacca americana (Corsica)

Stipa capensis (S. Africa)

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

GOFYNNE SEED LIST 2004

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

Agrostema githago

Anisantha madritensis

Cardamine impatiens

Carex depauperata

Cerastium alpinum

Clinopodium menthifolium

Coincya wrightii

Cyperus fuscus

Cyperus longus

Dryas octopetala

Galeopsis angustifolia

Galium pumilum

Gastridium ventricosum

Hypericum montanum

Inula crithmoides

Ludwigia palustris

Lychnis viscaria

Polypogon monspensis

Ranunculus ophioglossifolius

Sclerathus annuus

Scrophularia scordonia

Sedum villosum

Senecio paludosus

Silene gallica var. *quinquevulnera*

Trifolium incarnatum ssp. *molinerii*
Trifolium strictum
Trinia glauca

Tuberaria guttata
Veronica spicata ssp. *hybrida*

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

BOOK NOTES

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

Botaniska strövtag. Svenska och engelska. (Acta Academiae Regiae Gustavi Adolphi LXXXII). M Rydén. Pp. 182. 2003. Softback. 190 kr. ISSN 0065-0897. ISBN 91-85352-51-9.

The Isle of Wight Flora. C. Pope, L.Snow & D. Allen. Pp. 255. The Dovecote Press, Wimborne, Dorset. 2003. Hardback. £35. ISBN 1 904349 28 5.

**Plant Conservation in Scotland* — Articles deriving from the BSS Symposium, Edinburgh, 2002. BSS Issue 55.1. Price £16 (special offer).

[20 papers covering all plant groups and many habitats, many presented by BSBI members.]

**The Natural History of Upper Teesdale.* M.E. Bradshaw (ed.). Pp. 104. Durham Wildlife Trust. 2003. Price £5 (no ISBN).

[A 4th edn of the original 1965 booklet. Some chapters are unchanged, but others are completely new (at least since my 2nd edn..)]

**Review of non-native species policy* — the DEFRA report is available on the web at www.defra.gov.uk/wildlife-countryside/resprog/findings/non-native/index.htm

**Fritillary* — the journal of the Ashmolean NHS of Oxfordshire and the Berkshire, Bucks & Oxfordshire Wildlife Trust. Available (at £6.00 for No. 2 & £6.50 for No. 3 from ANHSO Fritillary, & Eynsham Road, Botley, Oxford, OX2 9BS.

[Copies of Numbers 2 & 3 have been passed to me. No. 2 contains articles on The flora of the Oxford Ring Road, Dandelions, the native Grape Hyacinth, farmland flowers (arable weeds!) — the last two particularly interesting. No. 3 has 9 articles on the Ecosystems of Oxfordshire valley-head fens, including Cothill Fen, which I found extremely informative.]

Vice-County Census Catalogue of the Vacular Plants of Great Britain, the Isle of Man and the Channel Islands. Stace, C.A., Ellis, R.G., Kent, D.H., McCosh, D.J., eds. Pp. xxi+405. BSBI. 2003. Price (sbk) £12. ISBN 0 901158 30 5.

**Nature in Cambridgeshire*, No. 45. 2000. 88pp. ISSN 0466 6046. Available from the Herbarium, Dept. of Plant Sciences, Downing Street, Cambridge, CB2 3EA for £3.50 (incl. p&p) who also have copies of many back issues.

[I have subscribed to this for the last 8 years and always found something of interest in this well-edited and very modestly-priced journal. This issue contains a long article on one of the Oxlip Woods, Kingston Wood, interesting records on the rich flora of the ditches of the Ouse Washes, as well as half-a-dozen other articles and the usual plant records and book reviews.]

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

SUPPLEMENT TO ALIEN GRASSES OF THE BRITISH ISLES

Supplement to Alien Grasses of the British Isles T.B. Ryves and E.J. Clement. Pp. 4. 2003. Available, free of charge, from Summerfield Books — A5 s.a.e. required.

[This short supplement contains new taxa and references, and notes and corrections.]

CHRIS BOON, Secretary Publications Committee

CATALOGUE OF BOTANICAL PRINTS AND DRAWINGS AT THE NATIONAL MUSEUMS & GALLERIES OF WALES

The Botanical Illustrations Collection at the National Museums & Galleries of Wales consists of more than 7,000 accessed prints and drawings held in the Department of Biodiversity & Systematic Biology. The works are mainly hand-coloured prints but there are also some woodcuts, nature prints and etchings. The majority of illustrations are 19th and 20th century prints, many of them from publications such as *Curtis's Botanical Magazine*. The contemporary collection generally consists of original watercolours.

Images range from prints from *A Curious Herbal* by Elizabeth Blackwell published in 1737 and exquisite works from *Plantae Selectae* (1772) by Georg Ehret through to contemporary work by RHS medal-winner Claire Dalby and Welsh botanical artist, Gillian Griffiths. The Cymmrodorion collection contains work by many artists in many styles which reflects the preferences of Joseph Edwards (1814-1882), the Welsh artist who originally assembled the collection.

The catalogue provides an overview of each collection together with details of the individual illustrations and a biography of the artist or the scientist who commissioned the work. It is A4 in size, has 319 pages with many colour illustrations and portraits and costs £45 and is available from the Commercial Dept., The National Museum & Gallery of Wales, Cathays Park, Cardiff CF10 3NP.

MAUREEN LAZARUS, Dept of BioSyb, The National Museum & Gallery of Wales, Cathays Park, Cardiff CF10 3NP; email: Maureen.Lazarus@nmgw.ac.uk

A FLORA OF CUMBRIA: CORRIGENDA

A Corrigenda list is now available free from me at the address below. Please enclose an A5 stamped-addressed envelope.

GEOFFREY HALLIDAY, 26 Mowbray Drive, Burton-in-Kendal, Camforth, Lanes. LA6 1NF

FRITILLARY

The Ashmolean Natural History Society of Oxfordshire and BBOWT, the local Wildlife Trust, are pleased to announce the publication of the third volume of their journal *Fritillary*. This volume concentrates on the valley-head fens of Oxfordshire (especially Cothill Fen). There are papers about their history since the last ice age, their botany, hydrology and entomology.

We also still have copies of Volume 2, the millennium edition. It contains interesting and readable papers about local wildlife. There are pieces about the flowers of the Oxford ring road, meadow dandelions, the wild celery story, the wild grape hyacinth, a fish rescue, farmland birds, slugs and snails and rare arable flowers. There is also a small supply of copies of Volume 1 notable for Andy Gosler's article on the birds of Wytham Wood.

If you would like a copy of any volume of *Fritillary*, please send £6.50 for Volume 3, £6 for Volume 2 or £3 for Volume 1, to ANHSO *Fritillary*, 7, Eynsham Road, Botley, Oxford, OX2 9BS.

The Ashmolean Natural History Society of Oxfordshire has already begun work on the fourth volume of *Fritillary* and the editorial board would be pleased to consider offers of papers about the natural history of the three counties. If you would like to submit a paper please get in touch with the receiving editor:

DR ALISON McDONALD, Wolfson College, Oxford, OX2 6UD, telephone: 01865 556651,
email: alison.mcdonald@plants.ox.ac.uk

'DATING ONE'S BENTHAM' REPRIEVED

My co-authors, David Allen, Philip Oswald and Mike Walpole, and I were delighted by the response from BSBI members to our note in the April *News* (pp.68–69) asking for help in tracing editions and (re-)issues of George Bentham's *Handbook of the British flora*. Indeed, although the same note was published in other places, only BSBI members responded! I will only mention one of the people who replied, the ever-helpful and surely very much missed Nora McMillan.

Information BSBI members provided helped us to clarify the sequence of editions and issues. However the following remain elusive: 1880 and 1881 probable re-issues of the fourth edition (which were cited by F.A. Stafleu and R.S. Cowan in *Taxonomic literature* edn 2), and an 1897 re-issue of the sixth edition which N.D. Simpson listed in his 1960 *A bibliographic index of the British flora*. Simpson apparently saw this but we have not traced any copy. It is just possible, I think, that these were misprints or mistakes of some other kind.

The results of our delvings are published in a Short Note — 'George Bentham's *Handbook of the British flora* (1858–1954) and associated works: a check-list of editions and issues' — in *Archives of natural history* **30(2)**: 250–254 (October 2003).

Those who have Internet access are very welcome to download, for their personal use, a PDF file containing this paper from the Society for the History of Natural History's website; the URL is: http://www.shnh.org/PUB_ANH_Bentham.pdf

It is clear from those who replied that owning a copy of Bentham's *Handbook* is still very much part of our botanical tradition. Something we might celebrate on its sesquicentenary in 2008?

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email: editor@shnh.org

OBITUARY NOTES

With much regret we report the following deaths.

Dr F.H. Perring OBE, FLS of Oundle, Peterborough. On 24 October a large crowd of over two hundred, including many BSBI members, assembled at Stoke Doyle parish church in rural Northamptonshire for a service of thanksgiving for the life of Franklyn Perring. The herb-rich turf of the churchyard reminded us of one of his great enthusiasms. Sunlight streamed through the clear windows. Readings included poems by John Clare, A.E. Housman, Robert Frost, Rupert Brooke, John Gilmour and Trevor Hold, and among the tributes was this personal reminiscence by Max Walters, perhaps his longest and closest colleague in the BSBI:

'I have a few minutes this morning to try to tell you of my personal friendship with Frank Perring (I always called him Frank) — a friendship over some 60 years in fact. I do not recall our first meeting. Frank was among a small group of gifted, enthusiastic students which it was my good fortune to try to teach in the heady period in Cambridge University following the end of World War II. He had done his compulsory military service in the Army in Ireland, India and Malaya before coming up to Queens' College to read Natural Sciences. I joined the teaching staff of the then Botany School (now the Plant Sciences Dept.) as Curator of the Herbarium in 1948, and Frank was one of the really keen students who came on the first Continental European excursion I ran, which took place in Sweden in 1950.

It was, of course, the Botanical Society's Maps Scheme which really cemented our lifelong friendship. I remember how pleased I felt when, as newly-appointed part-time Director of the project, I discovered that Frank would welcome the full-time post as 'Senior Worker' for the *Atlas* preparation, which he began in 1954 after completing his PhD. He subsequently took over from me as Director, and the *Atlas* appeared as our joint work in 1962.

It was a pleasure to work with Frank: he was cheerful and optimistic — even when, as happened early in recruitment of volunteer field recorders, a single morning's mail, after some national press publicity, brought a flood of more than 800 letters, which threatened to engulf our small but devoted

secretarial staff, which was housed in No 1 Brookside, at the corner of the Botanic Garden. The heavy punched-card machinery, incidentally, was in the cellar.

After completion of the *Atlas*, we naturally saw rather less of each other, but we worked together in the early days of our County Wildlife Trust — the Cambridgeshire and Isle of Ely Naturalists' Trust (CAMBIENT). I particularly enjoyed our partnership in acquiring the County Trust's first nature reserve of Hayley Wood in 1962: over the years we have found occasion to visit Hayley Wood together and feel a certain satisfaction at our co-operation — perhaps a mixture of pride and nostalgia. So time has passed and we have naturally and easily kept in contact as occasion presented itself, though my own variable health and vigour in recent years has meant that Frank came to see me rather than our meeting in the field. Imagine my pleasure, therefore, when the Botanical Society's *New Atlas* was to be launched at Kew in September last year, and Frank rang and said was I going and if so could he give me a lift there and back in his car.

This was a really valuable occasion for us both to meet so many friends and colleagues and admire the brand-new *Atlas* for which we had been pioneers. Little did I realise then that the cancer, which would eventually kill him, would mean this was our last joint field trip. I just feel so glad we did that together (see photo in *BSBI News* 92, colour section plate 1 (Jan. 2003)).

I want to finish with a word about Frank's Christian belief. As many will know, he was Secretary of the Parochial Church Council in this beautiful Church when Judith Rose, who is conducting our service today, was the Rector here. Although Frank and I never discussed our religious beliefs — at least not in theological terms, — we used to compare notes occasionally on our efforts with the Parochial Church Councils, and also on very practical matters such as the value of Churchyards as nature reserves of a special kind. He and I undoubtedly shared a liberal view of what a Parish Church can and should do. I think he truly understood that hard but necessary lesson, namely to live in the 'eternal moment' and to thank God for it.

Mr R.H. Roberts of Bangor, North Wales. Dick Roberts had been a member since 1954 and was later elected an Honorary Member of the Society. Among his wide interests Dick made special studies of the species and hybrids of *Dactylophiza*, *Mimulus* and *Polypodium* and was at some time BSBI Referee for all three genera. Dick also had an expert knowledge of the flora of Anglesey and Caernarfonshire and was for many years recorder for vice-county 52. He was also one of the founding members of the North Wales Wildlife Trust.

Mr P.J. Selby. Pete Selby, a member since 1987, was the v.c. recorder for South Hants in succession to Mr Paul Bowman. He left his secure job as a computer programmer to be our first volunteers officer, with a brief to see through the re-run of the Monitoring Scheme, and to facilitate the production of County Rare Plant Registers. (See colour section, plate 1)

Jan Selby and Family write — 'My family and I wish to thank all members of the BSBI who kindly sent letters and cards of condolence following the death of Peter, we very much appreciate all the kind thoughts and the messages that tell us of the high regard in which Peter was held during his somewhat short spell as the Volunteers Officer.'

The following short Eulogy was delivered at Pete's Funeral Service by Malcolm York (his son-in-law)

'I first met Pete just over 3 years ago at a family picnic in the New Forest. Sara wanted me to meet her mum and dad and given Pete's love of anything natural we couldn't have chosen a better spot.

Sara had told me that her dad had been in the Royal Signal Corps for 17 years, and I was expecting a brisk, formal military man, impeccably turned out with a clipped moustache, who organised everything down to the finest detail. The reality was anything but that. Pete was dressed for a ramble and that's exactly what we did. Through the woods, past streams and bogs, while he showed me more native species of flowers than I knew existed. But that was Pete, far from being a parade ground type, he was a quiet gentle man, laid back and easy going, and with a passion for plants. He loved his wife Jan, daughter Sara and, more recently, his granddaughter Laura, and would enjoy nothing more than sitting back in a chair with a cup of tea and a square of chocolate just watching them.

That isn't to say he wasn't organised. He had a team of volunteer lady botanists, affectionately known as his harem, whom he organised into a lean, mean collecting team as they gathered data for Atlas 2000. Peter worked with his team for just over 3 years, sometimes teasing but always encouraging, and I know that all the ladies (and gentlemen) who worked with him found his enthusiasm infectious and untiring.

Peter was Vice-county Recorder for a number of years and in the last 18 months of his life he worked as the Volunteers Office for the Botanical Society of the British Isles, managing a project called 'Local Change' in which he harnessed his not inconsiderable I.T. skills on a program called MapMate which aims to give amateur botanists the opportunity to send in their plant data to be added to a national database.

His knowledge of plants, while extensive, was not infallible however, and Sara who always delighted in trying to catch him out, will remember the time when he declared that the thick clump of green plants in our kitchen bed 'wouldn't produce anything' Imagine her triumph when later in the year it bore clusters of bright pink flowers. It was forever after referred to as the 'never flower' plant and for a while even appeared on the screen saver of our computer.

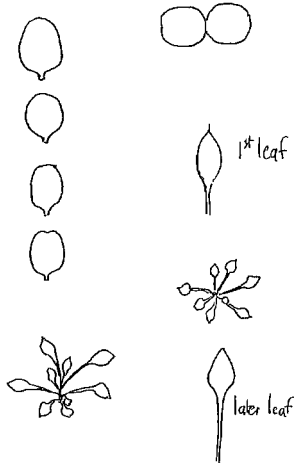
My last memory of Peter was on my birthday, August 9th, 2003. Some of the family had come over for a quiet afternoon tea in the garden, Pete, as was his wont, had been off for a walk in the woods, returning with a number of specimens for identification, and was sitting proudly on a garden chair basking in the love and warmth of his family. As a birthday present he and Jan bought me a Hop plant to go with the burgeoning vine that is already laden with fruit. Next year when I harvest both crops and produce my first batch of home brewed beer I will raise a glass and toast his memory.

Cheers Peter, you are, and always will be in our thoughts.'

Mr F.W. Simpson MBE of Ipswich, Suffolk. Francis Simpson, a member for over 50 years, was one of our longest serving vice-county recorders. He took over v.c. 25 (E. Suffolk) in 1951 and v.c. 26 (W. Suffolk) in 1961 and remained recorder or joint recorder of both until his death. His work on the flora of Suffolk culminated in 1982 with the publication of his *magnum opus* — *Simpson's Flora of Suffolk*.

Obituaries of all four will appear in *Watsonia*.

MARY BRIGGS, Hon Obituaries Editor, 9 Arun Prospect, Pulborough, West Sussex RH20 1AL



Cots 3 x 2 mm V. short petiole.
True leaves similar in shape to
cotyledons but with much longer
petioles. Covered with rather
sparse glandular hairs.
Internodes very short

Erophila verna seedlings del. S. Evans © 2004

(see *BSBI News* 83: 68 & 90: 60 for a more detailed explanation of these drawings)

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.

CASTELL DINAS BRAN, LLANGOLLEN, DENBIGHSHIRE (v.c. 50) 3rd May

Ten people met at Dinas Bran School on an overcast morning, threatening rain, coming from far and near and arriving via a variety of transport. A singing Blackcap welcomed the group on the start of the walk. Through the lanes we skirted the ruins of the 12th century castle, enjoying the spring flowers: *Conopodium majus* (Pignut), *Anemone nemorosa* (Wood Anemone), *Mercurialis perennis* (Dog's Mercury), *Ranunculus auricomus* (Goldilocks Buttercup), *Stellaria holostea* (Greater Stitchwort) and the delicate grass *Melica uniflora* (Wood Melick). A specimen of *Poa angustifolia* (Narrow-leaved Meadow-grass) was collected and later confirmed by Arthur Copping. *Ranunculus ficaria* (Lesser Celandine) in the hedgerow on closer inspection appeared to have a brown rust on its leaves. On roadside verges we found *Allium vineale* (Wild Onion), *Sedum telephium* (Orpine), *Valerianella* sp. (a cornsalad) and *Fumaria* sp. (a fumitory).

At lunch time it rained heavily and after considering some smelly barns for shelter we all huddled under a tree with *Viola odorata* (Sweet Violet) beneath our feet. When we were all thoroughly soaked we set off again on a path along a small bank in a field grazed by sheep. Suddenly Martin Rand fell to his knees and began inspecting the short turf closely. To everyone's astonishment he found *Moenchia erecta* (Upright Chickweed) — it was just past flowering. This find cheered everyone up and we all started crawling around on our hands and knees, discovering *Ornithopus perpusillus* (Bird's-foot), *Aira praecox* (Early Hair-grass) *Erodium cicutarium* (Common Stork's-bill), *Myosotis discolor* (Changing Forget-me-not) and *Aphanes arvensis* (Parsley-piert) also on the bank.

We continued along the hedgerow and Graham noticed a hybrid *Crataegus* (hawthorn) with some flowers in the same panicle containing one style and others two. While Graham searched the hedgerow the rest of the group splashed about in a small wet flush with *Juncus effusus* (Soft-rush), *Ranunculus flammula* (Lesser Spearwort), *Cardamine pratensis* (Cuckooflower), *C. flexuosa* (Wavy Bitter-cress) (all in flower), *Veronica beccabunga* (Brooklime) and *Anagallis tenella* (Bog Pimpernel). Large Alder trees (*Alnus glutinosa*) were admired before we joined the road again. Martin found *Stellaria neglecta* (Greater Chickweed); *Lathyrus linifolius* (Bitter Vetch) was just starting to flower and the fronds of *Pteridium aquilinum* (Bracken) were sprouting up through the ground.

We scrambled over the Eglwseg limestone scree until we found *Hornungia petraea* (Hutchinsia), *Erophila verna* (Common Whitlowgrass), *E. majuscula* (Hairy Whitlowgrass), *Medicago lupulina* (Black Medick), *Carex caryophyllea* (Spring Sedge) and *Catapodium rigidum* (Fern-grass). In a little lay-by on the Eglwseg road Wendy McCarthy and Graham refound *Filago minima* (Small Cudweed).

We then crossed the fields and a little footbridge into an ancient woodland with a carpet of *Hyacinthoides non-scripta* (Bluebell) and some *Melampyrum pratense* (Common Cow-wheat) just starting to flower. While walking through the wood we heard a Pied Flycatcher singing on an oak branch.

My thanks to all those who came along to help make this a very enjoyable meeting and in finding over 100 species.

EMILY MEILLEUR

MURLOUGH, CO. DOWN (v.c. H38) 18th May

Murlough is a National Nature Reserve that is managed by the National Trust and comprises about 280ha of mature stable dunes with heath and scrub. Seven members met on a bright but cool morning and made their way, with permission, onto the restricted part of the Reserve where the public are not normally allowed.

The ground is gently undulating and is mostly dominated by *Festuca rubra* (Red Fescue) and *Ammophila arenaria* (Marram), with *Calluna vulgaris* (Heather) and *Erica cinerea* (Bell Heather). There are also extensive areas of *Hyacinthoides non-scripta* (Bluebell) and small groups and single specimens of *Acer pseudoplatanus* (Sycamore), *Crataegus monogyna* (Hawthorn) and *Sambucus nigra* (Elder). At the top of one particular rise, we found ourselves looking down the very steep slope of a deep blow-out. The upper slopes of this provided *Aira praecox* (Early Hair-grass), *Cerastium diffusum* (Sea Mouse-ear) and *Ononis repens* (Common Restharrow). The middle part of the slope was too steep to traverse with safety and without significant damage to the dune, so we made our way around the steepest slope, down into the blow-out. Here, about a quarter of the bottom of the blowout was covered by a dense group of *A. pseudoplatanus* with some ferns, *Dryopteris filix-mas* (Male-fern) and *D. dilatata* (Broad Buckler-fern). On the large area of exposed sand were *Erodium cicutarium* (Common Stork's-bill), *Filago minima* (Small Cudweed), *Myosotis ramosissima* (Early Forget-me-not) and *Teesdalia nudicaulis* (Shepherd's Cress). Moving from the blow-out towards the sea, *Euphorbia paralias* (Sea Spurge) and *E. portlandica* (Portland Spurge) were frequent amongst *Ammophila arenaria*. While returning to the cars for lunch, we noticed a small herd of the ponies used by the National Trust to help manage the reserve.

After lunch, the public boardwalk to the sea was used and several additions were made to our list. Most remarkable was *Botrychium lunaria* (Moonwort), of which there were four fronds. We also saw *Thalictrum minus* (Lesser Meadow-rue) and more *Teesdalia nudicaulis*. There were several plants of *Cotoneaster simonsii* (Himalayan Cotoneaster) and stands of *Hippophae rhamnoides* (Sea-buckthorn). The latter plant was first introduced into Northern Ireland at Murlough and now forms large stands on some parts of the coast where it has completely displaced native plants. Recording continued as we made our way around the Reserve, and we ended the day with a good list of Murlough specialities and the 'usuals'.

One of the objectives of this meeting was to relocate *Vicia lathyroides* (Spring Vetch) at Murlough, and this we failed to do. It had last been recorded at stations within Murlough about 10 years ago. The ground was extensively searched and all likely plants carefully checked and found to be *Vicia sativa* (Common Vetch).

GRAHAM DAY

USKMOUTH WETLANDS RESERVE (v.c. 35) 5th July

13 people met Trevor Evans, the leader, at the car park of the above reserve at 11.00. The banks of a lagoon nearby were searched for *Ophrys apifera* (Bee Orchid) without avail, nothing of the 50+ there on 23rd June could be found. *Anacamptis pyramidalis* (Pyramidal Orchid) had fared better and a number of them were counted. The *Dactylorhiza praetermissa* (Southern Marsh-orchid) occurred in small numbers but were past their best. Some *Lathyrus nissolia* (Grass Vetchling) was noted here and was seen scattered over the reserve. Many common plants were named as some of the party had limited knowledge. Various common docks had their distinguishing features pointed out but like so many other closely related plants one learns the common ones, then when others are met that have some similar features, but unfamiliar characteristics as well, one is better prepared to add a new plant to one's memory. The track round the car park had several *Puccinellia distans* (Reflexed Saltmarsh-grass) plants on it. Moving to the west a single Bee Orchid was found on a grassy strip where more Southern Marsh-orchids were past their best. The cocoon of *Zygaena filipendulae* (Six-spot Burnet) was stuck to the top of a stem nearby.

The path wound round past the gatehouse to the Power Station and *Lathyrus sylvestris* (Narrow-leaved Everlasting-pea) and *Lepidium latifolium* (Dittander) lined it. Even more of the latter covered the banks of the lagoons. More and better clusters of *Epipactis palustris* (Marsh Helleborine) began to appear and digital camera owners benefited in that they could delete the first efforts as they found bigger and better clusters. A large triangular rough grassland should have had a display of peculiar very pale brown bee orchids, with pale pink sepals but like the others they 'had done their thing'. An area of *Trifolium squamosum* (Sea Clover) was viewed instead, drifts of which were later to be seen near the lagoon to the east of the lighthouse. A few metres more and on a bare gritty patch were 15 plants of *Samolus valerandi* (Brookweed) an uncommon v.c. plant and the first seen by the leader this year (later, two more were seen by the end of a lagoon). *Chenopodium glaucum* (Oak-leaved Goosefoot) normally 20cm or more high was only one tenth of that in the dry hollow where normally some water remained. *Vicia hirsuta* (Hairy Tare) and *V. tetrasperma* (Smooth Tare) had been seen and compared, as we moved towards the R. Severn shore and our lunch. Before that, a search was made to find the lopsided cones of *Pinus radiata* (Monterey Pine). These cones remain on the branches for the life of the tree and in California the heat of a forest fire is needed before the cones open to allow the seeds to fall, germinate and replace the destroyed parent. Needles in threes were noted. The morning walk ended overlooking a promontory at the mouth of the R. Usk. A forest of *Heracleum mantegazzianum* (Giant Hogweed) covered this mound and contrasted with the sprayed and collapsed yellowing plants inside the reserve. Lunch was taken overlooking the estuary but the overcast skies and cool breezes kept the normally numerous flying insects skulking in the vegetation.

Hirschfeldia incana (Hoary Mustard) was dotted along the track to the lighthouse, displaying its greyish green foliage, pale yellow flowers and siliquas, many of which ended in 'a minaret'. Several *Raphanus raphanistrum* ssp. *maritimus* (Sea Radish) poked through the fence and showed their fattish pods constricted between their seeds. It was the large number of patches of *Lathyrus sylvestris* at the side of the tracks by the lagoons that attracted most attention. E of the lighthouse *Apium graveolens* (Wild Celery) was observed, its odour confirming it. The E end of a lagoon was sampled for *Myriophyllum spicatum* (Spiked Water-milfoil), *Zannichellia palustris* (Horned Pondweed), *Ceratophyllum demersum* (Rigid Hornwort) and a *Chara* sp. (Stonewort). Making our way to overlook the vegetated foreshore we came to an area of low vegetation with *Salicornia ramosissima* (Purple Glasswort) dominating, then an almost dry, very shallow pool supporting scattered *Veronica scutellata* (Marsh Speedwell) and finally an area of large patches of hundreds of *Dactylorhiza praetermissa*. From the top of the low cliffs here large patches of blue indicated the presence of *Limonium vulgare* (Common Sea-lavender) growing among the usual littoral plants of a muddy estuary. Before arriving back at the cars a stop was made to examine some *Sison amomum* (Stone Parsley) a common feature of lane sides near the R. Severn.

Footnote: The plantain Tony Lewis thought might be *Plantago major* ssp. *intermedia* turned out to be the commoner ssp. *major*, none of its capsules had more than 12 seeds in them, some should have at least 14 seeds to be ssp. *intermedia*.

TREVOR EVANS

LOCKERBIE, DUMFRIESSHIRE (v.c. 72) 18th-20th July

Seven people took part in the field meeting over a weekend of changeable weather. The objective for the three days was to visit tetrads in eastern Dumfriesshire as part of the local change project.

First stop Friday morning was Lochmaben (NY08W) the birth place of Robert the Bruce. This is probably the most complex of all the tetrads to be covered in v.c. 72 and at 273 species was the richest in 1987/88. The tetrad includes much of the town itself, parts of two of the town's seven lochs and part of the river Annan. On the Castle Loch, there was a good range of aquatic and reed swamp species including *Cicuta virosa* (Cowbane), *Oenanthe crocata* (Hemlock Water-dropwort), *Iris pseudacorus* (Yellow Iris), *Glyceria maxima* (Reed Sweet-grass), *Lythrum salicaria* (Purple-loosestrife) and *Phragmites australis* (Common Reed). On the outlet to the Mill Loch was a raft of *Nymphoides peltata*

(Fringed Water-lily), apparently introduced since the last survey and now threatening to spread over much of the loch. An elderly lady on enquiring what we were doing pointed out the location of a 'rare' flower drawn to her attention by the late Mary Martin, previous v.c. recorder. Mary had lived for many years in Lochmaben and had led botanical evening classes at which this lady had been shown this plant. We wouldn't otherwise have seen *Lamium maculatum* (Spotted Dead-nettle) which was hidden under a hedge. The group who explored the area towards the river had a narrow escape from an aggressive horse, which prevented closer inspection of an old river meander.

In the afternoon we visited the Tinwald tetrad (NY08A) on the face of it a habitat poor square of arable and improved grassland on the Torthorwald Ridge. Some interesting habitat was found however, grassy banks produced *Hypericum* × *desetangii* (Des Etangs' St John's-wort), *Hypericum humifusum* (Trailing St John's-wort), *Sedum telephium* (Orpine), *Trifolium medium* (Zigzag Clover) and in bare places clumps of *Senecio viscosus* (Sticky Groundsel). Near the Lochar Water there was an area of wet acid grassland with *Molinia caerulea* (Purple Moor-grass), *Potentilla palustris* (Marsh Cinquefoil), *Senecio aquaticus* (Marsh Ragwort), *Viola palustris* (Marsh Violet) and *Veronica scutellata* (Marsh Speedwell). After a walk negotiating a wandering bull, Shaws Hill offered fine views over Dumfries to the Solway. A small lochan had *Carex rostrata* (Bottle Sedge), *Lycopus europaeus* (Gypsywort) and *Lychnis flos-cuculi* (Ragged-Robin). Small streams produced *Glyceria notata* (Plicate Sweet-grass) and *Ranunculus hederaceus* (Ivy-leaved Crowfoot).

On the Saturday the group met at Bigholms farm (tetrad NY38A) and divided attention between the Bigholms burn, adjacent lowland mire and the moorland to the south of the road. The burn and its tributaries had some calcareous springs and flushes. Amongst the finds were *Briza media* (Quaking-grass), *Caltha palustris* (Marsh Marigold), *Carex hostiana* (Tawny Sedge), *Carex disticha* (Brown Sedge), *Carex pallescens* (Pale Sedge), *Linum catharticum* (Fairy Flax), *Parnassia palustris* (Grass-of-Parnassus), *Sagina nodosa* (Knotted Pearlwort) and *Valeriana dioica* (Marsh Valerian) approaching its north west limits. In the river *Carex acutiformis* (Lesser Pond-Sedge) was a good find. On the mires there were typical wefts of *Vaccinium oxycoccus* (Cranberry) and surprising quantities of *Andromeda polifolia* (Bog-rosemary). On the wetter areas *Carex curta* (White Sedge) grew scattered across *Sphagnum* lawns.

In the afternoon we moved to the south of Langholm to tetrad NY38W. This is partly on the Langholm and Newcastleton Hills SSSI, an extensive upland moorland. Just south of Cronksbank farm the Tarras water has cut a deep valley with deciduous woodland and some calcareous flushes coming out of the hillside. Immediate attention was drawn to an extensive stand of *Equisetum telmateia* (Great Horsetail). Michael Braithwaite was on hand to confirm *Trichophorum cespitosum* nothosp. *foersteri* (a deergrass). *Carex laevigata* (Smooth-stalked Sedge), *Carex paniculata* (Greater Tussock-sedge) and *Carex lasiocarpa* (Slender Sedge) were amongst 17 *Carex* species found. A search for *Trientalis europaea* (Chickweed-wintergreen) was fruitless under towering bracken and will have to be looked for earlier next year. Out of the valley the dry heath had been extensively burnt earlier in the year and the vegetation was only just recovering. Despite this, typical dwarf shrubs like *Calluna vulgaris* (Ling), *Erica tetralix* (Cross-leaved Heath) and *Erica cinerea* (Bell Heather) and good quantities of *Vaccinium vitis-idaea* (Cowberry) were coming away with the surprisingly resilient *Drosera rotundifolia* (Round-leaved Sundew) on bare patches of peat.

On the way back to Lockerbie we passed through tetrad NY38J so a quick visit was made to look along the banks of the Esk at Burnfoot. The river here has woodland along the banks and is not grazed. Typical woodland edge species included *Bromopsis ramosa* (Hairy-brome), *Brachypodium sylvaticum* (False Brome) and *Geranium sylvaticum* (Wood Crane's-bill). On the river bank there was *Symphytum tuberosum* (Tuberous Comfrey) and *Stellaria nemorum* (Wood Stitchwort).

On the Sunday we arranged to meet at the Devils Beef Tub north of Moffat to look at a square on the Moffat Hills. Unfortunately rain of tropical intensity meant it was hard to see out of the car and we retreated to a lower tetrad near Parkgate (NY08J). This had more intensive agriculture but some higher ground that looked interesting. Part of a small loch falls in the square and this had a good population of *Cicuta virosa* (Cowbane) together with *Apium inundatum* (Lesser Marshwort), *Lythrum portula* (Water-purslane) and *Potentilla palustris* (Marsh Cinquefoil). On a roadside verge we found

Carex muricata ssp. *lamprocarpa* (Prickly Sedge) and on the wall around a church hall *Ceterach officinarum* (Rustyback). In afternoon the owners of Kirkland Farm allowed us to walk across their hill and explore an interesting gully and an area of rough grassland. *Carex laevigata* (Smooth-stalked Sedge) was found again, this time growing along a burn outwith woodland. On the open poorly drained rough grassland there was plenty of *Crepis paludosa* (Marsh Hawk's-beard) and *Carex binervis* (Green-ribbed Sedge) together with *Hydrocotyle vulgaris* (Marsh Pennywort), *Viola palustris* (Marsh violet), *Narthecium ossifragum* (Bog Asphodel) and small quantities of *Parnassia palustris* (Grass-of-Parnassus).

Overall a good three days work and a major advance made for 6 of the 13 tetrads to be covered in Dumfriesshire.

CHRIS MILES

CARMARTHENSHIRE RECORDING MEETING (v.c. 44) 26th July – 2nd August

By popular request, the annual Carmarthenshire Recording Meeting was extended from a weekend to a full week. The intention was to include a mix of both experienced and less experienced botanists and referees were to be invited to deal with a selection of critical groups and species. Our aspirations in these respects were more than adequately fulfilled with over twenty members from all over the country taking part including both local and national experts.

Most participants arrived in time for lunch on Saturday 26th July at Glynhir, near Ammanford, which was to be our base for the week. The first visit in the afternoon was to the disused Glangwenlais Carboniferous Limestone Quarry in the Carmel Woods National Nature Reserve, where Tony and Viv Lewis showed the party a few rosettes of *Dipsacus pilosus* (Small Teasel) at the entrance. Nearby a *Euphrasia* (eyebright) with an upright habit and distinctive acute leaf-lobes was later determined by Alan Silverside (AJS) as *Euphrasia arctica* ssp. cf. *arctica*, a new record for the 10km square and only the 3rd v.c. record. Other noteworthy records included *Elymus caninus* (Bearded Couch), *Sanguisorba officinalis* (Greater Burnet) and *Carex distans* (Distant Sedge) and at the margin of a small pool, *Triglochin palustre* (Marsh Arrowgrass).

The next visit was just a few hundred metres away to Pentregwenlais Quarry, another disused limestone working with tall imposing lime kilns bearing the date 1903. By the track was a single plant of what was considered by the gathering to be *Rumex crispus* × *R. sanguineus* × *R. obtusifolius* (a hybrid dock) but its identity remains unconfirmed. Further on, the party was shown *Equisetum variegatum* (Variegated Horsetail) in abundance in flushed pools together with *E. palustre* (Marsh Horsetail), *E. arvense* (Common Horsetail) and *E. ×litorale* (*E. fluviatile* × *E. arvense*) (Shore Horsetail) and material was collected for later examination in the hope of proving further hybrids. After dinner, during the evening session, Sam Thomas spent several hours examining the specimens under the microscope and putatively determined some of the material as *E. ×rothmaleri* (*E. arvense* × *E. palustre*).

On Sunday 27th July we had arranged to join Plantlife members to visit the Plantlife grassland reserve at Cae Blaen Dyffryn, south of Lampeter. Several *Dryopteris* (Male-fern) taxa were present in the hedge by the car-park and Sam Thomas was able to demonstrate the subtle differences between *D. affinis* ssp. *cambrensis* and *D. affinis* ssp. *affinis* (Scaly Male-ferns). After a short introduction to the reserve by Dr Trevor Dines, Plantlife members split into small groups in order to carry out quadrat recording in the dry, more neutral parts of the site whilst the BSBI party was asked to plot the extent of the population of *Danthonia decumbens* (Heath Grass). Species of particular interest on the dry south-facing slope included a few plants of purple flowered *Viola lutea* (Mountain Pansy) and an abundance of *Campanula rotundifolia* (Harebell), and in the wet, *Molinia caerulea* (Purple Moor-grass) and *Juncus* (rush) dominated south-east corner of the site, *Carum verticillatum* (Whorled Caraway), *Scutellaria minor* (Lesser Skullcap), *Narthecium ossifragum* (Bog Asphodel), *Dryopteris carthusiana* (Narrow Buckler-fern) and *D. ×deweveri* (a hybrid Buckler-fern) were recorded. The reserve is noted for its abundance of Butterfly-orchids with 3480 *P. bifolia* (Lesser Butterfly-orchid)

and 2440 *P. chlorantha* (Greater Butterfly-orchid) counted in 2002. At the time of our visit, most had finished flowering but after lunch, all present spread out in a line at the top of the field and slowly walked downhill counting all the orchid spikes as they went. The total tally was 1923, it not being possible to certainly distinguish between the two species in seed. This is likely to be an underestimate, as plants are less conspicuous in seed and when looking south into the sun and downhill.

On the return to Glynhir, a short stop was made to revisit the *Equisetum* populations at Pentregwylais Quarry with Trevor Dines, as he has particular interest and expertise in the *Equisetum* hybrids having recently discovered *E. ×richardsii*, new to science, in North Wales.

The weather on Monday 28th started fine but by lunchtime the rain started in earnest and continued almost incessantly until Thursday! After breakfast, the party travelled to Tireithin Farm, on the northern side of the Gwendraeth Fawr valley above Pontyberem where we met Andrew Stevens who had arranged access with the owners, Sue and Tony Matthews. Mike Porter joined us for the day and identified most of the brambles as well as taking away specimens for later determination. The hedge-bank by the track supported some fine plants of *Dryopteris affinis* ssp. *cambrensis*, whilst parts of the adjacent pastures were white with *Carum verticillatum*. The highlight was the opportunity to examine an extensive valley mire occupying the impervious linear hollow between the outcrops of the Farewell Rock and the Basal Grits of the Millstone Grit Series. *Eriophorum vaginatum* (Hare's-tail Cottongrass), *E. angustifolium* (Common Cottongrass), *Narthecium ossifragum*, and *Drosera rotundifolia* (Common Sundew) were all frequent locally, and a few plants of *Vaccinium oxycoccus* (Cranberry) were also present scrambling over the *Sphagnum* (bog-moss) carpet. Arthur Chater confirmed the identity of *Carex hostiana* × *C. viridula* ssp. *oedocarpa* (*C. ×fulva*) (a hybrid sedge), growing in the vicinity of both parents, and determined the *Trichophorum cespitosum* (Deergrass) as var. *germanicum*. Sandwiches were eaten somewhat hastily under the shelter of umbrellas before continuing to another part of the mire where the vegetation was more base-rich and included stands of *Cirsium dissectum* (Meadow Thistle), *Serratula tinctoria* (Saw-wort), *Carex pulicaris* (Flea Sedge) and *Carex hostiana* (Tawny Sedge). Returning to the cars a small population of *Ophioglossum vulgatum* (Adder's-tongue) was seen growing beneath an open *Prunus spinosa* (Blackthorn) thicket: it was surmised that it owed its survival to the thorn bushes protecting it from the grazing goats.

A short stop was made at Gorswen Quarry near Maesybont on the way back to Glynhir. The rain was very heavy by now, but the population of *Equisetum hyemale* (Rough Horsetail), known since the 1950s, was found to be more extensive along the roadside hedge-banks than previously recorded. *Rorippa islandica* (Northern Yellow-cress) and *R. palustris* (Marsh Yellow-cress) were growing together in shallow ephemeral puddles on the floor of the disused quarry, both new records for this site.

The rain continued all Tuesday but did not deter the majority of participants from enthusiastically braving the Welsh weather! However, Dr Alan Silverside, Arthur Chater and Richard Pryce sensibly stayed in to study *Euphrasia*s during the morning as many specimens had been sent for Alan to determine: his timely arrival just before breakfast had provided a perfect excuse to avoid going out in the rain! Jean Green, Margot Godfrey, Ailsa Burns and Caroline Tero decided to visit the National Botanic Garden of Wales at Middleton and the nearby Aberglasney Gardens. They were impressed with both and also managed to record many weeds! Sam Thomas, Heather Slade, Graham Kay, John Killick and Roy Vickery headed off to meet James and Mary Illiff at Blaenau, near Llandeusan, in the upper Sawdde valley, in order to do some Local Change recording in SN72W. The vegetation included most species expected from this upland, sheep-decimated site and *Saxifraga hypnoides* (Mossy Saxifrage) and *Equisetum variegatum* were re-found in riverside flushes. *Euphrasia* specimens collected by Sam were examined later by Alan Silverside and amongst the *E. confusa* (previously known from the site) were some plants which fitted the characters of *E. rivularis*.

Trevor Evans and Roger Maskew arrived after breakfast on Wednesday 30th and joined the group visiting Carreg Cennen Castle, one aim of which was to monitor roses recorded in the past by Mrs Vaughan (v.c. Recorder until 1978). However, the result was largely disappointing although some of the site's specialities were seen including *Veronica spicata* ssp. *hybrida* (Spiked Speedwell), *Allium schoenoprasum* (Chives) and *Sorbus porrigentiformis* (Spreading Whitebeam). Meanwhile Margot

Godfrey, Heather Slade, Kath Cottingham and Richard Pryce travelled to Llanpumsaint to record SN42J for the Local Change scheme. Permission was obtained to look at land including an ornamental lake which had been excavated since the 1986-87 Monitoring Scheme. The surrounding fields, woodland and river were also examined but some of the most notable records came from the farmyard where *Rorippa islandica* and *Nicandra physalodes* (Apple-of-Peru) were growing in the gravel (both first records for the 10km square). The owner had sown a wildflower mix on an area of spread subsoil and this had yielded *Anthemis austriaca* (Austrian Chamomile) (a new v.c. record), *Centaurea cyanus* (Cornflower) and *Agrostemma githago* (Corncockle). The lake had an alarmingly large raft of *Nymphoides peltata* (Fringed Water-lily) but *Hypericum elodes* (Marsh St John's-wort), *Potentilla palustris* (Marsh Cinquefoil) and *Menyanthes trifoliata* (Bogbean) were frequent around the margins and *Dryopteris carthusiana*, *Scutellaria minor* (Lesser Scullcap) and *Carex rostrata* (Bottle Sedge) were in a nearby fen where Heather also discovered a sloughed Grass Snake skin.

On Thursday, one group planned to go to Cilycwm to try to re-find some of the roses recorded by Mrs Vaughan in the 1950s, '60s and '70s. On arrival, it was obvious that the task would not be as easy or rewarding as was hoped, because all the hedgerows were overly manicured and although roses were frequent, we were hard-pressed to find fruits on many plants. However, seven *Rosa* taxa were recorded in the morning, including *R. tomentosa* (Harsh Downy-rose), although Mrs Vaughan's *R. stylosa* (Short-styled Field-rose) plants were not seen. As a bonus, *Rorippa islandica* was found to be quite frequent at several locations along the roadside verge (a new 10km square record for SN74). After lunch, more lane-tramping resulted in only one new rose being added to the list (*Rosa arvensis* (f) × *R. canina* (m)) and it was decided that Roger Maskew would continue on his own to further examine the roadside hedges, whilst the remainder of the group would go on to Blaenau, Llanddeusant, to search for the possible *Euphrasia rivularis*. Roger was successful in finding four hybrids not seen previously, including *R. sherardii* (f) × *R. arvensis* (m), a rose new to the v.c. which was later confirmed by Tony Primavesi. The *Euphrasia* group quickly re-found the site discovered by Tuesday's party and the identity of *E. rivularis* was confirmed by Alan Silverside, a new v.c. record of a UK Biodiversity Action Plan and Section 74 species (see colour section, plate 3). It was characteristically growing in base-rich flushes with, for example, *Briza media* (Quaking Grass) and *Linum catharticum* (Fairy Flax), whereas the *E. confusa* plants were invariably in drier, more acid grassland. A rapid search of the area confirmed *E. rivularis* to be frequent in the Old Red Sandstone flushes spanning two 10km squares (SN72 and SN82). On the journey back, the cars were held-up by a flock of sheep being driven across the road near Llanddeusant. Suddenly Trevor Evans jumped out, having seen a plant of *Vicia orobus* (Wood Bitter-vetch) growing on the roadside bank, a new site for the species!

Meanwhile, two other groups had been recording tetrads for Local Change. The results included yet another *Rorippa islandica* record and *Berberis vulgaris* (Barberry), both from SN42W, and *Matricaria recutita* (Scented Mayweed) and *Orchis mascula* (Early Purple-orchid) from SN12A.

Friday 1st August turned out, at last, to be sunny and hot, in fact, the start of the prolonged sunny spell which was to follow! The whole party travelled down the Gwendraeth valley in order to visit the coastal dunes at Pembrey Forest. In the area where we parked, *Centaureium littorale* (Seaside Centaury), *C. pulchellum* (Lesser Centaury) and *C. erythraea* (Common Centaury) were all in flower in a winter-flooding sandy ride-verge in the same vicinity as the single plant of *Scirpoides holoschoenus* (Round-headed Club-rush) discovered here the previous year. *Isolepis cernua* (Slender Club-rush) was frequent nearby and *Baldellia ranunculoides* (Lesser Water-plantain) and *Pyrola rotundifolia* ssp. *maritima* (Round-leaved Wintergreen) were occasional. In one area of dry dunes *Parentucellia viscosa* (Yellow Bartsia) was frequent and roses later confirmed by Roger Maskew included *Rosa stylosa*, *R. canina* (f) × *R. stylosa* (m) and *R. tomentosa* (f) × *R. canina* (m), which were additional to *R. micrantha* (Small-flowered Sweet-briar) determined in the field by Graham Kay and Arthur Chater. To round-off the day the party visited the beach where characteristic species included a single plant of *Atriplex laciniata* (Frosted Orache) and the rare strandline woodlouse *Armadillidium album* which was found under a large piece of flotsam.

After dinner the group was treated to an informal but informative walk at Glynhir, when Roy Vickery gave us the benefit of his considerable knowledge relating to the folklore of plants, using specimens, both native and planted, growing in the walled-garden.

After breakfast on Saturday 2nd, the party were sorry to have to break-up as participants departed to their various corners of the country. All had enjoyed the week, despite the generally poor weather, and all, even the 'experts', had learnt a lot. The leaders would like to thank all participants' contributions, particularly the referees and experts who were present. The extended duration of the meeting had also provided the opportunity to revisit both Pentregwenlais Quarry and Blaenau, Llanddeusant, in order to re-examine critical plants found earlier in the week.

KATH COTTINGHAM & RICHARD PRYCE

BEN MORE, MULL (v.c. 103) 30th July – 1st August

The Ben More square is one of the most challenging on the island of Mull, rising from sea level to 966m. The 3 tetrads, A, J and W are located on the SW slopes, the northern shore, and the steep-sided valley of Glen Cannel on the eastern side. This gave the group of 17 members more than enough habitats and aspects to be explored and recorded for the Local Change project.

The group divided up into three and everyone set off on a fine day on July 30 to cover as much of the tetrads as possible. Some areas were easily accessible but others involved a reasonable climb and walk-in. We exchanged notes in the evening at Salen, and one group asked me if we had found anything of particular note, in return saying they had found masses of *Pinguicula lusitanica* (Pale Butterwort) and a few plants of *Spiranthes romanzoffiana* (Irish Lady's-tresses). I commented — *P. lusitanica* is abundant on Mull and there's not much chance of your having found *S. romanzoffiana*. Not to be put off by this, they restated that they had found *Spiranthes*. So, having described the habitat perfectly, we all set off after dinner to verify the find — two flowering plants were enjoyed by all the party — and this was only day one of the trip! The species has previously been recorded from Mull but this was an unexpected and welcome find. It just proves that many pairs of botanical eyes turn up good records.

The groups in tetrads A and W had a tougher task regarding the terrain and did not have such spectacular finds, but still recorded more species than previously found in 1987, including some base-rich species in restricted patches — *Gymnocarpium dryopteris* (Oak Fern), *Cirsium heterophyllum* (Melancholy Thistle), *Scutellaria minor* (Lesser Skullcap), *Luzula spicata* (Spiked Wood-rush), *Silene acaulis* (Moss Champion), *Teesdalia nudicaulis* (Shepherd's Cress), *Cystopteris fragilis* (Brittle Bladder-fern) and possibly *Alchemilla glomerulans* (a lady's-mantle).

On the second day, which must have been one of the wettest this year, two groups set out along the northern shores of Loch Ba, where *Subularia aquatica* (Awlwort) was relocated on the gravelly shoreline, and *Scleranthus annuus* (Annual Knawel) found on the gravel track. The third group returned (gluttons for punishment) to tetrad W in Glen Cannel. A search was made for the only record of *Ranunculus auricomus* (Goldilocks Buttercup) in Mull, despite it not being the ideal time of year for this species, but it was not relocated. However, a full survey of the steep, rocky slopes, gorges, scattered woodland, wet grassland, bog and riversides was achieved.

The last day was spent on the island of Ulva, and everyone recorded in the one tetrad around Ulva House and the ferry. This might have seemed a bit of overkill, but I knew that this was a very rich area, and it proved to occupy the whole group throughout the day. The variety of habitats — saltmarsh, tracks, mature woodland, grassland, rock outcrops and wet heath — all add to the botanical and scenic diversity. We were able to provide the owner, Jamie Howard, with a full list of plants in the environs of his house. *Salicornia* spp. (glassworts), *Juncus maritimus* (Sea Rush), *Gentianella campestris* (Field Gentian), *Ligusticum scoticum* (Scots Lovage), *Allium ursinum* (Ramsons), *Blismus rufus* (Saltmarsh Flat-sedge), *Bolboschoenus maritimus* (Sea Club-rush), *Carex extensa* (Long-bracted Sedge), *Crepis capillaris* (Smooth Hawk's-beard), *Eleogiton fluitans* (Floating Club-rush),

Platanthera bifolia (Lesser Butterfly-orchid) and *Sanicula europaea* (Sanicle) were just a few of the more interesting species recorded.

I would like to thank all the people who helped on this very successful BSBI Local Change meeting.

LYNNE FARRELL

MOD RANGE, ABERPORTH. CARDIGANSHIRE (v.c. 46) 9th August

Twenty five members, as well as eight present and past members of the very active conservation group on the range who accompanied and looked after us, met on an uncomfortably hot day on this shadeless coastal headland for a clockwise walk encompassing a wide range of habitats and most of the SSSI. Ungrazed and unploughed since the late 1930s, much of the site has reverted to coastal heath and species-rich calcareous grassland, managed only by mowing which aims to keep a balance between the needs of the abundant nesting skylarks and the plant communities. Although a total of 417 species and hybrids had already been recorded on the c. 150 hectare site, we added a further ten.

After crossing extensive rank grassland, where we located a colony of *Ophioglossum vulgatum* (Adder's-tongue), Tony Lewis found *Lamium amplexicaule* (Henbit Dead-nettle) and *L. hybridum* (Cut-leaved Dead-nettle) on a shaley road verge where *Vicia lathyroides* (Spring Vetch) was also present (all new for the site). We soon reached the heath at the north-west corner of the site where *Viola lactea* × *V. riviniana* (a hybrid Dog-violet) was frequent; pure *V. lactea* (Pale Dog-violet) was only tentatively identified. A circular flushed area had *Salix repens* (Creeping Willow), *Carex pulicaris* (Flea Sedge), *C. hostiana* (Tawny Sedge) and *Scutellaria minor* (Lesser Skullcap), and then we went down the slope to a damp gravelly area where there was a great abundance of *Anagallis minima* (Chaffweed). Most or all of this had only four petals, allowed by Ross-Craig and various European Floras, but surprisingly not by Stace, CTM or *Flora Europaea*. After looking at perhaps the only native colony of *Brachypodium pinnatum* (Tor-grass) in the county, we moved on to the top of Cribach Bay where Roger Maskew demonstrated *Rosa micrantha* × *R. canina* and *R. caesia* ssp. *caesia* × *R. canina* (both new for the site) along with *R. micrantha* (Small-flowered Sweet-briar), *R. sherardii* (Sherard's Downy-rose) and three of the groups of *R. canina* (Dog-rose). Steve Chambers and Andy Jones found another new species nearby, *Clinopodium vulgare* (Wild Basil).

We thanked especially Chris Shipton and Marleen Edwards for arranging the meeting, and congratulated Marleen on the recently completed two-volume Site Dossier which was exhibited and from which copies of the species list and botanical map were circulated to participants.

ARTHUR CHATER

ALLERTHORPE COMMON AND POCKLINGTON CANAL HEAD (v.c. 61), 16th August

Ten people attended this excursion, the first in v.c. 61 since 1998. Despite extensive forestation Allertorpe Common still offers a rich diversity of plants along several rides and tracks and has perhaps the highest concentration of notable species in the vice-county. An area is fenced off and maintained as a nature reserve by the Yorkshire Wildlife Trust (YWT), and it was in this that we saw *Hypericum elodes* (Marsh St John's-wort) in its only known East Riding station. The YWT manages this part of the Common as an open heath by grazing and a small area of marsh is now fenced off to protect this locally rare species. A few metres away, Roger Martin discovered a stand of *Pteridium aquilinum* ssp. *atlanticum* (Bracken), a taxon hitherto unrecorded in the v.c.*. Tightly curled and hairy crosiers were evident on each plant at this late summer date whereas plants of 'ordinary' bracken were without crosiers. At one location we counted 20 plants of *Gnaphalium sylvaticum* (Heath Cudweed) growing together with *Filago minima* (Small Cudweed) and during the day three different new locations were found for Heath Cudweed. This elicited much note-taking and photography during which time several missed seeing *Polygala serpyllifolia* (Heath Milkwort), another locally scarce plant and specialist on this site. Searches for *Anagallis minima* (Chaffweed), *Radiola linoides* (Allseed), *Cirsium dissection* (Meadow Thistle), *Drosera* spp. (Sundews) and *Pyrola minor* (Common

Wintergreen) proved unfruitful. However, *Anagallis tenella* (Bog Pimpernel), *Spergularia rubra* (Sand Spurrey) and *Ornithopus perpusillus* (Bird's-foot) were found. *Lythrum portula* (Water-purslane) and *Persicaria hydropiper* (Water-pepper) occurred abundantly in shaded wet wheel ruts. *Apera spica-venti* (Loose Silky-bent) has long been known to grow in crops bordering Allerthorpe Common but none was found on this occasion. However, *Agrostis gigantea* (Black Bent) was new to several members of the group. Of frequent comment were the observations of very small plants of *Veronica scutellata* (Marsh Speedwell) that seemed insistent on survival despite the prevailing drought conditions.

Later, the group visited Pocklington Canal Head, a site that has had some reputation for scarce aquatics and has recently suffered 'amenification'. It proved disappointing on this visit although flowering *Elodea nuttallii* (Nuttall's Waterweed) was a new experience for some of us. The day ended on a decidedly sour note with few of the company able to appreciate the subtle plum flavour of *Prunus* × *fruticans* relative to *Prunus spinosa* (Blackthorn).

* A few days later, Dr Eric Chicken made a valiant attempt to find this stand but my directions proved inaccurate. However, he did find, in the same general locality, *Molinia caerulea* ssp. *arundinacea*, which had escaped our notice.

PETER J. COOK

STOP PRESS

FINE EXAMPLES OF SOME COUNTY FLORAS FOR DISPOSAL

Druce, G.C. **The Flora of Buckinghamshire**. 1926. Map. An exceptional copy, free of all defects.
Near MINT — £100

GROSE, D. **Flora of Wiltshire** 1957. 824, maps, photos. Fine — £50

LEE, F.A. **The Flora of West Yorkshire with a sketch of Climatology** 1888. VG — £60

PAINTER, W.H. **A Contribution to the Flora of Derbyshire** 1889. VG — £40

PRYOR, A.R. **A Flora of Hertfordshire** 1887. Near fine. — £50

SAVAGE, J.P., V.H. HEYWOOD & V.GORDON **Travis's Flora of South Lancashire** 1963 (1st ed.), map, VG/fine — £30

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

Enquiries concerning the Society's activities and membership should be addressed to: The Hon. General Secretary, c/o Dept. of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD. Tel: 01719388701

Camera ready copy produced by Gwynn Ellis and printed by J. & P. Davison, 3 James Place, Treforest, Pontypridd, Mid Glamorgan CF37 1SQ (Tel. 01443-400585; email: davison-litho@ukf.net)

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