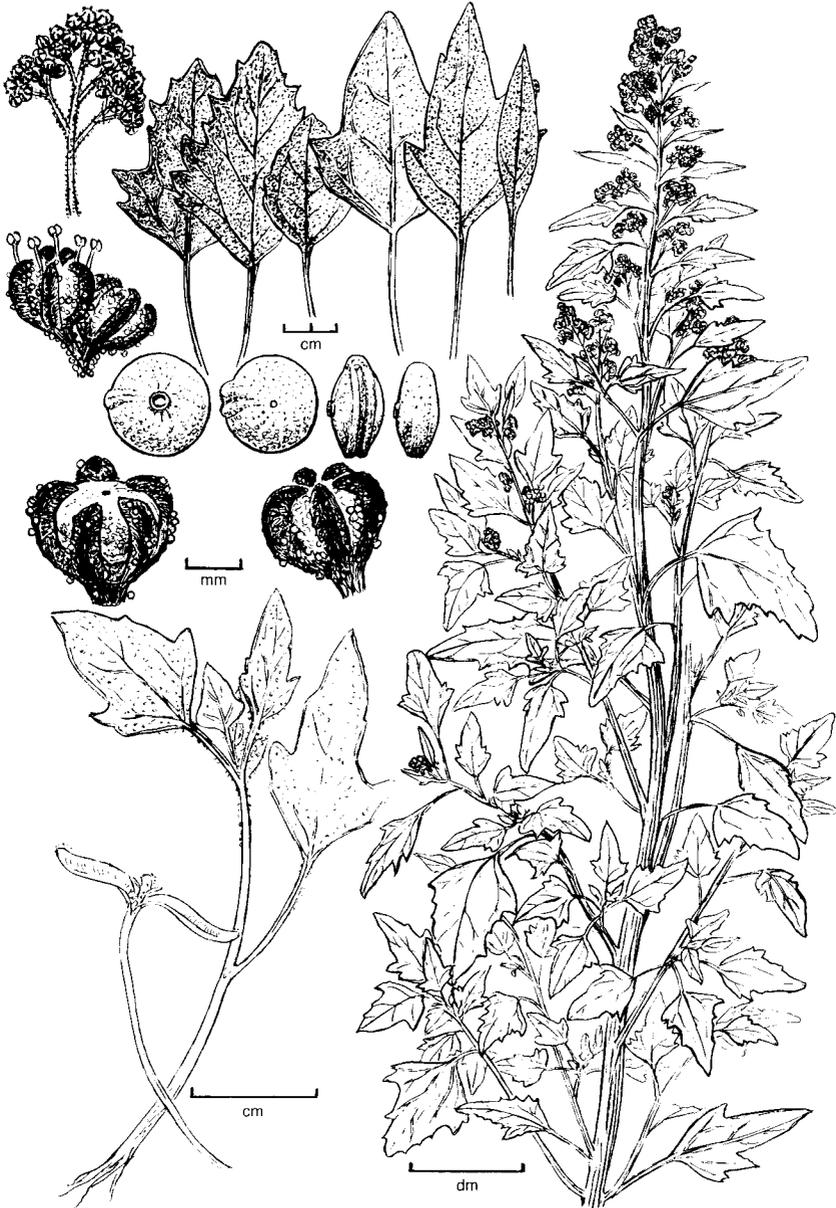


Edited by  
Leander Wolstenholme  
Gwynn Ellis



*Chenopodium quinoa* del. G.M.S. Easy © 2002 (see page 56)

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**FROM June 1<sup>st</sup>** **Mr Gwynn Ellis**

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**CONTRIBUTIONS INTENDED FOR**  
**BSBI NEWS 94**  
**should reach the Receiving Editor before**  
**AUGUST 1<sup>st</sup> 2003**

## IMPORTANT NOTICES

### FROM THE PRESIDENT

The BSBI has gained about 500 new members as a result of the offers associated with the publication of the *New Atlas*. I am very aware that to some of these new members, the Society's plant recording activities which are taken for granted by many of the 'old hands', must seem daunting. Whilst field recording, for most of us, is enjoyable and fun and, when undertaken in a small group, a means of learning from each other, if you are new to the activity or lack confidence in your identification ability, it may discourage you from taking part. If this sounds familiar may I urge you to contact your county recorder, if he or she has not already been in touch with you, as I am certain that with the increasing responsibility of maintaining the county records your help will be most welcome. Incidentally I am told by one relatively new member that her experience of BSBI field meetings has been that everyone is very keen to give assistance, in a most patient, knowledgeable and unpatronising way.

Both new and established members will by now be familiar with the HLF funded Local Change project which the BSBI is undertaking over the next two field seasons. The areas which will be revisited in order to record changes which have taken place since the 1986-88 Monitoring Scheme will each need, ideally, to be visited 3 times, during the different seasons. This affords an ideal opportunity for the less knowledgeable to accompany old hands to improve their plant recognition. But I am sure that not all the information exchange will be one way — even the most experienced always have room to learn more!

For those who find the use of identification keys intimidating, there are more 'user friendly', illustrated books available which most of us use quite frequently, often to augment the books which only contain keys. My personal favourites are *The Wildflower Key* by Francis Rose and *The Wildflowers of the British Isles* by Garrard & Streeter. But there are also identification aids appearing on the Web. If you log on to the BSBI website [www.bsbi.org.uk](http://www.bsbi.org.uk) there are various 'leads' including Quentin Groom's excellent and easy multi-access key which can be used from the 'Records' button. There is also an excellent tree identification web-site promoted by Franklyn Perring which can be found at [www.saps.plantsci.cam.ac.uk/trees](http://www.saps.plantsci.cam.ac.uk/trees). This is being expanded in the near future to also include winter twigs, and a key to herbaceous plants is also projected.

For those of you not so keen on ticking off record cards, the BSBI have some other, more demanding projects in the pipeline. These include research to establish to which National Vegetation Classification (NVC) communities the large number of plant species not so far included in any such communities belong. Prof. John Rodwell, editor of the five-volume NVC account, is very enthusiastic about launching this project which will be promoted initially by Prof. Mick Crawley, Chairman of the BSBI Science and Research Committee.

Other projects will be concerned with more accurately ascertaining the altitudinal limits of all species and more detailed recording of infra-specific taxa, hybrids and the like. With regard to the latter, Prof. Clive Stace points out, for instance, that the recording of the subspecies of *Ranunculus ficaria* (Lesser Celandine) for the *New Atlas* was remarkably patchy and could easily be rectified by more close examination of the plants in the field. This is just one of many examples. Incidentally, Clive's retirement, after a lifetime's work in plant taxonomy, will be marked by a conference at Leicester on 13<sup>th</sup> September entitled *Current taxonomic research work on the European Flora*, to which you are all invited (see leaflet enclosed with this mailing for details).

I look forward to seeing you at the AGM in Camborne in May or at one or other of the meetings during the year. Good luck with your Local Change recording!

RICHARD PRYCE, President

## CHANGE OF MEMBERSHIP SECRETARY

After some 24 years in post, Mike and Ann Walpole have decided to retire from the position of Membership Secretary at the forthcoming Annual General Meeting. Mr Gwynn Ellis has been appointed as the new membership secretary and the change will become effective on 1<sup>st</sup> June 2003.

Applications for membership, changes of address and payment of subscriptions should continue to be sent to Mike Walpole until 31<sup>st</sup> May. After that date membership correspondence should be sent to Gwynn Ellis in Cardiff (see page 2 for addresses).

This marks the end of an era for BSBI. Mike and Ann have been the backbone of the Society for a quarter of a century, both in the role of treasurer and membership secretary and we owe them both a huge dept of gratitude. Thank you Ann and Mike, for all that you have done for us.

Ailsa Burns, Hon. General Secretary

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## NEW ATLAS OF THE BRITISH & IRISH FLORA

All orders for the *New Atlas of the British & Irish Flora* should now have been fulfilled. Copies are being despatched by Oxford University Press using Securicor. All orders should now have been fulfilled so if you have not yet received your copy or have received a defective copy please take the following action:

Contact Norma Short and Nicola Connery at Oxford University Press. You should write or phone Nicola Connery (OUP, Distribution Centre, Saxon Way West, Corby, Northants, NN18 9ES, Telephone: 01536 454560, Fax: 01536 454518) or e-mail either (with copy to Gwynn Ellis) at: ShortN@oup.co.uk or ConneryN@oup.co.uk

1. Give your name and full address AND phone number,
2. Confirm that your copy was ordered through the BSBI (they can check against the list of the addresses provided)
3. Clearly state what the problem is, eg non delivery, damaged in transit, or missing CD (NOTE: the latter is affixed to the inside of the back cover, please check there first).
4. Be patient if she does not get back to you immediately.

GWYNN ELLIS, General Editor

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## MEMBERS E-MAIL ADDRESSES

At the last meeting of Council it was suggested that members e-mail addresses be included in the Membership List in *BSBI Year Book* and elsewhere, **if they agreed**.

The purpose of this note is to ask members to e-mail me their e-mail addresses if they have no objection to them being included in future.

GWYNN ELLIS, General Editor. rgellis@ntlworld.com

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## IRISH BSBI AGM — 2003

The date of the Irish BSBI AGM has changed. It will now take place on 4<sup>th</sup> October, at National Botanic Gardens, Glasnevin, Dublin. It will commence at 11.00 a.m., and is due to finish at 4.30 p.m.

GWYNN ELLIS, General Editor

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## AWARDS TO BSBI MEMBERS

### MARSH CHRISTIAN TRUST

Founded in 1981, the Trust makes a number of awards each year, especially in the field of nature conservation.

One of these, the award for Botanical Conservation, is for 'a lifetime's achievement to an individual who has made an outstanding contribution in the field of botanical conservation'. It was first awarded in 2000, and all three winners have been BSBI members. The first was Dr Phil Wilson, the second Lady Ro FitzGerald and last year's was David Pearman.

GWYNN ELLIS, General Editor

## 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)

### 2003

May 10	AGM & Council, Cornwall
16 (to July 26)	<i>The Flowers of Dorset</i> Exhibit at Dorset County Museum (see p. 64)
July 16	Executive Committee
September 13-14	International Oak Society Conference, Winchester (insert sent April 2002)
17	Meetings Committee
October 4	Irish AGM, National Botanic Gardens, Glasnevin, Dublin
8	Records Committee

EDITOR

## EDITORIAL

An early *News* this time, to ensure the enclosed Bluebell Survey leaflet arrived in time to be of use (please do make every effort to join in and return the form). As a result, things got a bit hectic and rushed, so if there are more than the usual quota of errors, we've got our excuses in first!

**Congratulations** to Michael Foley on his being made MBE for services to cricket and young people; **and to** David Pearman on receiving the Marsh Christian Trust award for 2002 (see above); a little bird tells me that David is the recipient of yet another prestigious award, but more of that in the next issue.

**Apologies** to Ralph Sheppard, recorder for v.c. H35 for misspelling his name in the last issue, and also to another Irish recorder, this time for H26 & H27, Gerry Sharkey for giving his Dublin address in the *Year Book* rather than his Mayo one. However Gerry does say that either will do and the Dublin one is likely to elicit a quicker response.

**Colour section** (centre pages): Plate 1: *Geranium purpureum* subsp. *forsteri* (p. 30); Plate 2: *Gentianella ciliata* (p. 27); Plate 3: *Gentianella germanica* (p. 27); Plate 4: *Gunnera manicata* (p. 52); Plates 5 & 6: *Chenopodium glaucum* (p. 37); Plate 7: *Scandix pecten-veneris* (p. 20); Plate 8: *Cystopteris diaphana* (p. 13); Plate 9: *Cardamine pratensis* flore pleno (p. 23); Plates 10 & 11: *Heracleum mantegazzianum* (p. 60); Plate 12: *Alopecurus borealis* (p. 11).

**And finally** Sod's Law dictated that the Receiving Editor's phone number in the last issue and the *Year Book* was wrong; it should have been 0151 478 4278, the fax number was, however, correct!

EDITORS

## FROM THE HON. GENERAL SECRETARY

This is the last time I will be writing as Honorary General Secretary and I thank everyone for all the support and assistance which I have received during my period of office; however, I will be continuing to deal with the Society's correspondence, E-mail and telephone calls, until the Chief Executive is in place — so, after the AGM, and until I become obsolete, I will again be a temporary acting HGS!

I have been intrigued by the publicity the Society, or rather the current *Watsonia*, has received for the 'new' species, *Senecio eboracensis*. To my own knowledge, the 'York radiate groundsel', was mentioned in *The Times*, *The Burton upon Trent Daily Mail*, on Radio 4's Today Programme and the News Quiz; fame indeed, perhaps public interest in plants is, at last, beginning to look up.

Still on *Senecio*, I was pleased to read Peter Cook's defence of *Senecio jacobaea* (Common Ragwort). I have always had a sneaking admiration for this plant, beginning in my Black Country childhood when I became intrigued by its brash brightness and by its own special caterpillars which were so distinctive in their Wolverhampton Wanderers' jerseys. In the mid-1960s, my sister-in-law Margaret Brookes, then still at Kindrogan, found herself, at short notice, down to 'do the flowers' in Straloch church. This she did, to great acclaim and she was asked where, in late summer, she had obtained such lovely flowers. She had used the then contents of the walled garden at Kindrogan — tall splendid ragwort in full flower set off by russet brown fruiting spikes of various large docks (*Rumex* spp.). They did, indeed, look magnificent.

The BSBI is, largely as a result of the activities of Franklyn Perring's Education Group, currently much concerned with botanical education; to help to further that end, I have become, on behalf of the BSBI, a member of the Botanic Gardens Education Network and I attended their useful and inspiring conference at Wakehurst Place, last November — and there is a picture to prove it below. The BSBI, however, is not asking for a caption for the photograph!



Photo © Dr Erica Bower. 2003

There will be for children, aged 9-14, again this year, a Backyard Biodiversity day, organised by 'Action for Biology in Education'. I can supply leaflets on request.

I also have a report of the winners of the 2002 Rolex Awards for Enterprise, and the organisers are asking for projects for consideration for the 2004 awards; again, I can supply further information.

The Gloucestershire Wildlife trust has a worthy project — 'Spreading the Badgeworth Buttercup' which involves acquiring and managing land to maintain the very rare species, *Ranunculus ophioglossifolius*; any member interested in helping with this appeal is invited to get in touch with their Fund-raising manger, Mrs Lynne Carter, Gloucestershire Wildlife Trust, Dulverton Building, Robinswood Country Park, Reservoir Road, Gloucester GL4 6SX.

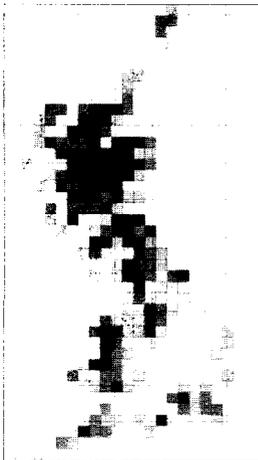
AILSA BURNS, Honorary General Secretary and Meetings Secretary

## BSBI PROJECTS

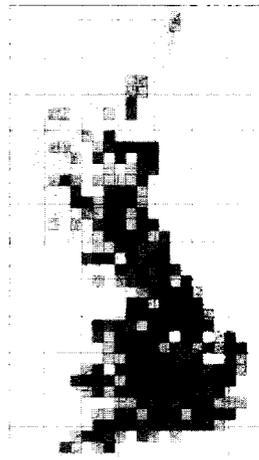
### BSBI Local Change

This project was launched by the publication of the 'Instructions for Field Recorders' with the last *BSBI News*. Most Vice-counties are set up and awaiting contact from members to determine which tetrads are to be tackled and by whom. Inevitably there have been some border disputes, but I hope that all VCRs now know which tetrads they are going to arrange recording in.

To see what results can be obtained Nationally from BSBI Local Change, two preliminary maps are presented, using at this stage the 1987/88 data alone, to see if the relative frequency can be viewed, simply on the basis of counting the records for the A, J and W tetrads. If a taxon has been recorded in all three tetrads for a 10k square then it could be considered as 'common' (Black), if in only two then 'less common' (Dark Grey), if in only 1 then 'sparse' (Light Grey). Two such relative frequency maps, based on 1987/88 data are shown below.



A species which is quite scarce  
away from the main upland areas



A species nowhere near as universally  
common as one might think

When the 2003/2004 data is available for the same tetrads, it is hoped to present changes in this relative frequency for these species.

Clearly this analysis will not be meaningful at Vice-county level and this is where the facility to assess, on the ground, the reasons for local change should be particularly valuable. This assessment by the recorder of why something new has been found or seems lost will, it is hoped, give an insight into

the forces acting to change our flora, both by habitat loss and also by invasive taxa establishing themselves in the countryside and urban areas.

### Single Species Monitoring of Scarce Plants

There must be members, both long standing and newer members, who would like to become involved with the Single Species Monitoring of Scarce Plants, to help BSBI make a significant contribution to monitoring species that have Biodiversity Action Plans and to continue to add to the Threatened Plants Database. There is also a need to monitor and also investigate those species which have strange or limited local distributions. Such species are usually included in County Rare Plant Registers.

Monitoring is often organised via the Vice-county Recorder, and I have no wish to disrupt this. However there are probably members who would wish to become involved and who do not know what could be usefully done in their local area.

I would like to offer myself as a sounding board for any ideas that members might have in this respect. If you write to me with your suggestion or an offer of help then I would hope that I could be of assistance during this coming season. It would be helpful to include details of where you would like to do your monitoring (including v.c.) and your full contact details. Please work the idea up, so that I can easily evaluate what you intend to do and make sure that this is relevant, within the area. I will also attempt to help with old record details, previous publications on the subject or area and also by liaising with the V.c. Recorder.

Please do not think that you need my, or anyone else's permission (except landowners) to do such projects. I hope I can assist, both by providing information and by being someone to listen. I can also be an additional link to your Vice-county Recorder.

Do keep in touch and remember that it is my job to help you.

PETE SELBY, BSBI Volunteers Officer, 12 Sedgwick Road, Bishopstoke, Eastleigh, Hampshire  
SO50 6FH; Tel.: 02380 644368; e-mail: [VolunteersOfficer@bsbi.org.uk](mailto:VolunteersOfficer@bsbi.org.uk)

## CO-ORDINATOR'S CORNER

### *Chenopodium quinoa*

For as long as I can remember, *Chenopodium quinoa* (Quinoa), was just a health food, but now it has become a popular crop in the biodiversity industry. An interesting contaminant is *Echium plantagineum* (Purple Viper's-bugloss), which Rose Murphy and Graeme Kay recorded from Cornwall to Cheshire last year. People might like to keep an eye out for both species [see also p. 56. Ed.]

### Rare plant ecology

In the last *News* I lamented the lack of information on the ecology of rare species. The ultimate example of this seems to be *Fumaria purpurea* (Purple Ramping-fumitory). As far as I can make out, no-one has ever recorded a quadrat with this species in. Bear in mind that it is endemic to the British Isles, so if we don't study it, no-one else will. If anyone has any information about its distribution or ecology, please let me know.

Can I also beg for records of *Hammarbya paludosa* (Bog Orchid), please? This is one of those plants that the TPDB is particularly suited to. It is far too common for anyone to hold all the site details in their heads, or visit every site, so we need lots of field workers and a computer database. But it is not so common that we need to simplify the data into tetrads and date classes — we can have precise details for every record. What I would like to have is an associated species list for each population, but just having a six-figure grid reference would be a good start. It would be interesting to find out if it really has declined by as much as the *New Atlas* seems to show.

### British Herbaria On-line

One of the most exciting developments so far this year is Dick Middleton's new version of the Hull Herbarium web site, [www.hull.ac.uk/geog/herbarium](http://www.hull.ac.uk/geog/herbarium), which is now extended to enable all herbarium keepers to use it. It has a fast search engine, and what it does is simply to display the five essential

details of any record: who, what, where, when, whence. To my mind there are two good reasons why it should succeed: firstly, it has enormous capabilities — it can store hundreds of millions of records and retrieve them almost instantly. Secondly, being pretty basic, it does not attempt to compete with the sophisticated web sites that museums such as Manchester and Shrewsbury have developed, which have digital images and other capabilities. The Hull site could be a sort of central exchange, where you can see immediately what each herbarium has, and then you can use other web sites to research further details as required.

As a totally free facility, any herbarium keeper can use it. All you have to do is transcribe the herbarium labels into a simple electronic format (an Excel table is perfect) and then send it off to Hull. Once the database is loaded up, you can dial up to the web site and add or edit your data on-line. It is inevitable that you will want to make changes, because the v.c. recorders will soon start asking questions and telling you the correct spelling of the locations. But don't be put off by the criticism — it is the most useful thing you could hope to receive. So far the site has data from **BIRM**, **NMW**, **ABRN** (Monks Wood) and, of course, **HLU** & **HLL** (Hull). It could grow very rapidly, so do keep an eye on it.

### *Ajuga chamaepitys*

David Pearman asked me to analyse the data for *Ajuga chamaepitys* (Ground-pine). In the *New Atlas* this species is shown as having declined by 8 hectads out of 20, giving a 'change ratio' of -0.62. Astonishingly, this turned out to be almost entirely spurious — five of the eight losses are either old recording errors or just places where the plant temporarily strayed across a grid line. Looking at the same data at the tetrad level seemed to produce the opposite result: the number of squares has in fact gone up from 23 to 27. But, again scrutinising the data more closely, we found that that was also erroneous. The extra tetrads were all artefacts of surveyors using site 'centroids' — grid references given for the centre of sites rather than the actual location of the plants. Subtract these and there is no increase after all.

To find out for sure what was happening I asked Andy Byfield at Plantlife for their latest count of the actual number of plants. This answer is absolute. No fancy statistics, just real numbers. The answer came back: 332. Not squares, not sites, but plants. A total of 332 plants of *Ajuga chamaepitys* in the whole of Britain in 2002, and this is despite the constant gardening of each site and several failed introduction attempts. We don't have comparable data for 1970, but we do know that just one site was estimated to contain at least 5,000 plants at that time. So the real decline has been, and continues to be, catastrophic. It seems that the *Atlas* hectads, for all their faults, were not far from the truth.

### Introductions

One function of the TPDB is to record any attempts that we hear about to introduce rare plants to the wild. This practice has a long history and is more common today than ever before. In fact most Biodiversity Action Plans still call for the cultivation and planting out of rarities. Personally, I hope that this practice will eventually be replaced with something a little bit more respectful of wildlife, but in the meantime it is interesting to document such activities. So far we have over 1,000 instances of deliberate introductions of rare plants, and please keep them coming in. If you can report on the subsequent success or failure, then please tell us that, too.

### MapMate

Our friendly new computer program MapMate seems to be developing by leaps and bounds. The latest addition (as I write this) is the inclusion of detailed vice county boundaries and the facility to automatically assign each record to the appropriate v.c. and administrative area. You don't even have to input this information yourself any more — the computer just knows. This is real progress, and exactly the sort of thing computers are supposed to do for us to save time and improve accuracy.

ALEX LOCKTON, 66 North Street, Shrewsbury, Shropshire, SY1 2JL

e-mail: alex@whildassociates.co.uk : coordinator@bsbi.org.uk

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## RECORDERS AND RECORDING

### PANEL OF REFEREES AND SPECIALISTS

No changes to report since publication of the 2003 *Year Book*.

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

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### PANEL OF VICE-COUNTY RECORDERS

The following changes have taken place since publication of the 2003 *Year Book*.

#### Changes to Recorders

- |          |             |   |
|----------|-------------|---|
| V.c. 105 | W. Ross.    | Dr J. Fenton to be joint recorder. Correspondence, as before, to Prof. D.M. Henderson.  |
| V.c. H12 | Co. Wexford | Mr P.R. Green to be joint recorder, and all correspondence to go to him at Coomebgate Cottage, St Ive Cross, Liskeard, Cornwall, PL14 3LZ.  |
| V.c. H13 | Co. Carlow  | Mrs B. Hickey, 139 Hazelwood, Gorey, Co. Wexford, Ireland   |
| V.c. H28 | Co. Sligo   | Dr S. Parr, Brosna View, Shannon Harbour, Birr, Co. Offaly, Ireland   |
| V.c. H39 | Co. Antrim  | Mr J.W.D. Semple, 6 Seapark Terrace, Holywood, Co. Down, N. Ireland, BT18 0LJ and Mr N. McKee — all correspondence to Mr Semple.<br>We thank Mr Stan Beesley, our recorder there since 1980, for all those years of very effective service. |

DAVID PEARMAN, The Old Rectory, Frome St Quintin, Dorchester, Dorset DT2 0HF

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## NOTES AND ARTICLES

### IS SMALL-LEAVED LIME NATIVE IN SCOTLAND OR IRELAND?

The map for Small-leaved Lime (*Tilia cordata*) in *The New Atlas of the British and Irish Flora* shows all records plotted as if native. This treatment differs from that of other woody species, such as Field Maple (*Acer campestre*), Dogwood (*Cornus sanguinea*) and Buckthorn (*Rhamnus cathartica*), for which a judgement of status has been made. The treatment of Small-leaved Lime is the more surprising as there is a full pollen record and the production and dispersal of its pollen are well studied. I and Jacqueline Huntley have reviewed this evidence (Pigott & Huntley 1980) and we concluded that both the northern limit at the warmest period of the Post-glacial and the native limit at the present day are just south of the Scottish border. On the basis of similar evidence there seem to be no grounds for regarding the species as native in Ireland.

The distribution of Small-leaved Lime has now acquired a special interest in relation to predicting effects of global warming. Although crops of fertile seeds are often produced in central and southern England, in the Lake District, which is close to what I believe to be the northern natural limit of the species, data collected over a period of 33 years shows that most seeds produced are sterile and there is no regeneration. The only significant quantities of fertile seeds occurred in 1976, 1983 and 1984 when unusually high temperatures coincided with flowering. Normal temperatures are just too low to permit fertilisation (Pigott & Huntley 1981). Even after warm summers the numbers of seedlings were too few to allow survival and eventual regeneration but success is, in fact, finely balanced because small numbers of saplings are present in several woods around the coast of Morecambe Bay. A rise of

temperature in July of only 1-2°C in the southern Lake District would probably allow more frequent large crops of seeds and some regeneration.

This is not to claim that Small-leaved Lime cannot be native in Scotland but it surely never achieved the abundance it reached in, for example, the coastal region around Morecambe bay where, during the middle Post-glacial period, pollen values are so high that it must locally have been a woodland dominant. In southern Scotland values for lime pollen have never risen in the Post-glacial above the 'background' of isolated grains derived from long-distance dispersal. If it is native north of the border, I would expect small populations to be sparsely scattered in relics of native woodland on cliffs, beside burns and by waterfalls on the Silurian rocks of the Southern Uplands. These are typical habitats in the Lake District valleys. I have searched all too few such sites in Dumfries and Kirkcudbright but without success.

Determining the status in Scotland is complicated by planting. Unlike English towns and cities, there are numerous Small-leaved Limes in Glasgow, which were planted about the end of the nineteenth century, and M.H Hansen, R. Gray and N.R. Grist have found occasional old trees and one or two saplings in woods near Milngavie but these are mostly in policies (estates). I have seen planted trees in Stirling. Were there nurseries in Scotland supplying this species rather than common lime (*Tilia × europaea*), which was so widely planted in similar situations in England? How widely were Small-leaved Limes planted in Scotland?

I regard the evidence against native status in Ireland as stronger. It seems that Small-leaved Lime was like a number of other woodland species, for example, Herb-Paris (*Paris quadrifolia*) and possibly Dog's Mercury (*Mercurialis perennis*), which reached western Britain but failed to cross to Ireland.

It is also important to recognise that there are problems with identification of limes. As BSBI referee I have often been sent specimens of supposed Small-leaved Lime to confirm which were in fact Common Lime and usually *T. × europaea* cv. 'Pallida' (see my account in Rich & Jermy 1998, p. 105). It is essential to obtain specimens from the exposed part of the canopy, preferably with flowers or fruits. Shoots which are juvenile, or from sprouts, or from shaded branches can rarely be identified reliably.

The purpose of this note is to ask those who made any outlying records shown in the *New Atlas* or anyone who finds new localities for Small-leaved Lime in Scotland or Ireland to send a good specimen, which should be dried in newspaper, but not in a polythene bag, to me at the address below with locality and brief notes on the habitat and status. I shall acknowledge all contributions and be pleased to check the identification but my main aim is to assess the status of the records.

#### Acknowledgements:

I thank Professor J.H. Dickson, Mr R. Gray, Professor N.R. Grist and Mr M.H. Hansen for arranging for me to meet them in Glasgow and for taking me on a tour of sites around Milngavie.

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## OBSERVATIONS ON *ALOPECURUS BOREALIS* AT GREEN FELL IN THE NORTHERN PENNINES, CUMBRIA, AFTER FOOT AND MOUTH

For hundreds of years the open fell of the Northern Pennines has been grazed during the summer months by fell sheep from the farms in the Eden Valley at the foot of the western escarpment. This system of grazing rights has maintained the fells for centuries for sheep and grouse until about thirty to forty years ago when subsidies encouraged some farmers to put more sheep on the fells than they had

the rights for; up to 400 more in some cases, thus seriously over grazing the summit grasslands and the heather moorland to the east.

In 2001 the foot and mouth virus came into the equation and in an effort to control it almost all the sheep along the western escarpment of the Pennines from Renwick Fell in the north to Brough in the south were culled. Ousby Fell which had been seriously overgrazed had no sheep on it at all in 2001 and only a very few put on late in July 2002. This is the only time within living memory that these fells have had zero grazing.

On the 6<sup>th</sup> June 2002 I visited Green Fell, a limestone scar at 710 m O.D. with a line of springs and flushes flowing north and west. Being familiar with the botany of the area and having visited it on a number of occasions recording for the *Flora of Cumbria*, I was amazed to find *Alopecurus borealis* (Alpine Foxtail) in eight of the flushes flowing west, 562 flowering heads were counted in these flushes one having 400 plus flowering heads in an area approximately 3 × 3 m. Species new to the tetrad found in these flushes containing *A. borealis* were *Crepis paludosa* (Marsh Hawk's-beard), *Potentilla palustris* (Marsh Cinquefoil), *Ranunculus ficaria* (Lesser Celandine), *Trollius europaeus* (Globeflower) (only one small plant with four leaves) and *Valeriana dioica* (Marsh Valerian). Other species associated were: *Alchemilla glabra* (a Lady's-mantle), *Alopecurus geniculatus* (Marsh Foxtail), *Anemone nemorosa* (Wood Anemone), *Caltha palustris* (Marsh-marigold), *Cardamine pratensis* (Cuckooflower), *Carex flacca* (Glaucous Sedge), *C. nigra* (Common Sedge), *C. pulicaris* (Flea Sedge), *Cerastium fontanum* (Common Mouse-ear), *Chrysosplenium alternifolium* (Alternate-leaved Golden Saxifrage), *C. oppositifolium* (Opposite-leaved Golden Saxifrage), *Cochlearia pyrenaica* (Scurvygrass), *Geum rivale* (Water Avens), *Juncus effusus* (Soft-rush), *Ranunculus acris* (Meadow Buttercup), *Rumex acetosa* (Common Sorrel), *Saxifraga hypnoides* (Mossy Saxifrage), *Sedum villosum* (Hairy Stonecrop), *Taraxacum* spp. (Dandelion), *Trifolium repens* (White Clover) and *Viola palustris* (Marsh Violet). Worthy of note was the *Caltha palustris*, which was now growing to its full size and flowering and fruiting well proving that sheep grazing must be responsible for the small decumbent plants seen in previous years. This phenomenon was also seen on Great Dun Fell and in Knock Ore Gill. Also of note were the clover pink anthers (see colour section, plate 12) and the size of the *Alopecurus borealis* especially where it was growing and competing well with *Juncus effusus*; an unusual occurrence in the British Isles, plants up to 60 cm in height were not uncommon.

Rod Corner visited Green Fell on 8<sup>th</sup> June and found more *Alopecurus* in the north facing flushes and I visited again a week later on 16<sup>th</sup> June and counted some 576 heads there. Several hundred metres from *A. borealis* there is a patch of very robust *Alopecurus pratensis* (Meadow Foxtail) at 675 m O.D. giving rise to the tantalising possibility of future hybrids. The only other place in Europe where the two species may grow in close proximity is in the western part of Arctic Russia where both species are reported. Its other relative *A. geniculatus* was locally common and an associate in at least one flush.

One has to assume that *A. borealis* is found to be very palatable by sheep and due to the severity of the grazing on this area has never been detected here before. Its recovery after the cessation of such a continuous and severe grazing regime is very heartening.

Negotiations between the Commoners and English Nature are taking place at present to ensure the grazing pressure will never be as high again, which will hopefully restore the balance between the grouse and sheep and maintain the botanical interest.

#### **Acknowledgements**

Thanks must go to Rod Corner for his help and information on the world distribution of *Alopecurus* spp.

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## ***CYSTOPTERIS DIAPHANA* (BORY) BLASDELL (*C. VIRIDULA* (DESV.) DESV.) NEW TO BRITAIN**

On the 10<sup>th</sup> February 2000, a few plants of a fern, at first identified as *Cystopteris fragilis*, were found by M.J. Stribley in rocky recesses on a woodland bank by the River Camel at Polbrock Bridge, south of Wadebridge, E. Cornwall, v.c. 2 (SX013695). Further visits to the site were made by Mary and Tony Atkinson, Ian Bennallick, Matt Stribley and the author of these notes (RM). As a result, thousands of plants were observed, this time growing on the steep, almost vertical, shaded banks that edged the River Camel (see photo below). On reading through *Flora Nordica* Vol. 1. (2000), RM realised that the plants at Polbrock were showing features that were not entirely characteristic of *Cystopteris fragilis*. The spores were echinate but the spines seemed different and many of the pinnae-veins ended in U-shaped depressions. Then somehow the habitat seemed all wrong. It was very shaded, very humid and not all that base-rich as the geology was of Staddon Grit with just some thin limestone. It seemed rather reminiscent of the description of the habitat for *C. diaphana* given in Schafer (2002) — ‘restricted to the most humid habitats’ — and that in Tutin *et al.* (1993) where the plant is described by A.C. Jermy as growing ‘on shady, mildly basic rocks’. Material was submitted to Christopher Fraser-Jenkins and Fred Rumsey (Natural History Museum) and they identified the fern as *Cystopteris diaphana*, a first for Britain (see colour section, plate 9). It is a fern that has so far been recorded only in the south and south-west zones (Corsica, France, Italy, Portugal, Sicily and Spain) and the Azores so far as Europe is concerned.

A fuller report concerning this interesting find is to follow later.

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River Camel near Polbrock Bridge, Cornwall, showing steep riverside banks on which most of the *Cystopteris diaphana* plants are growing. Photo M.J. Stribley © 2000

## RECENT RECORDS OF *BROMEAE* THAT ARE RARE IN BRITAIN

After helpful consultations with many botanists, these appear to be the most recent accepted records of the following *Bromeae* collected from the wild in Britain.

### ***Bromus arvensis* L.** (Field Brome).

7 August 2002, v.c. 30 (Beds.), on the edge of an arable field at Sandy, TL1726.5096, by P. Stapleton and C.R. Boon, det. L.M. Spalton. This species is now very rare but perhaps overlooked.

*B. arvensis* has a spreading panicle with long thin branches bearing linear-lanceolate spikelets with narrow anthers that are 3-5 mm long.

### ***Bromus hordeaceus* L. subsp. *divaricatus*** (Bonnier & Layens) Kerguelen (subsp. *molliformis* (Lloyd) Maire & Weiller, *B. molliformis* Lloyd).

No accepted records were found for this grass and there is disagreement about its nomenclature (Scholz 1998). The wool alien '*Bromus molliformis*' is now *B. hordeaceus* subsp. *molliformis*.

### ***Bromus hordeaceus* subsp. *molliformis*** (Lloyd) Maire & Weiller, (*B. molliformis* Lloyd).

Autumn 1972, v.c. 12 (N. Hants.), with wool shoddy species at Blackmoor, by T.B. Ryves (*pers. comm.* 2002).

It is difficult to distinguish *B. hordeaceus* subsp. *molliformis* from subsp. *hordeaceus*. Subsp. *molliformis* has a very dense tight panicle with many, almost sessile, spikelets. Sometimes the awns become patent or recurved in fruit but no awn curvature at fruiting was found in 65% of 52 specimens of '*Bromus molliformis*' examined (27 wool aliens and 25 collected in Mediterranean countries). Consequently awn curvature should be regarded as only an indicative character.

### ***Bromus interruptus*** (Hack.) Druce (Interrupted Brome).

August 1972, v.c. 29 (Cams.), in a field margin at Pampisford, by C. Shaw & D.A. Wells, in Rich & Lockton (2002); considered by the authors to be now extinct in the wild.

*B. interruptus* is distinguished from *B. hordeaceus* by its contracted inflorescence, its widening spikelets and its deeply cleft palea.

### ***Bromus pseudosecalinus*** P.M.Sm.

15 June 2002, v.c. 1 (W. Cornwall), in a damp field SE of and adjoining road from Penwethers to Carrine Common, Truro, SW798.431, by K. Spurgin, **Herb. LMS**, conf. L.M. Spalton. First recorded here in 1982, this is the only known extant site in the world where *Bromus pseudosecalinus* still grows and only a few plants were seen there this year. Additional colonies are being sought.

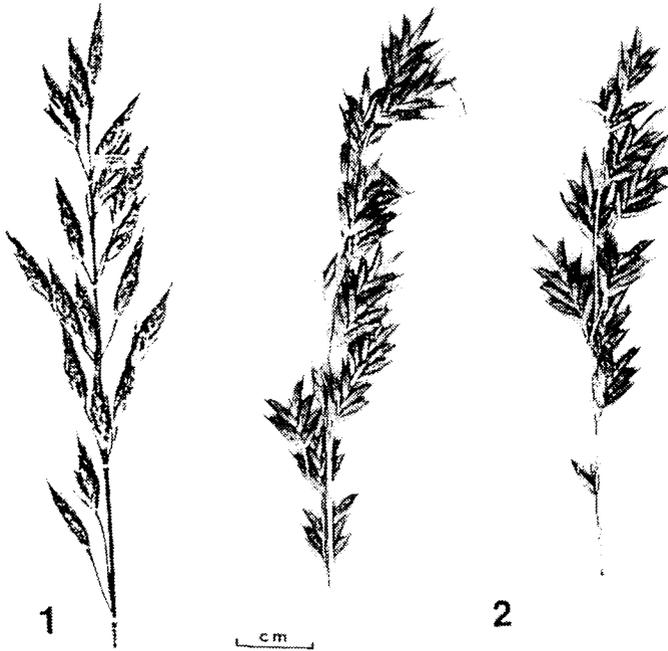
Until fruiting, this interesting diploid grass is morphologically similar to tetraploid *B. racemosus* and Smith & Sales (1993) concluded that *B. racemosus* and *B. pseudosecalinus* were almost certainly closely related evolutionarily. *B. pseudosecalinus* is distinguished from *B. racemosus* and *B. secalinus* by its shorter (5-6 mm) lemmas and its chromosome count of  $2n=14$ . It is also distinguished from *B. secalinus* by lower leaf-sheaths with many long patent hairs and from *B. racemosus* by spikelets with divaricate, rolled lemmas and caryopses that, atypically in *Bromeae*, are retained for a long time before being shed (see illus. page 15). Although the spikelets of *B. pseudosecalinus* and *B. secalinus* appear somewhat similar when fruiting, the cytology, serology (Smith 1968) and isozyme analyses (Oja 1998) all support the separation of *B. pseudosecalinus* from *B. secalinus*.

### ***Bromus secalinus*** L. (Rye Brome).

As Reid (2002) has pointed out *B. secalinus* is now a frequent casual in some cereal crops. However, Monsanto has developed a new herbicide, sulphonylurea, specifically to destroy *Anisantha sterilis*, *Bromus commutatus*, *B. secalinus* and *B. hordeaceus*, because, in N. America, these are believed to reduce crop yields in wheat. Marketed as Monitor (Mon375), sulphonylurea has been used in this country for over two years. Atypical distorted or stunted *Bromeae* may result from sulphonylurea contamination.

Small plants of *B. secalinus* are also found in old unimproved grassland and in abandoned arable fields. When these grasses are cultivated experimentally larger plants are produced but they

do not attain the magnitude and robustness of 'cereal-weed *B. secalinus*'. These small specimens can be confused with *B. pseudosecalinus*. For identification see Spalton (2002A & 2002B).



*Bromus secalinus*: Scans of panicles. (1) at 16/6/2002, (2) grains not dropped at 25/7/2002  
Plants cultivated by L.M. Spalton

***Bromopsis benekenii*** (Lange) Holub. (Lesser Hairy-brome).

July 2000, v.c. 77 (Lanarks.), Lanark on a gentle sloping woodland floor and steep banks in the Falls of Clyde Wildlife Reserve, NS88.41, by P. Macpherson, conf. L.M. Spalton. For identification see Spalton (2002B & *Watsonia* in press). Small neighbouring specimens of *B. ramosa* can resemble *B. benekenii*.

***Bromopsis inermis*** subsp. *pumpelliana* (Scribn.) W.A.Weber (*B. pumpelliana* (Scribn.) Holub, *Bromus pumpellianus* (Scribn.) Wagnon).

July 1997, v.c. 77 (Lanarks.), on an abandoned industrial estate at Netherton by Wishaw, NS780.551, by P. Macpherson, **Herb. PM**, det. C.A. Stace. The site has since been landscaped and the grass could not be found there in 2002.

Subsp. *pumpelliana* is distinguished from subsp. *inermis* by culms that are pubescent at least at the nodes, by lower glumes that are broader above the base and not, as in subsp. *inermis*, tapering from the base, by lemmas that are pubescent at least along the margins and awns that are 0-6 mm long.

***Anisantha rubens*** (L.) Nevski (*Bromus rubens* L.) (Foxtail Brome).

20 May 1990, v.c. 15 (E. Kent) on the sea wall at Eastcourt Meadows Country Park, TQ80.68, by E.G. Philp, **MNE**, conf. L.M. Spalton.

*A. rubens* is distinguished from *A. madritensis* by its dense very congested inflorescence where the rachis is hardly visible and all the pedicels are less than 10 mm long.

***Anisantha tectorum* (L.) Nevski (Drooping Brome).**

25 May 2002, v.c. 26 (W. Suffolk), Lakenheath, thousands between the railway and the river, TL72.86, by A. Copping. This species is rare but probably under-recorded. For identification see Spalton (2002B).

***Ceratochloa brevis* (Nees ex Steud.) B.D.Jacks. (*Bromus brevis* Nees ex Steud.) (Patagonian Brome).** Soreng *et al.* (2003) now refer this species to *Bromus catharticus* Vahl var. *rupestris* (Speg.) Planchuelo & P.M.Peterson.

1972, v.c. 12 (N. Hants.), with wool shoddy species at Blackmoor, by T.B. Ryves as *Bromus brevis*, K, conf. L.M. Spalton.

The young shoots of this *Ceratochloa* are plicate and not convolute as in other species of this genus. The panicle is narrow and stiffly erect with erect broadly-ovate spikelets mostly on short pedicels. The awns are only 0-1 mm long.

***Ceratochloa marginata* (Nees ex Steud.) B.D.Jacks. (*Bromus marginatus* Nees ex Steud.) (Western Brome).**

According to Pavlick (1995) this species has morphologically transitional forms with *Bromus carinatus*, *B. subvelutinus*, *B. aleutensis* and *B. polyanthus*. Only a few specimens labelled *Bromus marginatus* were found in British herbaria and none of these could be confidently identified as *Ceratochloa marginata*.

***Ceratochloa staminea* (Desv.) Stace (*Bromus stamineus* Desv. *B. valdivianus* Phil.) (Southern Brome).** Soreng *et al.* (2003) now refer this species to *Bromus cebadilla* Steud.

19 November 1961, v.c. 14 (E. Sussex), at Lindfield Sewage Farm, by E. Isherwood & M. MacCallum Webster, K, det. L.M. Spalton.

This species is now unlikely in Britain, but 'Gala', a New Zealand agricultural pasture grass, is very similar. 'Gala' has been sown experimentally in Europe and may soon be found in Britain. Unusual *Ceratochloas* with awns exceeding 6 mm in length should be collected for investigation.

**Acknowledgements:**

I thank Clive Stace for valuable suggestions and improvements to an earlier draft of this note. I thank all those botanist who have sent me records, especially those who are named in the text and particularly Bruno Ryves who has been very helpful. If any botanists are aware of later records for these taxa, I would be very pleased to receive details and, if possible, to borrow specimens. I am also available to determine specimens of any other *Bromeae*.

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## A NEW CUMBRIAN SITE FOR THE 'DUNE HELLEBORINE' *EPIPACTIS DUNENSIS* (T. & T.A. STEPHENSON) GODFERY

On 17<sup>th</sup> July 2002, one of us (DI) discovered a previously unknown population of this helleborine at a site in Carlisle known as Engine Lonning. The BSBI referee for *Epipactis*, A.J. Richards, confirmed our initial identification of this less than straightforward plant. The name itself was an issue: Stace (1991) refers to 'a problematical complex of self-pollinated plants in which species limits are uncertain and disputed', and our plant is treated by him as a variety of *E. leptochila*, the so-called Narrow-lipped Helleborine). Richards (*pers. comm.*), quoting recent research, has advised that 'current thinking (based in part on DNA work) is that all the northern England populations which had been compared with *leptochila*, or '*leptochila* subsp. *dunensis*' are in fact best referable to *E. dunensis*'.

Nomenclatural issues aside, the appearance and flower structure were very typical of this form, with semi-pendent, well-opened blooms. The stronger spikes carried some 25-30 flowers. The ovary and upper main stem were distinctly pubescent, the perianth segments were a yellowish-green (without a trace of pink coloration) and the crumbling pollinia whitish. The lip was triangular and flat when newly emerged; the shape varied somewhat, from as wide as long, to longer than wide, in different flowers. In older flowers, the tip became more-or-less strongly recurved, and then appearing wider than long.

The Carlisle site is only the third for Cumbria. Of the two others, one is under birch near Alston (v.c. 70), and might have similarities to the Carlisle location; the second is on coastal dunes in the south-west of the county at Sandscale (v.c. 69) — see Halliday (1997). An incomplete survey of the site on 26<sup>th</sup> July showed that the population was substantial, with over 150 flowering spikes. Many of these were in fairly bare ground in deep shade under tall scrub birch and hawthorn; well-grown spikes were also present in more exposed, tall-herb/grassy vegetation at path edges, though still fairly shaded from direct sunlight. Site photographs and GPS readings were taken. A single spike has been retained in the herbarium of Tullie House Museum, Carlisle, and some flowers have been pickled.

The plants were in a relatively limited area; another separate group was found but not fully investigated, so the species may well occur more extensively. The general site has been well-visited over the years by naturalists, and it is curious that the orchid has not been noted here before. This suggests that flowering may be irregular, as has been noted elsewhere, but it may also be that the plant is a relatively recent colonist here, and/or that conditions have only recently become suitable for it to thrive. Further research into the site history may help to elucidate this. Of other shade-loving orchid species, Broad-leaved Helleborine (*Epipactis helleborine*) was apparently not present, but the Common Twayblade (*Listera ovata*) was noted in small numbers.

Engine Lonning is the site of a former railway line and sidings within the urban area of Carlisle. The sidings closed in 1962, and the main Edinburgh line followed in 1969. The tracks were removed soon thereafter. The area has since been allowed to revert to dense scrub and grassland, with well-used public paths. The underlying substrate probably still includes much calcareous and mineral-rich ballast associated with its former use. Richards (1994) refers to *E. leptochila* as having 'three very distinct lowland habitats'. Engine Lonning seems to accord most closely with the second of these, which are northern and inland, on well-drained mineral-rich deposits, influenced or generated by former mining activity.

As the scientific and vernacular names imply, the most typical forms of this rare plant are known on dunes — such as those at Sandscale Haws, and also at Lindisfarne (Northumberland). However, similar plants are known inland in a number of places, including along the River South Tyne (v.c. 67), where they grow on heavy-metal-polluted riverside shingle. The plant has been known for some time from Lanarkshire (v.c. 77), and has been discovered in West- and Mid-lothian (v.cc. 84 & 83), where it is said to be a 'recent arrival' (Smith *et al.* 2002). Its Scottish sites are apparently all on shaley waste from old mines (pit-bings). Of the Carlisle plants, Richards (*pers. comm.*) has said 'This is a fascinating development and . . . will be quite a new type of habitat for *dunensis*'.

Professor Richards and Dr Geoffrey Halliday (county recorder for Cumbria) have kindly commented on drafts of this note.

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## ROADSIDE HALOPHYTES AND THE NATIVE/ALIEN CONUNDRUM

Amongst the many highlights of the *New Atlas* were the maps showing the spread of coastal halophytes inland along the road network. BSBI members, of course, had been aware of this phenomenon for some time, but it still caused quite a stir at the *New Atlas* launch. Margaret Beckett, in her keynote speech, homed in on the 'inland spread of seaside plants' as being one of the more noteworthy botanical events of the last 40 years. The newspapers picked up on it too, with *Cochlearia danica* (Danish Scurvygrass) featuring prominently in broadsheets and tabloids alike. It quickly became something of a minor celebrity and, along with a few other roadside halophytes (e.g. *Puccinellia distans* (Reflexed Saltmarsh-grass), *Atriplex littoralis* (Grass-leaved Orache) and *Spergularia marina* (Lesser Sea-spurrey)), it persuaded us that for native species the story from the *New Atlas* wasn't one of unremitting doom and gloom.

However, amid all this excitement no one seemed to be questioning the fact that records of these species along inland roadsides had been mapped as *red* (alien) rather than *blue* (native). Having had an interest in roadside *C. danica* since the mid-eighties, I have often found myself debating whether or not coastal plants on roadsides should be viewed as 'non-native'. Now that the *New Atlas* is launched and the dust has begun to settle, it seems like a good moment to reflect on the status we give to these records.

At risk of needless repetition, here are the definitions of *native* and *alien*, first proposed by Macpherson *et al.* (1996 — *BSBI News* 72: 13-16), which formed the basis for determining a record's 'status' in the *New Atlas* project:

A *native* species is one which arrived in the study area without intervention by man, whether intentional or unintentional, having come from an area in which it is native, *or* one which has arisen *de novo* in the study area.

An *introduced* [or *alien*] species is one which was brought to the study area by man, intentionally or unintentionally, even if native to the source area *or* one which has come into the area without man's intervention, but from an area in which it is present as an introduction.

The *New Atlas* (p. 10) stated that 'taxa which occur as natives in our area are not necessarily native throughout their British and Irish range'. Thus, coastal species were invariably mapped as native on the coast and as alien inland (apart from in a few places where naturally saline soils have permitted the development of 'inland saltmarsh'). And yet this interpretation of coastal species on inland roadsides seems to be based very largely on assumptions and educated guesswork rather than fact.

Take, for example, *Cochlearia danica*. The pages of *BSBI News* are littered with theory and speculation as to how this species has managed to colonise the national road network, but there's very little, if any, solid evidence. Some think it is colonising without human assistance, gaining entry where major roads are routed close to its 'natural' haunts. Others suppose that it may be coming in with coastal gravels (or whatever) used in the construction of 'French drains' along central reservations and hard shoulders. Once it has colonised a particular road, how does it spread? Is the

seed wind-dispersed, being carried along in the prevailing wind, or along natural wind 'funnels', or in the slipstreams of passing vehicles? Or is it washed along in heavy rain? Or does it 'hitch a ride', getting picked up on the tyres or under the wheel arches of passing cars and then 'released' further up the road? Whatever we might *think* is going on, the precise mechanisms that have enabled *C. danica* to colonise particular stretches of the road network remain (and always will remain) something of a mystery. Yet the reasons why it *persists* in such places are usually pretty clear: essentially, the roadside conditions mimic those of its natural habitat on the coast, and (non-coastal) plants that one would normally expect to out-compete the *Cochlearia* are held at bay by the severity of these conditions (salt, drought-stress, etc.).

Of course, the roadside environment is far from natural — it is about as artificial and 'alien' as one could imagine — but this doesn't mean that the plants growing there cannot be native. It all depends, according to the definitions given above, on *how they got there* (i.e. with or without human assistance), and whether they are considered to be native in the area from which they colonised (the source area). However, a perusal of botanists' attitudes to roadside plants suggests a hint of double standards, since many ostensibly native records of non-coastal species come from roadsides, and we don't think twice about them (because it doesn't occur to us to question how they arrived there). The 'Plant Records' in the latest *Watsonia* (24: 227-250), for example, include many presumed-native records from roadsides — including taxa such as *Sagina apetala* subsp. *apetala* (Annual Pearlwort) (v.c. 67), *Erophila majuscula* (Hairy Whitlowgrass) (v.c. 52), *Salvia verbenaca* (Wild Clary) (v.c. 19) and *Hordeum secalinum* (Meadow Barley) (v.c. 43). How can we possibly argue that *these* records are 'native', while roadside records of *C. danica*, *P. distans* and the like are 'alien'? Or, put another way: if we think that *C. danica* is only turning up in its roadside habitat thanks to 'human assistance', what is it that makes us believe that *E. majuscula* can colonise this very same habitat 'under its own steam'?

Part of the problem, it seems to me, is that a roadside halophyte is very obviously growing 'in the wrong place' (after all, it should really be on the coast shouldn't it?), whereas a non-coastal species can turn up at a new roadside site without giving rise to the same suspicions. Yet this distinction is absurd, since in most cases we don't have a clue as to how *either* species got there (i.e. whether it involved 'human assistance' or not).

One further point: our native/coastal, alien/inland assumptions become almost untenable when we try to decide on the status of inland roadside records for plants like *Erodium cicutarium* (Common Stork's-bill) and *Plantago coronopus* (Buck's-horn Plantain), both coastal species that are also widespread on sandy, often acidic, soils inland in southern Britain. Should we be viewing new roadside populations of these species as a natural extension to the native range (*blue* dots), or have they only arrived there with the benefit of 'human assistance' (*red* dots)? Interestingly, the maps in the *New Atlas* show most such populations of these species as native, despite there being no evidence to suggest that their mode of colonisation has been any different from *C. danica et al.*

Another look at the latest 'Plant Records' seems to indicate that, in reality, botanical opinion is divided on the subject of roadside halophytes; it appears that some botanists do think of them as 'blue' rather than 'red', with the expansion of range inland being essentially a 'natural' phenomenon — much like *Potamogeton compressus* (Grass-wrack Pondweed) colonising the canal network, or *Saxifraga tridactylites* (Rue-leaved Saxifrage) the railways (we're happy to think of *these* as 'native', aren't we?). Thus, while *Atriplex littoralis* in v.c. 81 and *Spergularia marina* in v.c. 21 are listed as introductions, roadside records of *S. marina* in v.c. 64, *Sagina maritima* (Sea Pearlwort) in v.c. 80, and *C. danica* in v.c. 42, are listed as native.

How can we possibly continue to maintain a distinction between 'native' and 'alien' records, when much of the time (and not just on roadsides) we are honestly at a loss to know how species *x* found its way to locality *y*? Yet many of us (not least conservationists) spend a lot of time trying to decide whether a particular population of species *x* is native or introduced. And, despite our best efforts, we are frequently forced to admit that, while 'native range' might have considerable value *in theory*, applying it in practice has, for many species, become well nigh impossible. The editors and authors of the *New Atlas* consulted widely, and did their utmost to arrive at something close to a consensual view

on the probable native ranges of native species. Even so, they acknowledged that, for some taxa it was impossible '... to separate native and introduced records ... All records of these have been mapped as if they were native, with an explanatory note in the accompanying text' (p. 11). Quite so, but I do wonder whether the list of species treated in this way should also have included those coastal halophytes occurring on inland roadsides. It would be interesting to know what other BSBI members think.

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## **SCANDIX PECTEN-VENERIS (SHEPHERD'S-NEEDLE): SOME LOCAL OBSERVATIONS OF CONSERVATION INTEREST**

Shepherd's-needle is regarded as '*Nationally Scarce*' and is a United Kingdom Biodiversity Action Plan species (UK Biodiversity Group 1998). According to the *New Atlas* (Preston *et al.* 2002) this species appears to be common enough in the areas of Britain where a Eurosiberian Southern-temperate species with a predilection for calcareous soils might be expected to occur. Nevertheless, there has been a dramatic decline in its occurrence, or recording, since 1950. In common with the rest of the country, the species has declined in S.E. Yorkshire (v.c. 61) from being 'in all cornfields' in 1902 (Robinson 1902) to 'now very rare' in 1990 (Crackles 1990) with only a dozen scattered records between 1950 and 1970, the majority being in the 1950s. Here, the plant is currently close to the northern limit of its retreating range.

In 1995 Shepherd's-needle was found in a field gateway near the village of Swine (TA13) and also near Burton Pidsea (TA23) (Middleton 1996) in the heart of the county's intensive arable production area, on a glacial till containing chalk fragments. The Burton Pidsea population was easy for me to monitor and I followed its progress through to 1999, at which time the field was sown with peas. I suspect that the cultivation and herbicide regime for peas wiped out the Shepherd's-needle in that year, for I was unable to monitor the site in both 2000 and 2001 and found no plants in 2002.

In June 2002 I visited a farmer in the village of Fitling (TA23) prior to leading a field outing over his land. We looked at some set-aside land (land left as wheat stubble) and I was about to remark that there was little of interest when I spotted some very small plants of Shepherd's-needle. Further searches led to two much larger plants with mature needles (see colour section, plate 7). The farmer was alarmed when I told him of the significance of the find, for he had planned to spray the field immediately after my visit! A problem of arable set-aside in this region is that Black-grass (*Alopecurus myosuroides*) is encouraged to flourish and it has to be controlled by herbicide application before flowering.

The farmer has taken up Countryside Stewardship in the management of his hedgerows and field margins and has some interest in conservation. He was therefore amenable to discussing emergency strategies for rescuing as much as we could. I hand-pulled Black-grass from an area around the Shepherd's-needle plants and he promised that he would try to miss the plants with his spray boom. This would give some of the plants time to seed before he cultivated the field. I gathered all the needles from the two large plants and dropped a third of them down the cracks in the soil. This would protect them from direct application of herbicide. The farmer intended to leave a field margin that had already been sown with a game cover mix (mainly Quinoa (*Chenopodium quinoa*)) and I sowed a third of the needles in the game cover margin. The remaining third was sown in the field gateway where frequent disturbance and absence of spraying might be conducive to survival. I have permission to return to the field to monitor these sowings and I will report on the success (or otherwise) of this experiment to the relevant authorities at a later date.

The main purpose of writing this note is to point out a possible conservation management opportunity conducive to Shepherd's-needle revival. Recent finds of Shepherd's-needle in this region have been located just through the gateway into fields of wheat either on disturbed ground at the crop margin, or in wheat stubble. I wonder to what extent a nation-wide survey of crop stubbles in the

arable set-aside scheme would contribute further records for Shepherd's-needle? Also, sowing field margins with game cover plants offers an opportunity to 'rescue' Shepherd's-needle and other cornfield plants, for example Venus's-looking-glass (*Legousia hybrida*) which appears to be heading the same way. I would therefore urge rural botanists to ask farmers to grant permission to botanise such fields and gateways and to effect some 'rescue' conservation management. Another purpose of this note is to point out how difficult Shepherd's-needle might be to find and overlook in the haystack! If it had not been for spotting a bunch of needles I would have written off this plant as a runt or seedling of an unidentified umbellifer. Elsewhere on the field were seedlings and runts of Fool's Parsley (*Aethusa cynapium*), Upright Hedge-parsley (*Torilis japonica*) and Hemlock (*Conium maculatum*), all looking quite like *Scandix pecten-veneris* until examined very closely.

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## **BARBAREA STRICTA (SMALL-FLOWERED WINTER-CRESS) — IS THERE A CONNECTION WITH OIL-SEED RAPE?**

*Barbarea stricta* (Small-flowered Winter-cress) has an unusual geographical distribution in Britain in that most records seem to have been collected along a line joining the Severn with the Humber, with several more scattered to the south-east of this line (Preston, *et al.* 2002). In S.E. Yorkshire (v.c. 61), *B. stricta* was first recorded in 1969 and numerous records were collected in the Hull and Derwent valleys up to 1979 (Crackles, 1990). Typically, these were in 'moist places by rivers, ditches, canals and marshes, and a rare casual of waste places', as described in the *New Atlas*. Since 1979, records have declined in number for this species.

In 2002 I found a possible new niche habitat for *B. stricta* and although one swallow does not make a summer, I think rural botanists might be rewarded to examine wet areas within crops of oil-seed rape (*Brassica napus* subsp. *oleifera*). In two different fields I found *Barbarea stricta* in wet places where the crop had failed to grow. In one case, *B. stricta* occurred with *Ranunculus sceleratus* (Celery-leaved Buttercup) and in another with *Gnaphalium uliginosum* (Marsh Cudweed) and *Juncus bufonius* (Toad Rush), each species being clear indicators of moist conditions. Examination of similar wet patches in crops of barley and wheat in the same vicinity produced only *J. bufonius* in one case.

I will be looking for more evidence of a possible connection with oil-seed rape crops this year and would welcome correspondence. Could this be a case of introduction with imported seed? Is *B. stricta* seed inseparable from oil-seed rape seed and being dispersed with it?

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## VACCINIUM × INTERMEDIUM IN GREAT BRITAIN

It was refreshing to read of Kate Thorne's encounter with this plant (*BSBI News* 92: 35), followed by an enthusiasm which led to new recordings and an examination of its characteristics, most carefully dissected and illustrated. I have to admit I am somewhat humbled at not finding it in field-visits in 1996/7 when I had only vague ideas of its location in difficult terrain — her samples sent for confirmation are from 3 quite widespread sites.

I was then at the beginning of a complete British Ecological Society survey of GB locations, concluded a year ago, and now in preparation for publication, along with an illustrated Vegetative Morphology. Living close to Cannock Chase, I had been studying both its vegetative and flowering characteristics since 1994. The description and illustration of inflorescence by N.E. Brown, of the herbarium at Kew in 1887, were invariably regular, confirmed by successive naturalists, and including of course Dr J.C. Ritchie of Sheffield, whose pioneering investigation of the structure and genetics of this fascinating hybrid I found completely overwhelming.

To cover adequately over 60 locations ranging from Staffordshire to Yorkshire in a mainly one-man operation meant placing the two flowering periods secondary to the more productive November to March bilberry leaf-fall. A vegetative morphology naturally arose from the examination at base of samples for annotation in preparation of exsiccates for herbaria and the assessment of habitat and plant associations. No opportunities were lost, however, of investigating inflorescence colour variants in particular when occasion arose.

My fellow-naturalists out there will appreciate my reckoning that trawling a reputed hectare at lines 3 metres apart works out at about 2 miles (3.22 km) — and add to that a heath/moorland canopy and those tussocks which may turn out to be vegetated rocks! Not to be ignored are woodland habitats with their own bramble under-storey. I wonder if you've been tempted, with dusk approaching, and in the back of your mind the recording and photo routines ahead, to think 'please, don't let me find it now'? In the end, you have to live again and laugh over moments such as, arriving home after a field-trip when the heavens opened, you've exhausted all emergency clothing and are sitting trouserless on a bin-liner, to find there's no-one at home and the drive gate is closed! The graft has been rewarded with results underlining Clive Stace's view at a BSBI venue that many hybrids are under-recorded. The most interesting aspect of positive records is that woodland/plantation habitats form the vast majority of new sites, and amount to about one-quarter of all confirmations.

I have enjoyed many chance and continuing associations along with the long-standing support of the Trusts and other agencies. I also appreciate the two extensions by the British Ecological Society to allow a theoretical completion of the Project, which I hope will stimulate further interest in finding new sites and conserving new and old.

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## A BRIEF REPORT ON THE SURVIVAL RATE OF *CAREX DIVISA* IN S.E. YORKS (V.C. 61)

This report compares the known population of *Carex divisa* (Divided Sedge) at North Ferriby Ings, East Yorkshire (Grid ref. SE988253, S.E Yorks v.c. 61) in 1991 with a full re-survey in the summer of 2002.

This scarce sedge grows along the sides of ponds, ditches and grips present in two relic meadows of permanent pasture on the Humber flood plains, in this parish. The site is a conservation area and is protected by a Section 39 Agreement under the 1981 Wildlife and Countryside Act to safeguard flora and fauna, and a Section 52 Agreement which stipulates that no further development of the land can occur. There is a management agreement which ensures that adequate brackish inundation takes place from the Humber Estuary to support the surviving sedge population. It also stipulates that the vegetation is maintained as grassland by taking a crop of hay in late summer each year.

Whereas formerly the estuarine water flooded the site by over-topping the whole length of a low earth embankment at high tides during the winter months, the entry of water is now controlled by a single sluice under the jurisdiction of the East Riding Conservation Unit.

The presence of *Carex divisa* in North Ferriby was originally recorded by Professor R. Good in 1955. He was formerly the Professor of Botany in the University of Hull. In 1987, Dr F.E. Crackles reconfirmed its presence in the parish and supported the case for the site's conservation. The meadows in question are recorded in the *Flora of the East Riding of Yorkshire* (Dr F.E. Crackles, 1990).

*Carex divisa* was first recorded in the Hull area by the botanist Robert Teesdale in 1790 in a meadow at Dairycoates (Crackles 1990). It was formerly much more common along the north bank of the estuary, but is now struggling to survive, owing to the development of land bordering the estuary and the building of embankments which curtail periodic brackish inundation.

I check the site on an annual basis, but the comparative data summarised below over an 11 year interval may be of interest. The estimation has involved mapping and measuring those areas in the fields where *Carex divisa* was actively flowering. Seven areas were delineated and given plot codes A-F inclusively, and Plot X. The area of each plot was measured, and, using quadrat sampling techniques, the average number of inflorescences in each plot was obtained, and hence a final total for the whole site calculated.

Year	1991		2002	
	Average number of inflorescences	Area m <sup>2</sup>	Average number of inflorescences	Area m <sup>2</sup>
A	1,015,200	2,400	144,540	396
B	158,760	540	21,402	58
C	24,975	333	2,370	30
D	89,232	338	42,432	442
E	86,025	155	61,152	156
F	459,240	1,290	141,648	454
X	3,900	100	-	-
<b>Totals A-X</b>	<b>1,837,332</b>	<b>5,156m<sup>2</sup></b>	<b>413,544</b>	<b>1,536m<sup>2</sup></b>

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### A 'DOUBLE' VARIETY OF *CARDAMINE PRATENSIS*

I was most interested to read the account by Barry and Jane Goater of their record in the New Forest (*BSBI News* 91: 28) of this impressive form of Cuckooflower.

In April, during a walk from Lewes to Land's End, I found an extensive colony on the north embankment of the A30 just east of Liftondown (North Devon), where the road to Lifton passes under the main carriageway (SX373854).

I had never before seen this double form, which made a startling splash of colour several metres in length, but have since learned that it has been recorded in West Sussex (v.c. 13) by Iris Simpson, in the garden of Wilton House, Partridge Green some 30 years ago, and in 2001 outside the butcher's shop in the same village (see colour section, plate 9).

A weed has been defined as 'a flower in the wrong place', but this is one which could well merit a home in the flower border!

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## FIELD CHARACTERS OF THE PONDWEED FAMILY

Notes for beginners on field characters of the Pondweed family (Potamogetonaceae) based on a BSBI field meeting, 8/9<sup>th</sup> August, 2002

In August 2002, Tim Pankhurst led a super field meeting looking at wetland plants in the Cambridge-shire fens. This meeting was so helpful for anyone starting out with Potamogetonaceae that I have endeavoured to set out Tim's comments in a rough guide to field characteristics. Therefore this is not a definitive or expert identification key and anyone interested in seriously tackling pondweeds should make use of the keys in the BSBI Handbook (Preston 1995). Nonetheless, I hope some members will find it useful.

### For experts only?

Pondweeds are usually seen as being plants for experts only. Significant records must be confirmed by an expert but, contrary to the traditional view, you do not always need ripe fruits and you can come to a fairly firm conclusion for most plants on vegetative characters. The presence of hybrids may seem alarming but don't avoid pondweeds because of them — in fact most *Potamogeton* hybrids are fairly rare.

### Classification of Potamogetonaceae

There are 21 species of *Potamogeton* in the UK and 26 recorded hybrids (Preston 1995). The pondweed family has 3 genera: *Potamogeton*, *Groenlandia* and *Ruppia*.

*Groenlandia* has opposite leaves.

*Potamogeton* and *Ruppia* both have alternate leaves.

There are two subgenera within *Potamogeton*:

*Coleogeton* which includes:

- *P. pectinatus*
- *P. filiformis*
- and their hybrid

*Potamogeton* which is split into three sections:

- *Potamogeton* — broad leaved pondweeds
- *Graminifolii* — linear leaved pondweeds
- *Batrachoseris* — *P. crispus* only which has toothed leaves

### Checklist of field characters for the genus *Potamogeton*

#### Broad-leaved pondweeds

*P. natans* (Broad-leaved Pondweed)

- Floating leaves only, submerged leaves reduced to 'phyllodes' = leaves with no blade, *i.e.* midrib only
- Buff or brown hinge where leaf joins stalk — diagnostic if present
- Very long appendage where the leaf stalk joins the stem = stipule; usually >5 cm
- Leaf veins translucent when held up to light

*P. polygonifolius* (Bog Pondweed)

- Floating and submerged leaves but doesn't always have submerged leaves, especially later in the year
- Veins of floating leaves opaque when held up to the light
- Leaf has stalk
- Calcifuge, *i.e.* likes acid soils/water
- Hybrid with *P. natans* very rare

*P. coloratus* (Fen Pondweed)

- Common in East Anglian fens
- Submerged leaves with stalks
- Floating leaves (may be just below surface) net veined and translucent

***P. lucens*** (Shining Pondweed)

- Leaves always with (usually very short) stalk (will distinguish from some hybrids with no stalk)
- Leaves with net veins
- Pale green 'shiny' leaves
- No floating leaves — if has any, check for hybrid
- Stipules with two strong wings, so stiff

***P. lucens*** hybrids

- All show some degree of wings/keels on stipule

***P. alpinus*** (Red Pondweed)

- Name deceptive — not alpine species
- Submerged leaves not stalked, *i.e.* sessile
- Leaves usually lanceolate, *i.e.* long and thin but broad-leaved plants are sometimes found
- Goes red but only when dried

***P. perfoliatus*** (Perfoliate Pondweed)

- Leaves almost perfoliate, known as 'amplexicaul'

***P. praelongus*** (Long-stalked Pondweed)

- Leaves more or less half amplexicaul
- Zigzag look to stem
- Leaf end with large hood

***P. × salicifolius*** (hybrid between *P. perfoliatus* and *P. lucens*)

- Common hybrid
- Has intermediate characters
- Leaf only slightly, if at all, clasping and never stalked (not even slightly)
- Can be confused with *P. praelongus*

***P. gramineus*** (Various-leaved Pondweed)

- Floating leaves (may not have any) — dark veins and stalked
- Submerged leaves — sessile with finely toothed edges (highest submerged leaves may be slightly stalked)

***P. nodosus*** (Loddon Pondweed)

- Very rare in UK but more common on the continent
- Both floating and submerged leaves, all of them convex sided
- All submerged leaves with a long stalk
- Apex of submerged leaves may be acute but never mucronate or with a protruding midrib

**Narrow-leaved pondweeds**

The linear-leaved pondweeds can be confused with *Juncus bulbosus*, *Eleogiton fluitans* and *Ruppia* spp.

*Juncus bulbosus* (Bulbous Rush) roots from the stem nodes and has auricles where the leaf joins the stem and no ligule.

*Eleogiton fluitans* (Floating Club-rush) has no ligule, a harder leaf texture and the flowers are clustered.

*Ruppia* spp. (Tasselweeds) have little lobes where the leaf joins the stem and little teeth (under lens) at the leaf apex.

***P. pectinatus*** (Fennel Pondweed)

- Only species in southern Britain where leaf is mounted at the top of a leaf sheath — so that when you pull the leaf, the sheath and ligule come away, like on a grass

***P. filiformis*** (Slender-leaved Pondweed)

- Northumberland, Ireland and Scotland only
- Similar to *P. pectinatus* — need cross section of stipule under microscope to distinguish
- When drawn out of water, leaves stick together like a wet paintbrush whereas *P. pectinatus* usually remains separate

**Stem flattened by a steam roller:*****P. acutifolius*** (Sharp-leaved Pondweed)

- Leaf with 1 lateral vein either side of midrib
- Sharply pointed leaves
- RDB species with national headquarters at Amberley Wild Brooks, West Sussex

***P. compressus*** (Grass-wrack Pondweed)

- Leaf with 2 lateral veins either side of midrib
- Bluntly pointed leaves

**Stem flattened by a garden roller:*****P. friesii*** (Flat-stalked Pondweed)

- Fine pointed leaf apex often with mucronate tip
- Stipules with prominent veins
- Never has reddish leaves

***P. obtusifolius*** (Blunt-leaved Pondweed)

- Close to *P. friesii*
- Leaf tip broad and hardly, if at all, mucronate
- Stipules with less prominent veins
- Many branches later in year and often reddish leaves

**Stem only very slightly flattened (catches when rotated between fingers)*****P. trichoides*** (Hair-like Pondweed)

- Leaves stiff and stick up when out of water, due to wide midrib

To distinguish the following two species you really need to look at a cross-section of the stipules under a microscope:

**stipule cross-section*****P. berchtoldii*** (Small Pondweed)

- Usually has glands at the nodes; or
- A silvery stripe up middle of leaf.

***P. pusillus*** (Lesser Pondweed)

- Rarely has nodal glands or a silvery stripe
- But can have both



The remaining species *P. rutilus* (Shetland Pondweed) and *P. epiphydrus* (American Pondweed) are very rare so not dealt with here.

**Acknowledgement:**

With thanks to Tim Pankhurst for his outstanding tuition and for contributing to this note. Please do send any corrections or comments to me.

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**POTENTILLA NEUMANNIANA FLOWERING IN JANUARY**

This year I recorded *Potentilla neumanniana* (Spring Cinquefoil) flowering on the Malvern's in January. On 26<sup>th</sup> January 2003 there were five flowers wide open on three separate plants. Last year I recorded the earliest flowering on 17<sup>th</sup> February, when there were just two flowers open.

In previous years I have made an annual pilgrimage to the site in March, when there have only been a few flowers showing, and in April when it is in all its glory. Until last year it had never

occurred to me to look for flowers before March. Not surprisingly, the earliest flowers are on plants growing where the soil is thinnest — almost on bare rock, on a south facing bank.

I would be interested to hear of first flowering dates for *P. neummanniana* in other parts of the country.

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## THE STRANGE CASE OF THE GENTIAN OF 1812

Writing in the second quarter of the nineteenth century, William Anderson recalls botanising on the borders of Buckinghamshire and Hertfordshire: 'In 1812, the late Mr. James Dickson, of Covent Garden, and myself, found near Tring a *Gentiana* that we never saw before; about five or six inches high, . . . but seeing only one plant, we made a memorandum and left it'. What did they find? The Floras suggest it was *Gentianella germanica*, the Chiltern Gentian. Perhaps — but might there be an alternative?

I came across this account in Pryor's *Flora of Hertfordshire* (1887) where the entry for *Gentiana germanica* (the genera were not yet split) begins: 'West of Tring; *W. Andersen*. About a mile through Tring, on the east of a cart-road through ripening barley, to a copse wood, about four or five hundred yards to our left' and continues with the extract quoted above. Pryor's other records for the species include 'near the walls of Verulam', attributed to a certain Feilden about 1700; one from 'Holloway Down' by William Pamplin in 1841; and a later record from 'Aldbury Owers' by the Rev. W.H. Coleman, Hertfordshire's most famous botanist. The manuscript on which Pryor had been working when he died was edited and published by Benjamin Jackson, who must have found Pryor's handwriting difficult to decipher. 'Feilden' is a misreading of 'Tilden', whose entry in the *Directory of British and Irish Botanists and Horticulturalists* (Desmond 1994) reads: 'Tilden, Richard (*fl.* 1700's); sent *Gentiana germanica* from St Albans to J. Petiver and I. Rand'. (The error was perpetuated: Salisbury (1914), writing specifically about Hertfordshire gentians, stated that '*G. germanica*. . . according to Prior [*sic*], was first recorded by Feilden in 1700'). And Coleman's record is from Aldbury Nowers, not Aldbury Owers. We know this for sure because it appears thus in Coleman's own *Flora Hertfordiensis* (Webb & Coleman 1849).

This work, generally considered superior to Pryor's, omits the Tilden/Feilden record entirely. Either they were unaware of it, or thought it suspect. According to Pritchard (1961), Linnaeus in 1753 did not distinguish *G. amarella* (Autumn Gentian) from *G. germanica* so Webb & Coleman may have found it hard to believe that fifty years earlier Tilden could do so with confidence. In fact they give just two records. The first is Pamplin's, seen and confirmed by Coleman himself. An anonymous note in the *Gardeners Chronicle* (1841) mentions that Coleman 'has obtained specimens which have confirmed him in his suspicion that it would be found different from *G. amarella* . . . it proves to be the *G. germanica* of foreign authors' and goes on to describe these differences. The second is Anderson's. Webb & Coleman quote the sentence with which I began (they don't give the site description in Pryor's account), adding: 'A most laudable example which we would specially commend to the adoption of all fellow-botanists'. Maybe — but it means there is no voucher specimen . . .

In his own *Flora of Hertfordshire* (1967), J.G. Dony is awkwardly equivocal about the first county (and therefore British) record of Chiltern Gentian: 'Feilden *c.* 1700 but more certainly Dickson and Anderson 1812'. This is surprising because *G. germanica* was clearly close to Dony's heart; the frontispiece to his *Flora* is a fine photograph of it in flower at Oddy Hill, about 1 mile (1.6 km) east of Tring town centre and clearly identifiable on the first (1834-40) edition of the one-inch Ordnance Survey map as the 'Holloway Down' where Pamplin found it. But Dony doesn't mention this, or that Druce's *Comital Flora* of 1932 cited Pamplin's as the first British record of *G. germanica*. Druce, an authority on felworts amongst many other taxa, clearly felt it was safe to disregard the Tilden/Feilden record, with its uncertain identification and misspelt authority. But why omit Anderson's?

Chiltern Gentian still grows at Oddy Hill (*alias* Holloway Down) as well as further east near Aldbury [Nowers], as it did in Coleman's time. It is also found south-west of Tring in Buckinghamshire, for example at Dancers End Nature Reserve. It was near here, close to the county boundary, that Anderson and Dickson saw their gentian.

Dickson (1738-1822), founding Fellow of the Linnean Society and discoverer of *Draba rupestris*, was among the best field botanists of his day. His younger colleague Anderson (1766-1846) was not far behind. In 1814 he was appointed Gardener, subsequently Curator, of Chelsea Physic Garden, on the recommendations of Sir Joseph Banks and Sir James Edward Smith who described him as possessing 'superior skill and more scientific knowledge than is often met with' (Field & Semple 1878). Between 1808 and 1915 Dickson found many plants new to Hertfordshire, such as *Pulsatilla vulgare* (Pasque Flower), which he and Anderson are credited with the first county record of *Aquilegia vulgaris* (Columbine), also in 1812. If they didn't recognise a gentian it must have been quite unusual, so it is worth describing Chiltern Gentian in more detail.

*Gentianella germanica* was elevated to species rank by Willdenow in 1797; its taxonomy is summarised and compared with *G. amarella* and their hybrid, *G. × pamplinii*, by Pritchard (1961). The leaves of *G. germanica* are wider, the corollas longer, and the ratio of corolla to calyx length much greater, than in *G. amarella*. The differences are quite subtle. Although typical specimens can be separated with ease, there are no qualitative diagnostic features and it is unsurprising that Linnaeus treated them as varieties of one species. In Webb & Coleman's words: 'A much handsomer plant than *G. amarella* . . . but no satisfactory distinction has yet been discovered'.

In particular there is very little difference in flower colour. In the second edition of his *English Flora* of 1823, Sir James Smith (Anderson's patron for the post at Chelsea) describes both species as purplish-blue, noting that *G. germanica* has flowers nearly twice as large (and that 'it has not yet been observed in England'). Similarly, Bentham & Hooker treated *G. germanica* as a large-flowered variety of the pale purplish-blue *G. amarella*. Warburg, the *Gentianella* author in Clapham, Tutin and Warburg, made a distinction (repeated exactly in Stace's *New Flora of the British Isles*) between *G. amarella* (dull purple) and *G. germanica* (bright bluish-purple). For Butcher (*New Illustrated British Flora*) *G. germanica* is bluish lilac, for Polunin (*Flowers of Europe*) it is bluish-violet, while according to *Flora Europaea* it is violet, pink or whitish — colours repeated verbatim by Blamey and Grey-Wilson in their *Illustrated Flora of Britain and Western Europe*. French Floras mention 'cette gentiane à fleurs violettes'. The Oxfordshire flowers I have seen (see colour section, plate 3) are deep lilac to violet, resembling for me those of the Field Gentian (*G. campestris*), a plant of more acidic ground, recorded by John Gerarde in 1597 (in Hertfordshire, actually) and surely well-known to Anderson and Dickson.

For it was the gentian's colour that caught their attention. In the quotation in the first paragraph, I omitted three significant words at the ellipsis (. . .); these words of Anderson are 'very bright blue'. In other respects — season (the barley was ripening), habitat (at the side of a lane on chalky soil), stature (13–15 cm tall) — the plant they saw could have been *G. germanica*, but I do not think any person, let alone two experienced field botanists, would ever describe its flowers as very bright blue. (Was this perhaps why Druce passed them over and plumped for Pamplin?) There are of course only four blue British gentians: the montane rarities Spring and Snow Gentian, *Gentiana verna* and *G. nivalis*, and Marsh Gentian, *G. pneumonanthe* of wet heaths, all of which would have been familiar to Dickson (whose 1795 record of *G. pneumonanthe* in Middlesex is perhaps the first, and certainly the last, for that county) — and Fringed Gentian, *Gentianella ciliata*, which would not.

Miss Williams' discovery of *G. ciliata* in 1875, near Wendover (Knipe 1988) is a well-known and extraordinary story: equally remarkable is Colin Pope's recent (2003) unearthing of a slightly earlier British record, possibly from the same Buckinghamshire site. I saw Fringed Gentians here in September 2002, on a WFS/LNHS field meeting; they were blue (see colour section, plate 2).

Every Flora I have seen calls them blue. The population of *G. ciliata* (at its only extant site) is very variable. To see a single plant is not unusual, but Chiltern Gentian is rarely solitary. If the gentian Anderson and Dickson saw looked like *G. ciliata* and behaved like *G. ciliata*, perhaps it was *G. ciliata* (which they would have known, if at all, only from foreign floras — it was not even a garden

plant, unlike its near relative from the Ural Mountains, *Gentianella barbata* whose illustration in *Curtis's Botanical Magazine* (it is Plate 639 of Vol. 17, 1803, though there misidentified as *G. ciliata*) might have been known to the seedsman, Dickson). Their description does not mention corolla lobbing (*G. ciliata* is 4-lobed) but this would not be decisive — indeed Keble Martin chose what appears to be a 4-lobed specimen of *G. germanica* (which he described and painted as lilac) to illustrate his *Concise British Flora in Colour*. And a disinclination to take a specimen becomes wholly understandable if the plant has as few flowers (usually 2–3, sometimes only one) as *G. ciliata*.

Guided by the Ordnance Survey of 1834, I followed Anderson and Dickson's route from Tring Church west along Akeman Street (now Western Road). After exactly a mile, where the county boundary crosses Akeman Street in a narrow hedge-lined path (Shire lane on older maps, a track leads off to the left towards Aston Copse in Buckinghamshire (now the east flank of Astonhill Coppice), about half-a-mile away across fields, and less than five miles from the *G. ciliata* station above Wendover. In 1834, Terret House stood in these fields, a few small buildings. Now, the right-of-way is forced to skirt the extensive wooded grounds of Terret House's successor, Drayton Manor. And to reach this, the path has to cross a deep cutting carrying the A41 dual carriageway south of Tring. On a wet February day there was no sign of blue (or any other colour) gentians. Only the emerging leaves of Ploughman's Spikenard (*Inula conyzae*), hinted at the rich herb habitat that might (if only Anderson and Dickson had carried a digital camera) have been the site of the first British record of *Gentianella ciliata*.

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- JOHN A. EDGINGTON, 19 Mecklenburgh Square, London WC1N 2AD

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## A LOAD OF BASTARDS

I was interested in Edward Pratt's hope for more pleasant names for Bastard-toadflax and Bastard Balm. I have been looking into alternative plant names for several years but unfortunately I cannot help him. All I can offer are a range of other 'bastard names'. All the following have been used (each with Bastard in front) as names for plants. Probably others could be added to the list.

Agrimony, Alkanet, Box, Corinths, Ground-pine, Hibiscus, Hyssop, Knot-grass, Mouse-ear, Nigella, Parsley, Pellitory, Pimpernel, Rocket, Saffron, Senna, and Woodsage. Finally there is also the plant Bastard-killer.

As for the standard or botanical names for the plants that these each refer to, I should be interested to know other members' identifications. I should also be interested to hear of any other Bastards.

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## THE TAXONOMIC AND CONSERVATION STATUS OF *GERANIUM PURPUREUM* (LITTLE-ROBIN) SUBSP. *FORSTERI*

*Geranium purpureum* is a slender annual with leaves hardly distinguishable from those of *G. robertianum* (Herb-Robert) but with very small flowers and distinctively sculptured fruits (mericarps) (Stace, 1991, 1997). It is common in the Mediterranean region and beyond. I gave a description of its typical variant and a summary of its distribution in my paper on *Geranium* sections *Anemonifolia* and *Ruberta* (Yeo, 1973). In the British Isles the species occurs in the Channel Isles and in the south-west of Ireland and the south of England, and mainly on the coast. A thorough review of the two above-named species in the British Isles was published by Baker (1955, 1956), who rectified many misidentifications and provided distribution maps. In addition to the typical variant of *G. purpureum*, Baker (1955) recognised subsp. *forsteri* (Wilmott) Baker. This had been described first by A.J. Wilmott at varietal rank. It is a prostrate form, which was figured in the supplement to Sowerby's *English Botany* by W.J. Hooker (1830) as *G. purpureum* (t. 2648). This account of the plant was written by T.F. Forster, who died in 1825. Specimens collected by William Borrer from the South Hampshire locality of Stokes Bay (sometimes written Stoke's Bay), had been used for the figure.

It was only in 1919, when Wilmott visited the Sussex locality known as Clymping or Climping or Middleton (between Bognor and Littlehampton), that it was realised that *G. purpureum* had both prostrate and erect states and that we had both in the British Isles (Wilmott, 1921; Yeo, in prep.). The prostrate form was found to occur in definite populations on shingle beaches in W. Sussex and S. Hampshire. Both variants were reported from the Channel Isles. The main British colonies of the erect form (subsp. *purpureum*) occur further west than Dorset. There had been a colony at Cockbush Common, on the west side of Chichester Harbour, W. Sussex, but the habitat suffered storm damage, and Baker (1955) feared that the plant had been lost from this site.

### Descriptions of subsp. *forsteri*

- (1) The description by T.F. Forster (in Hooker, 1830) includes the words 'stems spreading, recumbent', showing that he is writing of subsp. *forsteri*. Otherwise it is a good description of either subspecies, including distinctions from *G. robertianum*.
- (2) Wilmott gave the following diagnosis of var. *forsteri*: 'G[eranium] purpurei typo caulibus brevioribus inter calculos maritimos decumbentibus plurimis rubentibus differt' (kindly translated by Mr Philip Oswald as 'It differs from the type of *Geranium purpureum* in [its] shorter stems [which are] decumbent among maritime pebbles/shingle, very numerous [and] becoming red').
- (3) Baker (1955) described it as follows: Plants . . . have a prostrate habit, for the leader soon branches and the branches run at only a slight angle with the ground although the tips ascend. The petioles of the rosette leaves are still shorter than those of subsp. *purpureum*. In cultivation the plants flower about a fortnight later than British material of subsp. *purpureum*. [In nature] they grow only in the stabilised area at the rear of certain shingle-beaches.
- (4) A description that I prepared some time ago based on cultivation in Cambridge and a visit to a large colony in Hampshire (see below) and independently of the literature is as follows: Plants dwarfed in nature and in cultivation and slow in growth in cultivation (greenhouse plants produced rosettes 19 cm across and leaves with lamina to 4.2 cm wide). Central inflorescence axis suppressed. Branches decumbent and ascending (greenhouse plants with branches to 23 cm long 24.i.1997). Otherwise like subsp. *purpureum*.

It is important to recognise wherein the difference between the two states, prostrate and erect, lies in these plants. To explain this I must trot out the old diagrams from my 1973 paper and book (Yeo, 2002). Both states can exist in both *G. purpureum* and *G. robertianum*. Figure 1 (page 33) shows the typical arrangement of *G. purpureum*: in autumn a rosette is formed and in spring extended internodes appear carrying the last few primary leaves aloft. These leaves are mostly in whorls of three and from their axils branches develop, starting from the top down (if whorls number more than one). The common stem finishes with a vestige, often recognisable as a three-flowered cymule. The branches have opposite leaves and develop internodes, leaves and cymules, so forming the main flowering apparatus, most of which is held well above the ground. If the plant is vigorous branches emerge from

the upper axils of the rosette. In the other type (Figure 2, page 33) the rosette is formed but there is no elongation of its uppermost internodes and the flowering branches develop in the last axils of the rosette. These are inevitably more or less prostrate to begin with. The new branches may come in threes, as in *G. purpureum*. This is typical of *G. robertianum* though the *purpureum*-type sometimes occurs in this species, especially on the Continent (Yeo, 1973). It gives rise to the prostrate condition by the production of spreading and ascending branches. It is in this kind of growth that *G. purpureum* subsp. *forsteri* principally differs from subsp. *purpureum*. This description is at variance with Baker's for subsp. *forsteri* because he says 'the leader soon branches', whereas I find that it is the early termination of apical growth that distinguishes the plant, and that there isn't a leader!

Although subsp. *forsteri* is initially restricted to basal growth, suitable associated vegetation may permit the decumbent shoots to become distally erect and the plants become notably luxuriant. This has happened in my rather shady garden in Cambridge.

#### **Distribution of subsp. *forsteri***

Found on south coast of England (South Hampshire and West Sussex only), Channel Isles (Guernsey). Baker (1955) summarised the records from herbaria up to that time. Brewis, Bowman & Rose (1996) give current status in v.c. 11 (S. Hampshire), by locality and on a dot-map. The localities cover an east-west range of 40 km. Hall (1980) confirmed survival of subsp. *forsteri* in a stretch of 3 or 4 km of the coast of v.c. 13 (W. Sussex), extending about 10 km further east.

#### **Occurrence of subsp. *purpureum* in Sussex**

Although the Chichester Harbour population of *G. purpureum* subsp. *purpureum* was believed by Baker to have vanished (see para. 2) he was not quite certain that it was not present in the Clymping area, as Mr Oliver Buckle had told him that he knew of a small population with an ascending habit. (It is curious that the word 'ascending' was used here to make a case for the presence of *G. purpureum* subsp. *purpureum*.) Baker's feeling seems to have been that the latter was no longer in West Sussex. The latest information I have, from Briggs, Harmes & Knapp (2001) and from Mary Briggs in *litt.*, is that *G. purpureum* has now gone from Climping golf course but was discovered in two small patches on disturbed shingle in 1999 (by Judy Wilson and the late Hilda Harder). These are at Elmer, not far from Middleton, and their numbers are increasing. Their subspecific identity remains to be determined. The population at Rye Harbour, which is the basis for the record in E. Sussex of *G. purpureum* (in Briggs, Harmes & Knapp, 2001), was determined by me as *G. robertianum*, a conclusion that I made known to local botanists in 1992-93.

#### **Observations on subsp. *forsteri* in the field and garden**

The late Mr Paul Bowman and Mr James Venner took me to the Calshot site described below (referred to in Brewis, Bowman & Rose (1996) as Stansore Point to Stanswood Bay), which is on a shingle beach that faces SE into the Solent and is never disturbed by high seas; the ground is relatively rarely trampled (the surface pebbles are coated with a black lichen (*Peltigera* sp.?) that is intolerant of trampling). There are both separate colonies of *G. robertianum* and *G. purpureum* and mixed colonies. The plants are well-spaced like plants in a desert. In one area *G. purpureum* was mixed with a variety of other species, but in very open vegetation; all other colonies were more or less pure *Geranium*. The plant occurs in good numbers at Calshot, so Baker's (1955) fear that the plant had been extinguished by man's activities in Hampshire (except at Hurst Castle) proves to be unduly pessimistic.

*G. purpureum* at this locality (see colour section, plate 1) seemed to me to be typical of the species in every way except for the spreading habit and overall small size of the plants (retained in cultivation). I found that it was totally distinct from *G. robertianum*, the appearance of the plants giving no suggestion that their peculiarities owed anything to inheritance from *G. robertianum*, though Baker (1955) implied that they might do so.

Only seeds were collected from the Calshot population, and they gave rise to the following CULTIVATED SPECIMENS: Grown at Cambridge from seed collected by P.F. Yeo in the North Solent National Nature Reserve, Calshot, Hampshire, England (national grid ref. SZ4799 to 4699), on 10.vi.1993, and sown on 9.ix.1996 (Cambridge University Botanic Garden entry no. 375-96), specimens dated 22.ii.1997, 24.iv.1997, 25.vi.1998, **CGG**.

### Taxonomic recognition and ranking

D.A. Pearman (in Wigginton, 1999) says that 'current opinion is very much divided on the desirability of recognising these two segregates [of *Geranium purpureum*]'. Baker (1955) justified the elevation to subspecific rank of var. *forsteri* with these words: 'morphologically distinct forms which appear to be ecologically significant (or to possess a distinctive geographical distribution) are given subspecific rank . . . within these subspecies, lesser morphological groupings may be made, but these more or less discrete forms usually differ from each other only in respect of individual qualitative characters'.

Unfortunately, plants of *G. purpureum* subsp. *forsteri* can have slightly elongating terminal stems like those of subsp. *purpureum*. Thus, in 1996-97 I grew 7 plants of subsp. *forsteri* in the greenhouse in small pots with their roots in sand or gravel on the bench. Two of these had the central flowering stem respectively 1 and 2 cm long. I have also grown a plant in Cambridge which had no central stem, although in a later season in plants from the same seed-sample (from Corsica, and presumably subsp. *purpureum*) the branching was of the first type (*purpureum*-type). A further complication arises in some feeble plants of subsp. *forsteri*: they may have only one shoot emerging from the rosette and it may then be erect (as appears to be the case with some specimens in CGE). With strong plants, collectors tend not to take the root but to pull off basal shoots. Thus determining the growth habit can be difficult or impossible. I suggest that any botanist collecting this group should examine the branching in detail while the material is still fresh.

As the main morphological character here is subject to some degree of aberrance I should be quite satisfied if this taxon were to be ranked as a *varietas*, but as there are correlated ecological and physiological characters, subspecific rank would seem to be acceptable. In any case, this has been in general use since 1955 in national and local floras of the British Isles and it would be an irritation now to reverse Baker's change of rank.

The late Paul Bowman (in Brewis, Bowman & Rose, 1996) claimed that he could see a difference in mericarp surface between the Hampshire subsp. *forsteri* and subsp. *purpureum* from Prawle Point, Devon. I compared the former with specimens from Oporto, Portugal, and found them virtually identical in this character (but possibly the Oporto mericarps are larger). There is certainly some variation in the mericarp structure within the species, and such variations may sometimes characterise populations.

### *Geranium purpureum* as an adventive

An interesting recent event is the appearance in 2001 of an adventive colony of *G. purpureum* on ballast in Lewes railway station, inland in E. Sussex (Briggs, Harnes & Knapp, 2001). As the habitat is similar to the native habitat of subsp. *forsteri* it is desirable to find out which subspecies is involved. In 2002 plants were seen further down the line southwards (Mary Briggs, *in litt.*).

### Acknowledgements:

I am grateful to the authorities in charge of the herbaria at the Natural History Museum, London (BM), and Cambridge University (CGE) for access to the collections. I am also grateful to Dr Donald Pigott and Professor John Parker, the successive Directors of the University Botanic Garden, Cambridge, for facilitating my work during and after my employment there. The late Mr Paul Bowman and Dr Francis Rose kindly took me to some relevant sites in Hampshire and Sussex in 1993. I thank also Mr Pete Selby and Mrs Mary Briggs, respectively BSBI recorders for vice-counties 11, S. Hampshire, and 13, W. Sussex, for a generous supply of information.

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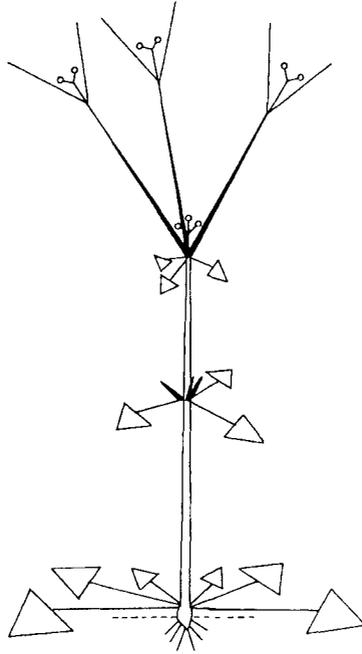


Fig. 1. Diagram of growth habit normally shown by *Geranium purpureum*; upper internodes of the central axis are elongated.

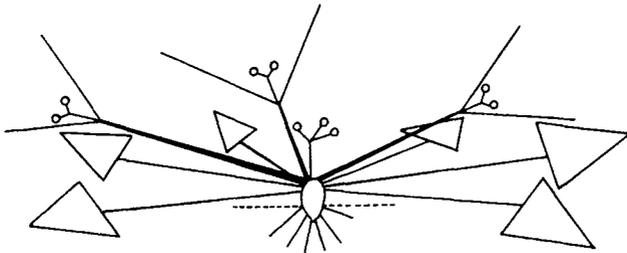


Fig. 2. Diagram of growth habit normally shown by *G. robertianum*; it is present also in *G. purpureum* subsp. *forsteri* and is its principal difference from subsp. *purpureum*.

## NEW RECORDS FOR THE SUBSPECIES OF *TRICHOPHORUM CESPITOSUM* (DEERGRASS) IN BRITAIN

Since *Trichophorum cespitosum* nothosubsp. *foersteri* was first described, Swan (1999), a number of botanists have sent me specimens of this hybrid, collected from various parts of Britain. Michael Wilcox (2001) volunteered to look at specimens and received offerings from a few people. Although there was a preponderance of the widespread subsp. *germanicum*, he was able to pick out the specimens of the hybrid and identify these correctly. I checked the identification of records for the hybrid published in the present article, with the exception of those of A.O. Chater, who identified his own specimens, using full microscopic examination. Wilcox also looked through collections of *Trichophorum cespitosum* in the Cartwright Hall Museum and Art Gallery, Bradford and in the Leeds Museum Galleries, but found only subsp. *germanicum* in these.

As nothosubsp. *foersteri* is a hybrid between what are at the present time regarded as two subspecies (*i.e.* subsp. *cespitosum* and subsp. *germanicum*), it is not recorded under Plant Records in *Watsonia*, nor in the *New Atlas*. It may therefore be appropriate for new v.c. records and a distribution map to appear in here. The map (p. 35) shows the present state of knowledge of the distribution of the hybrid in Britain. There is conspicuous observer (Chater, Swan) bias, but the map probably gives some idea of the areas where this taxon can be expected (except for Ireland, which has been very neglected — no new records). The hybrid can be expected in raised mires, but also in other places (especially at relatively high altitude) where *Sphagnum* cover is less continuous.

For an identification-key for the subspecies, including the hybrid, see Swan (1999), p. 230 and Summary, p. 231. Michael Wilcox has produced the accompanying, illustrated 'Sheath openings in Deergrass', which I am sure will be helpful (see p. 35). However, records of the hybrid or subspecies *cespitosum* should always be confirmed by microscopic examination of a stem section. Nevertheless, do not be persuaded that identification is difficult before you have tried it yourself. If you ever find *Trichophorum cespitosum* growing in a base-rich habitat, please do not fail to collect a specimen (preferably fruiting), but even one stem (with or without fruit) may allow one to decide (by microscopic examination) whether it may be subsp. *cespitosum*.

The latter is now very rare in Britain, and probably on the way out. The present-day distribution of the hybrid presumably gives a good idea of the area which subsp. *cespitosum* once covered, so records of the hybrid are of interest.

Godwin and Conway (1939) recorded *T. cespitosum* subsp. *cespitosum* in the mire at Tregaron, but in Swan (1999) it was suggested that the plant there was more likely to be the hybrid, a suggestion which received very prompt verification by Arthur Chater in 1999. He found the hybrid all over the West Bog and the South East Bog of Cors Caron NNR. It was abundant and locally dominant (and apparently the only *Trichophorum* present) in the centre of raised mire, West Bog, 167 m O.D. (SN681637), and extended equally abundantly to the bottom of the slope of this mire, 165 m (SN680629). In the old peat-cutting areas around the raised mires, the hybrid was accompanied by subsp. *germanicum*. There was very little *Trichophorum* in the open parts of Godwin's Lagg, 162 m (SN685646), but this was the hybrid.

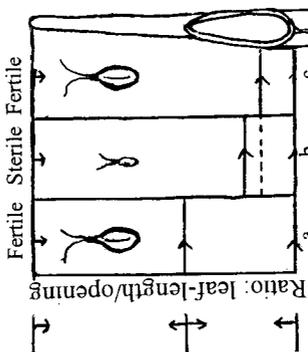
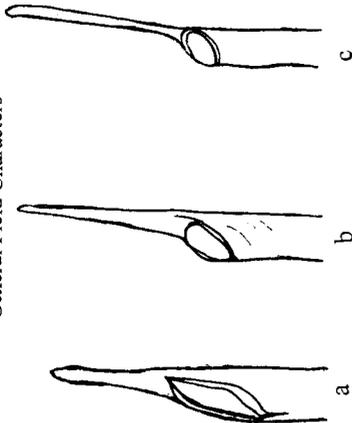
A.O. Chater also visited the Fochno NNR, W of Gwynfryn, 4 m (SN635918); the only *Trichophorum* which he found here and on all other parts of the dome of the raised mire was the hybrid.

So Chater's findings in Wales are consistent with mine in Northumberland. I have stated earlier, Swan (2001), that in the Border Mires *T. cespitosum* nothosubsp. *foersteri* is the only *Trichophorum* on intact mires, and is just as characteristic of such mires as is *Andromeda polifolia* (although perhaps less attractive).

### **The following are new records for this hybrid (non-proliferous).**

V.c. 35, Mons., Mynydd Maen, near Cwmbrian, 447 m (ST25959664), 23 July 2001, T.G. Evans, det. G.A.S.; Waun Afon Bog, Blaenavon, acidic bog (SO21981057), 30 July 2001, T.G. Evans, det. G.A.S.

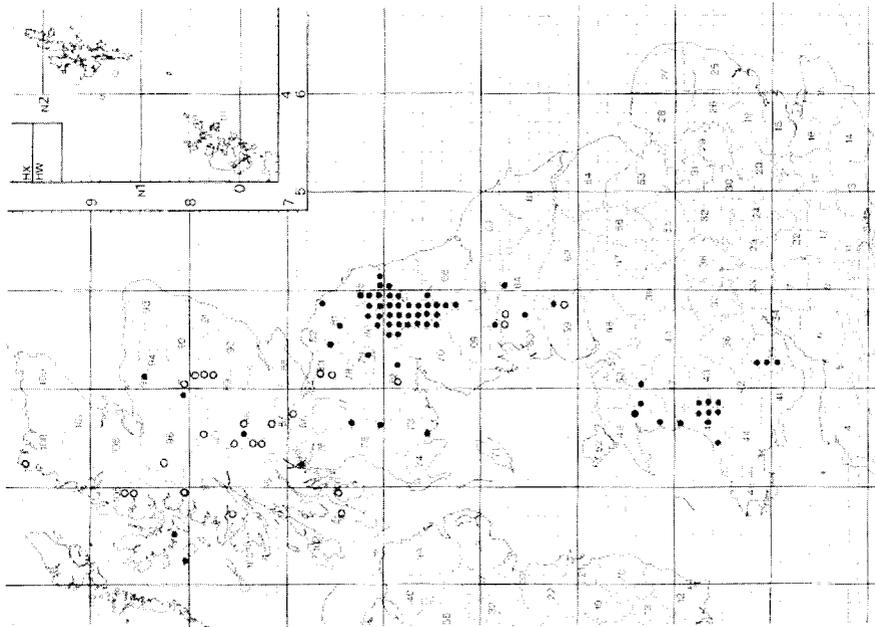
SHEATH OPENINGS IN DEERGRASS  
General Field Characters



- a) *T. c. ssp. germanicum*
- b) *T. c. nothosubsp. foersteri*
- c) *T. c. ssp. cespitosum*

Moors/heaths/mires

Base-rich



The distribution of non-proliferous *Trichophorum cespitosum* nothosubsp. *foersteri* in Britain.

● Records 1988-2002 ○ Herbarium records

- V.c. 46, Cards., Figyn Blaenbrefi SSSI, SW corner, slightly E-sloping, blanket mire, 425 m (SN71455455), 8 July 1999, A.O. Chater (**NMW**); Borth Bog (Cors Fochno) NNR, 800 m W of Gwynfryn, 4 m (SN635918), 10 July 1999, A.O. Chater (**NMW**), the only *Trichophorum* on the N part of the dome of the raised mire.
- V.c. 48, Merioneth, Arthog Bog, centre of estuarine raised bog, with *Calluna*, *Erica tetralix*, *Rhynchospora alba*, *Eriophorum angustifolium*, *Myrica gale*, *Drosera intermedia*, *Narthecium ossifragum* and *Molinia caerulea*, near sea-level (SH635146), 1 September 1999, P.M. Benoit, det. G.A.S.; Berwyn moorland at Milltir Cerrig, 503 m (SJ019305), 1 September 2002, P.M. Benoit & S.E. Stille, det. G.A.S. The latter site is on the border between v.c. 47, Montgomery and v.c. 48.
- V.c. 60, W. Lanes., Gragareth, summit of plateau, Leck Fell, blanket bog, 610 m (SD693802), 13 July 2000, E.F. Greenwood (**LIV**), det. G.A.S.
- V.c. 64, Mid-W. Yorks, Gisburn Forest, Tosside, *Sphagnum* bog with *Andromeda polifolia* (SD753562), 1996, M. Wilcox, det. G.A.S.; Nidderdale, acidic moor (SE6771), 17 June 2002, P.P. Abbott, det. M.W.
- V.c. 66, Durham, Burnhope Seat, 750 m (NY7837), 31 July 1995, G.A. Swan (**Hb G.A.S.**); near head of Sand Sike, Widdybank Fell, 515 m (NY817305), 5 August 1996, G.A. Swan (**Hb G.A.S.**).
- V.c. 70, Cumberland, Burnhope Seat, 700 m (NY7837), 31 July 1995, G.A. Swan (**Hb G.A.S.**).
- V.c. 72, Dumfries, Capel Burn near Capelfoot, 270-300 m (NY268845), 6 June 2001, D.M. Hawker, det. G.A.S.
- V.c. 73, Kirkcudbrights., Bawnhead, 550-620 m (NS6200), 12 June 2001; Dugland (Hill), 590 m (NS601010), 2 August 2001, D.M. Hawker, det. M.W.
- V.c. 77, Lanarks., near Glengavel, raised mire (NS6634), 10 June 2000, P. Macpherson, and M.E. Braithwaite, det. M.E.B.
- V.c. 79, Selkirks., S side of Clearburn Loch, deep peat, 300 m (NT338154), 11 July 2002, R.W.M. Corner, det. G.A.S.
- V.c. 81, Berwicks., Long Moss, raised mire (NT855683), 24 July 1999, M.E. Braithwaite; Dogden Moss, raised mire (NT691492), 25 June 2000, M.E. Braithwaite, det. G.A.S.; Longmuir Moss, raised mire (NT471504), 1 July 2000, M.E. Braithwaite.
- V.c. 83, Midlothian, Longmuir Moss, raised mire (NT471502), 1 July 2000, M.E. Braithwaite.
- V.c. 88, Mid Perth, Creag an Lochan, N side of Lochan na Lairige (NN594411), 23 July 2002, M. Wilcox.
- V.c. 95, Moray, Roy's Hill, summit plateau, 449 m (NJ138417), 10 July 2001, D.M. Hawker, det. M.W.
- V.c. 96, Easternness and Nairns., Aviemore, near ski centre (NH899061), 23 July 2001, M. Wilcox.
- V.c. 99, Dumbarton, 210 m (NS262896), 18 July 2002, D.M. Hawker, det. M.W.
- V.c. 104, N Ebudes, Canna, near Beinn Tighe, raised mire (NG25060634), 20 June 2001, M.E. Braithwaite; Isle of Skye, with *Carex dioica* (NG5214), 22 May 2002, M. Gregory (**Hb G.A.S.**).

**The following are new records for the proliferous hybrid.**

- V.c. 73, Kirkcudbrights., near Barleas (N of Dalry), with *Parnassia palustris* (NX625845), 2 August 1997, O.M. Stewart (**Hb G.A.S.**); Dugland Hill, 590 m (NS601010), 2 August 2001, D. M. Hawker, det. M.W.
- V.c. 81, Berwicks., Dogden Moss, raised mire (NT689495), 29 June 2002, M.E. Braithwaite and BSBI party; a few plants only.
- V.c. 104, N Ebudes, Isle of Raasay, very wet bog, with *Rhynchospora alba*, *Drosera rotundifolia*, *D. anglica* and *Narthecium ossifragum* (NG6050 and NG5635), 17 June 1996, S.J. Bungard, det. G.A.S.

***Trichophorum cespitosum* subsp. *cespitosum***

Since the publication of Swan (1999), I have found the following herbarium specimen.

- V.c. H17, N.E. Galway, near Tuan, bog, 1 July 1930, C. Pearson (**TCD**).

I am ignorant of the origin of the record shown at the border between v.c. 39 and 40 in the *New Atlas*, p. 703. For the rest, I am happy to say that Michael Braithwaite was responsible for all the records below.

V.c. 81, Berwicks., Dogden Moss, 200 m (NT691492), 25 June 2000, M.E. Braithwaite, det. G.A.S. A raised mire, with subsp. *cespitosum* on the slope, at the very edge of the active area of *Sphagnum* growth, in the hollows with some water-movement (whereas the hybrid was on the tussocks and over the extensive raised mire area). Subsp. *cespitosum* also on the western fringe of the Moss.

M.E. Braithwaite and a BSBI party visited Dogden Moss on 29 June 2002 and reported: '*T. cespitosum* subsp. *cespitosum* — NT690493, 689495 and 677493. Active raised bog. Very locally frequent in a small area with some water-movement on the eastern fringe of the Moss. Also in small quantity only, at the western fringe of the Moss, just in the active moss area but close to a degraded area. Water-movement not so apparent at this western locality.'

One very large plant (fertile) of a backcross with the hybrid, at the edge of the raised mire (NT677494), 1 July 2000, M.E. Braithwaite, det. G.A.S.

V.c. 81, Berwicks., Longmuir Moss, edge of raised mire, 275 m (NT471504), 1 July 2000, M.E. Braithwaite. Scattered over an area about 30 m x 20 m, in a community between raised mire and valley mire with *Sphagnum* spp., *Succisa*, *Narthecium*, *Calluna*, *Erica tetralix*, *Salix phylicifolia*, *Dactylorhiza maculata*, *Eriophorum angustifolium*, *E. vaginatum* and *Cladonia* spp.; also *Sphagnum magellanicum*, *S. russowii*, *Mylia anomala* and *Cephalozia* sp., all identified by D.G. Long.

V.c. 83, Midlothian, Longmuir Moss (NT471504), see above record, over the v.c. boundary.

Michael Braithwaite, as BSBI referee for *Trichophorum*, Michael Wilcox and myself are all willing to help members to determine their collections.

#### Acknowledgements:

Thanks are due to Michael Braithwaite, Arthur Chater and Michael Wilcox, and to other recorders, for their work, which hopefully will help to popularise the 'Cinderella of the Cyperaceae'. I also thank Mrs Margaret Patterson for typing the manuscript.

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## CHENOPODIUM GLAUCUM ON THE ISLE OF WIGHT

*Chenopodium glaucum* (Oak-leaved Goosefoot) is classified as an archaeophyte (a long-established alien) in the British Isles. Pre-1970 it was recorded from 104 10-km squares in Britain and none in Ireland, but in recent years (1987-99) it has been observed in only 36 squares in Britain and two in Ireland. *C. glaucum* appears among the 100 vascular plants that have suffered the greatest decline between 1930-69 and 1987-99 (Preston *et al.* 2002).

It is an annual with habitats described as nutrient-rich waste ground and manure heaps, damp ground near the sea, rubbish tips, and around the docks and wharves. Most records refer to small populations or even single plants. In most instances *C. glaucum* is probably no more than a temporarily established alien.

The *New Atlas* (Preston *et al.* 2002) shows the recent distribution to be mainly around the Thames Estuary and the lower reaches of the Severn. On the Isle of Wight (v.c. 10) in the mid-19<sup>th</sup> century it was recorded as a rare plant of dung heaps and farmyards (Bromfield 1856), but it apparently disappeared until refound in 1976 on Brading Marshes (SZ6387) by R.E. Kettell (Bevis *et al.* 1978) and again in 1983 nearby (SZ6187) by the Isle of Wight Botany Section (Pope *et al.* in press).

During a botanical survey of Brading Marshes, a newly acquired RSPB nature reserve on the east side of the Isle of Wight, the authors came across *C. glaucum* at six scattered sites on the margins of an overgrown ox-bow to the east of the River Yare (SZ6187 & 6287) (see colour section, plates 5 & 6). These sites were about 2 km from Bembridge Harbour, but they lie in low-lying grazing marsh that would have been intertidal a century ago. The habitat was bare or sparsely vegetated clay much trampled by cattle. The sites were damp at the time, but would have been flooded in winter and well into the spring.

There were nearly one thousand plants (many of these small) at one site, several hundred at a second and over one hundred at a third. The other three had 30, 12 and four plants respectively. Associated plants listed below include at least five species with halophytic tendencies (\*).

	Sites (n=5)		
<i>Atriplex prostrata</i>	3	<i>Samolus valerandi</i> *	1
<i>Persicaria hydropiper</i>	1	<i>Plantago major</i>	2
<i>Polygonum aviculare</i> / <i>P. arenastrum</i>	1	<i>Triglochin palustre</i>	1
<i>Rumex crispus</i>	1	<i>T. maritima</i> *	1
<i>Spergularia marina</i> *	1	<i>Juncus inflexus</i>	1
<i>Coronopus squamatus</i>	1	<i>J. gerardii</i> *	1
<i>Trifolium fragiferum</i>	2	<i>Schoenoplectus tabernaemontani</i>	1
<i>Potentilla anserina</i>	2	<i>Agrostis stolonifera</i>	1
<i>Glaux maritima</i> *	1		

In such a habitat one might have expected *Chenopodium rubrum* (Red Goosefoot), a much more widespread annual that is characteristic of bare ground left exposed after late spring flooding has subsided. It was, however, apparently absent. *Bidens cernua* (Nodding Bur-marigold), another annual of such habitat, occurred close by.

*Chenopodium glaucum* was not recorded by Sanderson (1991) in his botanical survey of Brading Marshes in August, 1991. There have also been a series of records (1868, 1999 and 2001) of *C. glaucum* at Thorley, north-west Isle of Wight (SZ36.89 and 37.88) on trampled coastal grassland subject to inundation, habitat similar to that at Brading Marshes (Pope *et al.* in press).

At Brading Marshes, *C. glaucum* was growing among a community of indigenous plants that are associated with damp cattle-poached ground near the coast where there is a slight brackish influence. In the coastal grazing marshes of Essex and Kent, *Chenopodium chenopodioides* (Saltmarsh Goosefoot) (Near threatened), occurs in such habitat along creeks and ditches. Brading Marshes, on private, rather inaccessible land, has until recently probably received little attention from botanists. It is a large site so *C. glaucum* could have been easily missed by Sanderson in his preliminary survey. Should one completely exclude the possibility of this species being a native here and possibly elsewhere on the Isle of Wight?

#### Acknowledgements:

We are very grateful to Colin Pope who kindly supplied details of previous records of *C. glaucum* in the Isle of Wight and commented on this note.

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## MORPHOLOGY, MYTHS AND FARINOSE PRIMROSES

Botanical myths are regarded here as long-accepted 'facts' which seem so obviously true that nobody bothers to check them. This note concerns facts relating to the morphology and phenology of diploid *Primula farinosa* (Bird's-eye Primrose) and its hexaploid congener *P. scotica* (Scottish Primrose).

Since becoming interested in *Primula farinosa* I have come to question various aspects of received knowledge concerning this species. I have commented on lack of precise evidence concerning invertebrate pollen vectors (Hambler 2001), as also has Arnold (1999). I have also noted the apparent acceptance, even by the classical cytogeneticist C.D. Darlington (1956), of an unlikely (on any understanding of meiosis) truly *autopolyploid population* of this species on Götland (Hambler 2003). My observations have been mostly of cultivated material (*P. farinosa* from North Yorkshire seeds, and *P. scotica* derived from seeds provided by the Royal Botanic Gardens, Edinburgh).

Chant (1978) refers to the diagnostic features of the Primulales thus: 'Most species perennate by means of sympodial rhizomes as in *Primula* . . .', and [Wright] Smith & Fletcher (1944) refer to the short fairly stout rhizome of *P. farinosa*, and to the short rootstock of *P. scotica*; the last observation is not challenged by Ritchie (1954). Illustrations of *P. scotica* in Butcher & Strudwick (1946) and in Clapham *et al.* (1960) leave the matter of rhizome or stock in doubt. The morphology of the two species is, in fact, essentially similar. A 'plant' of *P. farinosa* comprises a multilayered rosette. Such a rosette with all dead leaves and roots removed is illustrated (Fig. 1a, p. 41). I have found no suggestion of a fleshy, elongate, non-erect stem which constitutes a rhizome (*vide* Bold *et al.* 1980), nor of a horizontally creeping underground stem which lives over from season to season and which bears roots and leafy shoots (*vide* Heywood *et al.* 1978). Interestingly, there is no suggestion of a rhizome in the illustrations of *P. farinosa* in Clapham *et al.* (1960) whilst in Fitch *et al.* (1946) the (?)shoot base is (nearly) vertical, and the text of the companion volume by Bentham & Hooker (1945) refers to a stock 'tufted as in [*P. veris*]'. The illustration by Makins (1957), although slightly less ambiguous than the last two, shows a vertical undifferentiated mass between the leaf bases of the rosette and a ring of fine roots.

The stem of *P. farinosa*, in all the material I have seen, is very short, (<5 mm) conical/discoid, and entirely sheathed by leaf bases. The root system, except in the seedling, is entirely adventitious, with new strong white roots emerging horizontally through the leaf bases, in summer, and curving downwards. These roots persist until well into the following growing season. One of the two illustrations of this species in Clapham *et al.* (1960) shows a flowering plant with a short stout vertical axis between the lowest foliage and a ring of roots, and the other illustration (of a plant in fruit) shows an additional ring of (?new) roots emergent from the region of living leaf bases (dead foliage was evidently cleared away) this is very close to my own interpretation, both in morphology and its implied phenology. The root system associated with any shoot axis is renewed annually, and from above: there is no 'under side [of a stock] which emits new roots from amongst the remains of the old ones' as suggested in the glossary to Bentham & Hooker's (1945) handbook.

An overwintering plant, of either of these primrose species, exposed, in the field by erosion, or artificially by a water jet, appears to be standing on 'stilt roots', with each member of any small clonal group of plants entirely separate except for the tangled mass of roots. Central to the circle of active white roots (which green-up when exposed) is a mass comprising the previous season's grey, dead tangled roots and the dead lower part of the shoot axis, all now rotting (Figs. 1b, 1d). 'Posterior rotting' is described for plants with *rhizomes* by Bold *et al.* (1980), and, even here, in the absence of any progressively elongating horizontal system, basal rotting occurs in an annual cycle, rendering a rosette independent of any other, and precluding lateral growth. The thick adventitious roots of *P. scotica* tend to be closely packed on its relatively thin shoot axis and, may bear thick adventitious branches of their own close to their origin. Sometimes one such root may become 'dominant' and this may *appear* to justify the designation 'rootstock', but the origin of roots amongst leaves (Fig. 1c) precludes the application of this *horticultural* term (Random House Dictionary . . . !), which does not appear in the literature on plant morphology referred to here. The term 'stock' is defined in the glossary of Bentham & Hooker (1945), but 'rootstock' is confined to a single reference which is worth

quoting to illustrate a degree of confusion: 'The stock . . . is often entirely underground or root-like. This is the rootstock, to which some botanists limit the meaning of the term *rhizome*.'

The overwintering plant, of either species, proves, counter to the literature, to be represented by a bulb: that is, a short vertical subterranean stem covered by fleshy leaf bases (*vide* Bold 1980). In winter the plants occupy the topmost soil horizon (the litter layer), and each species might thus be regarded as a bulb hemicryptophyte. The overwintering clone consists of discrete independent rooted bulbs; these, in turn, may enclose as yet unrooted undetached units. *These* could perhaps be regarded as 'resting buds' ('minute stem[s] with short internodes bearing the *primordia* of vegetative leaves' (*vide* Bold *et al.* 1980)), but in view of their imminent independence, and their homology with summer-formed structures 'bulbil' seems more appropriate.

The outer leaves of the bulbs are indeed fleshy (and densely farinose), and have bases wider than successively younger leaves. As they expand to maturity these, and other, younger, leaves, assume different shapes according to their position on the axis, resulting in a leaf spectrum. No attempt to illustrate this spectrum is presented here, but variation in leaf shape is illustrated for *P. farinosa* in Fig. 2 (p. 41). Silhouettes derived from photographs of a Götland 'form' and a Teesdale specimen by Davies (1953) are also shown. Applications of the concept of leaf spectrum (which might be diagnostic for species or races of farinose primroses) were discussed by Davis & Heywood (1963); without recourse to this concept the variable leaf shape of *P. farinosa* is of doubtful intraspecific significance.

Leaves are initiated continuously through the growing season, with successively larger younger leaves expanding and shading out older leaves which become chlorotic and die. Towards the end of a growing season (March-September) the youngest leaves of a rosette are interrupted in their elongation, and retain their basal adaxial concavity. The resulting bulb is completely hidden among the yellowing and drying older leaves, and eventually these are incorporated in the topmost soil horizon. Within a bulb or rosette, at any time of the year, may be found densely farinose sessile bulbils. Those formed early in the growing season develop expanded leaves, and soon produce their own adventitious roots; by autumn they have become entirely independent units. It is probable that a complex process of abscission (separating the parts and giving protection to newly exposed surfaces (see, for example, Esau 1962)) occurs as the plantlets become independent.

Inflorescence primordia also appear to be formed continuously during the growing season, and some simply rot without developing further as autumn conditions kill the older leaves of a rosette among which they lie. Flowering may be continuous through spring and summer, or in two or three pulses determined perhaps endogenously or through stochastic variation of the microclimate. Bulbils formed towards the end of a growing season 'rest' within the bulbs until the following spring, although the whole 'plant' will reactivate in warmth at any time. This is consistent with the generalisation of Fitter & Hay (1981) concerning 'enforced dormancy' (compare 'innate dormancy') of arctic and alpine plants.

The separation of individuals of a clone (sometimes to *c.* 1 cm centres) cannot be attributed to their origins along a rhizome (defined by Heywood *et al.* (1978) as 'A horizontally creeping underground stem which lives over from season to season (perennates) and which bears roots and leafy shoots.'), but must be a result of mutual pressures exerted by the growing roots of the bulbils (miniature plantlets: *vide* Bold *et al.*).

The life expectancy of any single axis of a clone has not been determined for either primrose, but can be several years. Sometimes an inflorescence may form terminally (Fig. 1b, p. 41) and thus preclude the survival of an apical meristem. What has been evident from my own cultures of the two species from seed, in large pots under identical outdoor conditions in Bradford, is that over the period 1999-2003 the mean number of rosettes per clone has continuously increased for *P. farinosa*, whilst the number had not similarly increased for *P. scotica*: the total rosette number for the 28/30 surviving clones of *P. farinosa* in July 2002 was at least 117 (mean 5.85, range 5-18), whilst for *P. scotica* the, easily countable, total rosette number for the 18/30 surviving clones was 21 (mean 1.17, range 0-5). As the 'staying power' of *P. farinosa* was evidently by far the greater (and might well be indefinite) it is perhaps misleading to describe it (as in the *New Atlas of the British Flora*) as short-lived, whilst its

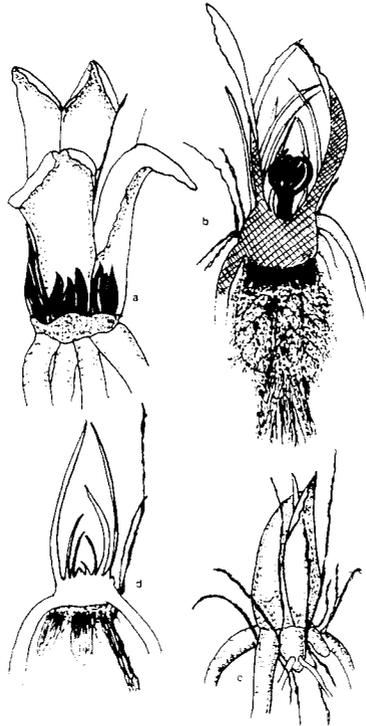


Figure 1. (a) a spring rosette of *Primula farinosa* with all dead foliage stripped away revealing the stem axis and three bulbils (shown black) previously hidden among leaf bases, (b) a January bulb of *P. farinosa* cut vertically showing (in black) a possibly terminal inflorescence primordium, adventitious roots formed during the previous growing season, cut surfaces of living stem and thick leaves (hatched); and, below a presumed abscission line, the rotting remains of older axial stem tissue and roots, (c) a February bulb of *P. scotica* with living adventitious roots among remains of dead leaves (shown black), (d) vertical section of a *P. scotica* bulb showing living parts (white), decaying axial zone and decaying, stunted adventitious roots.

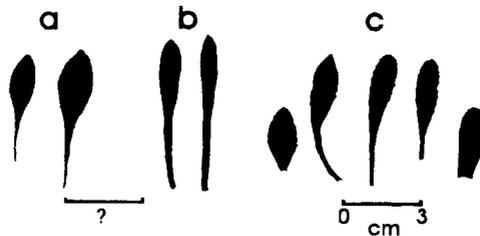


Figure 2. Leaves of *P. farinosa* (a) from a Götland plant, (b) from a Teesdale plant, (c) from Littondale, North Yorkshire plants under cultivation to show a range of shapes, including a relatively broad based 'old' leaf from a bulb expanding into a rosette, (a) and (b) based on photographs by Davies (1953).

less vegetatively-robust, and less persistent congener is designated as an unqualified perennial. Although *P. farinosa* is described by Richards (2002), in the *New Atlas*, as reproducing by seed, there is also an asexual reproductive process which is more than simply vegetative perennation.

Whatever divergences of opinion exist concerning the 'floristic element' to which *P. farinosa* might belong, 'arctic' and 'alpine' are constant terms in discussion of its geography. A characteristic feature of perennials in arctic and alpine regions is, according to Fitter & Hay (1981), the development of large storage organs for carbohydrates below the soil surface: in the absence of a rhizome or a corm, the farinose primroses possess two of the remaining types listed — (a) a bulb and (b) proximally thick (white) roots. They do not produce branches through budding, but can reproduce clonally — a facility much more pronounced in *P. farinosa* than in *P. scotica*.

Myths in biology and natural history persist because fields of endeavour fall out of fashion: there is little encouragement these days for anyone to pursue research in plant taxonomy, plant morphology, plant anatomy or in classical plant cytology, and little time for professional biologists to ponder definitions, or to question long-established 'knowledge'. Perhaps, though, phenology will gain in importance as a monitor for climatic change: the annual responses of the farinose primroses of the UK, with their restricted distributions, and their exogenously determined annual cycles, will be worth watching as indicators of such change.

Not wishing to contribute to plant mythology (more than I might have already!), I should be glad to hear of any additions to, or disagreements with, the above comments on farinose primroses.

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Plate 1 *Geranium purpureum* subsp. *forsteri* on shingle beach, N. Solent NNR, S. Hants.  
Photo © P.F. Yeo, 1993



Plate 2: *Gentianella ciliata* near Wendover. Bucks.

Plate 3: *Gentianella germanica*, Chinnor Hill. Oxon.

Both photos © John Edgington, 2002

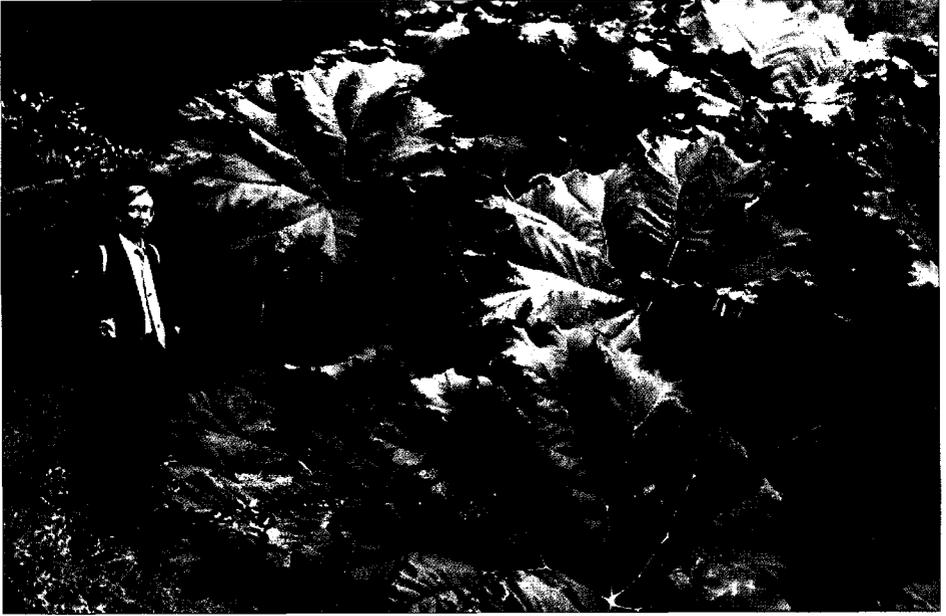


Plate 4: *Gunnera manicata* by lake at Stourhead, Wilts., with E.J. Clement.  
Photo © A. Powling, 2002



Plate 5:

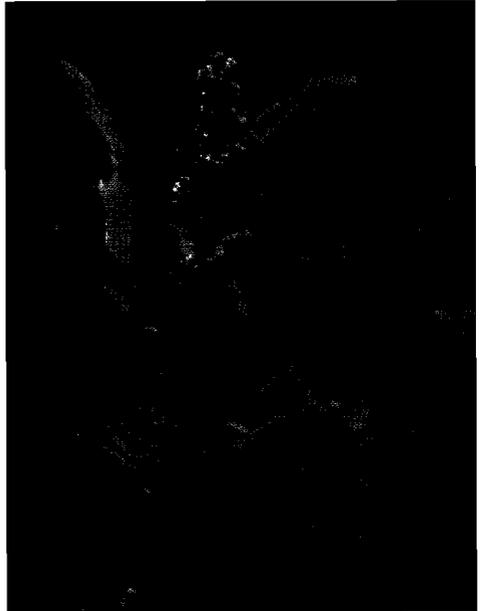


Plate 6:

*Chenopodium glaucum* on Brading Marshes RSPB Reserve, Isle of Wight.  
Both photos © M. Gurney, 2002



Plate 7: *Scandix pecten-veneris* in set-aside wheat stubble, Fitling, S.E. Yorks.  
Photo P.J. Cook © 2002



Plate 8: *Cystopteris diaphana* by R. Camel,  
Polbrock Bridge, Cornwall.  
Photo © M.J. Stribley, 2000



Plate 9: *Cardamine pratensis* flore pleno,  
Liftondown, N. Devon.  
Photo © D.G. Lang, 2002



Plate 10: Giant Hogweed spreading from Crack Willow swamp, R. Rother, south of Chesterfield, Derbys.  
Photo © J. Charter, 2002



Plate 11: A dense 3 m tall stand of Giant Hogweed on R. Rother alluvium.  
Photo © J. Charter, 2002



Plate 12: *Alopecurus borealis* at Green Fell Cumbria.  
Photo © L. Robinson, 2002

## BOTANY IN LITERATURE — 31

The following extract is from George Eliot's *Selected Essays, Poems and Other Writings* (Penguin Classics, p. 271) and is part of a commentary on R.W. Mackay's *The Progress of the Intellect* by Eliot as it first appeared in the *Westminster Review* of January 1851. Obviously written before the advent of molecular systematics (which is, alas, the domain of those using an electron microscope), it brings into sharp focus the subject of plant morphology, the study of which it is gratifying to see in some measure a return to.

... A correct generalisation gives significance to the smallest detail, just as the great inductions of geology demonstrate in every pebble the working of laws by which the earth has become adapted for the habitation of man. In this view, religion and philosophy are not merely conciliated, they are identical; or rather, religion is the crown and consummation of philosophy — the delicate corolla,<sup>1</sup> which can only spread out its petals in all their symmetry and brilliance to the sun,<sup>2</sup> when root and branch exhibit the conditions of a healthy and vigorous life.'

## Notes

1. *corolla*: Of course in this simple plant analogy there can be no reference to polypetalous (choripetalous) (i.e. petals separate; e.g. Cruciferae/Brassicaceae) and sympetalous (gamopetalous) (i.e. petals fused; e.g. Labiatae/Lamiaceae) corollae. In the plant classification systems of the eighteenth and nineteenth centuries the corolla was an important criterion for taxon diagnosis. For example, Adanson (1763) cites (pp. 442, 443, & 447 respectively) after families Papavera (No. 53) and Cisti (54) '1. With flowers in a corolla. 2. With a corolla, and with leaves opposite. 3. With a corolla, and with leaves alternate.' while Jussieu (1789), in categorising 'Plantae dicotyledones monopetalae' has 'corolla hypogyna' (Class 8), 'corolla perigyna' (9), 'corolla epigyna antherae connatae' (10), and 'corolla epigyna antherae distinctae' (11). A.P. de Candolle (1813, 1819), under 'Exogens or Dicotyledons . . .', elaborates on this with 'A. Perianth double . . . a. Corolla polypetalous.  $\alpha$  . . . hypogynous corolla . . . [e.g.] 1. Ranunculaceae [1819, p.243].  $\beta$  . . . perigynous corolla . . . [e.g.] 45. Rosaceae [1819, p. 245]. b. Corolla monopetalous.  $\alpha$ . Corolla perigynous [e.g.] 66. Compositae [1813, p. 216].  $\beta$  . . . calyx and corolla form a single envelope [e.g.] 104. Proteaceae [1813, p. 218]' and in his system of 1819 introduces a taxon called the Corolliflorae (e.g. 90. Jasmineae p. 246). (All translations mine).
2. *spread out its petals in all their symmetry and brilliance to the sun*: And here the sunflower (*Helianthus annuus*, Compositae/Asteraceae) immediately springs to mind, and of which Moore (presumably Thomas (1779-1852), apropos of Bulfinch p. 129) writes:

The heart that has truly loved never forgets,

But as truly loves on to the close;

As the sunflower turns on her god when he sets

The same look that she turned when he rose.

The sunflower was a favourite emblem of constancy and if one pauses to look at the beautiful hand-coloured engraving on a card of a sunflower from *Hortus Eystettensis* (mainly by George Mack, Nuremberg c.1615 10 Tab. 29) in The British Library ([www.museums-direct.com](http://www.museums-direct.com)), one can understand the thinking behind this as we recognise the eye-like, and therefore mind-telling (the eye being the visible part of the brain) appearance of 'Flos Solis maior', the black centre representing the pupil, the disc (i.e. tubular) florets the iris, and the ray florets (polypetalous corolla), the eyelashes.

In Plato's *The Republic* Socrates in dialogue with Glaucon expounds his 'The Simile of the Sun' (Part VII (Book 6) p. 245a) and goes on to say (p. 247b) that 'The sun is not identical with sight, nor with what we call the eye in which sight resides' and that '. . . of all sense-organs the eye is the most sun-like'. So that when Weberling (p. 56) writes of the corolla as the most conspicuous part of a flower, i.e. its 'display equipment', it is again not difficult to draw the aforesaid comparison between a flower (such as the sunflower) and the human eye, which, to return to our extract, can indicate, like a root and branch (or stem), the living of 'a healthy and vigorous life' (or otherwise as

the case may be). And as Eliot writes, a correct generalization does indeed give significance to the smallest detail, to which, in conclusion, may be added no more so than in botany.

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## CONSERVATION NEWS & VIEWS

### CHANGE THE CHANGE INDEX?

#### Background

In the 1970s and early 1980s I attempted to describe changes to the UK flora, and their causes, through a detailed study of the flora of the Sheffield region (Hodgson 1986, 1987). The main conclusions of this study were:

- A drive towards agricultural self-sufficiency in 1939 marked the birth of modern intensive, mechanised agriculture in UK. As a result of this, and to a lesser extent industrial and urban developments, the countryside has been transformed through the wholesale destruction of 'less fertile' habitats associated with older, traditional, less intensive forms of land use, and their replacement by fertile, often highly disturbed habitats.
- As a consequence, plants of fertile habitats tend to be common and increasing. Aliens, a group of predominantly increasing species, are also largely restricted to fertile habitats. By contrast, species of less fertile habitats tend to be rare and, particularly in lowland areas, are vulnerable to extinction: They are becoming increasingly marginalised within the working landscape, and are now often restricted to linear habitats and derelict land. A majority of native species in the Sheffield (and British), flora are plants of less fertile habitats and therefore, not surprisingly, most of them, and particularly those associated with lowland habitats, are declining in abundance.
- The loss of biodiversity from the working countryside will ultimately be much greater than the present distribution patterns of species indicate. This is because land use change has been comparatively recent, and many species (even herbs) are potentially very long-lived. Thus, one would expect many populations of species to continue to be found in habitats which have become unsuitable for their long term survival. For example, Common Meadow-rue (*Thalictrum flavum*) typically occurs with other wetland species in fens, wet meadows and rushy pastures, but in the Sheffield region during the 1970s its commonest associate was Common Couch (*Elytrigia repens*). Since then, most of these Sheffield populations have become extinct.

This interpretation is undoubtedly simplistic but does, I believe, describe the primary determinant of floristic change (see also Firbank *et al.* 2000 and Preston *et al.* 2002, who generated similar results but were more circumspect in their interpretation).

Despite this essentially pessimistic view of how the UK flora is changing, there are some grounds for optimism. Firstly, through recording for the *New Atlas* (Preston, Pearman & Dines 2002) we now realize that many species are less rare than previously thought. Second, financial support for conservation agencies, and government support for conservation in general, has never been higher. The will to do the best for UK's biodiversity is there. It is important, therefore, to ensure that we make the best use we can of the *New Atlas* data as a conservation tool.

### **What is wrong with the Change Index**

The change index was devised by Telfer *et al.*, (2002) as a method of assessing the extent to which a species has increased or decreased. This is not an easy task since it necessitates taking into account differences in recording effort between the original *Atlas* (Perring & Walters 1962) and the *New Atlas* (see Preston *et al.* 2002, p. 36). Despite its elegant construction the change index appears fundamentally flawed for reasons relating to the **scale** of the analysis. Preston *et al.* (2002) admit that the scale at which the analysis is carried out affects the nature of the results, and cite an illustration of this problem from the *Butterfly Atlas* (Asher *et al.* 2001). They then proceed to ignore the problem and produce a method that relates to the 10-km scale, presumably because this was the scale at which the data were collected. However, the only reason that I can see for having a change index is as a tool for conservation; yet, given the reasons already published in Hodgson (1991) and in several papers on butterflies, most notably Thomas and Abery (1995), and restated here, the change index does not adequately fulfil this role. There appears to be a general but inexact relationship between number of 10-km squares occupied by a species and the number of its populations in each square. Thus, dandelion (*Taraxacum* agg.) has many populations in virtually every 10-km square while Lady's-slipper (*Cypripedium calceolus*) exists as a single population in a single square. Species found in an intermediate number of 10-km squares tend to have an intermediate number of populations in each square. Because of this relationship half the dandelion populations could be lost without any appreciable effect on number of squares occupied. By contrast, a similar population loss for a rare species would result in its loss from a large number of squares.

Detailed studies of Hertfordshire butterflies by Thomas and Abery (1995) provide direct evidence of these relationships. In the summary to their paper they state 'Our results and analysis of simulated distributions indicate that: for a few of the very rarest species, declines on grid maps may closely reflect population losses; for species of intermediate rarity, grid maps identify but underestimate population losses; for common species, population losses fail to be detected on grid maps. Per-population extinction rates for butterflies of intermediate rarity, and even for some relatively or very common species, may have been as high as extinction rates for some of the rarest. Because most of the commoner species initially had many populations per grid square, their declines have been underestimated or have not been detected by existing mapping schemes.'

The change index is potentially misleading because it disregards the positive relationship between number of squares and number of populations. Two species may have the same change index but different rates of population change. Equally they may have different values for change index and the same rate of population change.

### **Relationships between abundance and change in the English flora**

On the basis of available evidence, most of which relates to butterflies, we anticipate that for relatively common but declining species most population extinctions will tend only to result in greater rarity **within** 10-km squares (the number of squares thus remaining the same). Only in the case of rare declining species is any appreciable decrease in number of squares expected. But is there evidence of this within the *New Atlas* data?

The *New Atlas* data are difficult to analyse because of, for example, differences in thoroughness of recording during different time periods (see Telfer *et al.* 2002) and because of constraints in the availability of the *New Atlas* data via the CD-ROM. The first difficulty I found in my analysis, however, relates to another problem that is to some extent independent of recording effort. There appears to have been greater taxonomic thoroughness in the recording of the *New Atlas*, presumably because recorders have become more competent, lessons were learnt from preparing the original *Atlas*

and there was good taxonomic backup provided by the *New Atlas* support team and underpinned by a new definitive flora (Stace 1991, 1997) and the *Plant Crib* (Rich 1988). This 'taxonomic' effect is particularly noticeable in 'difficult groups' such as *Potamogeton* and *Carex*. The positive change index associated with many of these species is counterintuitive since wetland systems, and species, have in the past proved particularly vulnerable to land use change. To minimise this taxonomically related problem, I have excluded all grasses, pondweeds, sedges, rushes, ferns and similar 'taxonomically daunting' groups. The analysis has been further simplified by including only English records and excluding both increasing species, which I took to be those with a positive change index, and aliens. As a result most, if not all, the species in my dataset will have relatively stable or declining distributions. Moreover, the species included will tend to have been 'victims' of recent land use change that has had such a major impact upon habitat type and quality (see above). The species analysed therefore belong to the grouping within the flora that is, perhaps, of greatest concern to conservationists. Values for each chosen species were abstracted from the CD-ROM. I have assumed that the total distribution (from all recording periods) in the *New Atlas* (i.e. including all records, regardless of date class) provides our best estimate of the 'complete' English distribution of each species since records began. The percentage of *New Atlas* records that relate to the most recent date class (1987-99) similarly provides our best estimate of 'survivorship' of these declining or stable species until the present day (although some of these may also have been lost since the start of the most recent recording period). [Ideally, I would have also taken into account the fact that plants do move, and that some more recent records may represent 'colonisation' rather than 'survival'. Unfortunately, one weakness of the *New Atlas* data is that we aren't told for a species found, say, in the most recent date-class whether it was also recorded in earlier date-classes.]

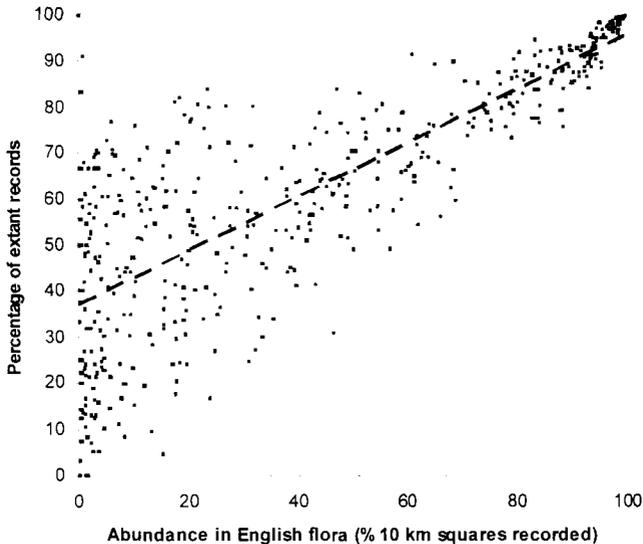
The results shown in Figure 1 (page 47) agree with the predictions above and the findings of Thomas and Abery (1995) and others. Commoner species tend to show less 'decline' and have more stable distributions at the 10-km square level than rarer ones. Interpretation of these data is, however, not straightforward. Our choice of species eliminates the most extreme problems associated with differences in thoroughness of recording over time since our species were identified as declining and field recording has been more intensive in recent years than in earlier decades. Nevertheless, differences may in part be due to a tendency for rarer species to have more exacting habitat requirements and therefore to be genuinely declining at a faster rate. Bibby (1994) emphasises that for N. American birds the degree of ecological specialisation as well as number and size of populations determines the rates of extinction and the same is doubtless true for British plants as well. Therefore, as well as trying to eliminate errors relating to recording effort, a change index needs to assess the extent to which the relationship in Figure 1 is the product of multiple populations in 10-km squares buffering decline at the 10-km square level and to what extent it relates to a greater ecological vulnerability and more rapid extinction rates of rare species. Only then will we produce a tool with predictive value as to future rates of species change — and this is what is needed for the conservation of UK's biodiversity.

I would like to thank Dr Roger Dennis for introducing me to the large relevant literature on butterflies and Dr Ken Thompson and Dr Bryan Wheeler for constructive comments on the manuscript.

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**Figure 1.** The relationship between abundance (all 10-km records) and percentage of recent (post 1987) records for the native English flora.

[Each data point is a species with a negative change index; the best-fitting trend line is also included.]

P.S. While I have criticised the change index, it would be churlish not to mention how much I have enjoyed the rest of the *New Atlas*. The choice of species encourages one to look for species that are now extinct and allows us to study the increase or demise of aliens by including almost the full range from casuals to species that are now very much at home in UK flora. The species accounts are a good read and the CD-ROM generally works well, even for someone like myself with limited computer literacy. Well done — but I still don't like the change index! J.H.

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We are very grateful to John Hodgson for the opportunity to comment on this note. To be blunt, we think that he has misunderstood the purpose of the change index work reported in the *New Atlas*. The change index methodology itself can be applied to surveys at any scale (50-km squares, 10-km squares, tetrads, postal districts, 1-km squares or even smaller units). In the *New Atlas* **our intention was to examine change at the 10-km scale**. This arose because we were producing a new atlas which plotted records in 10-km squares and we thought that many readers would ask the question 'How has the mapped distribution of this species changed since the last Atlas?'

As John says, we point out in the *New Atlas* that the scale at which the analysis is carried out affects the results. John's paper explores some of the reasons for this. But it is quite wrong to say that we 'admit' that this is a problem then proceed to ignore it. We don't perceive it as a problem at all — it is a fact of life, a feature of these sorts of data. Different things happen at different scales and one can learn something about the plants by examining the differences. An analysis at 10-km scale is no more right or wrong than an analysis of plant populations — they are attempting to answer different questions. To say that the former is fundamentally flawed because it doesn't tell you about the latter is nonsense.

We suspect that John has been misled by his view that 'the only reason that I can see for having a change index is a tool for conservation'. Though conservation is important, it is not (for many of us) the only reason for interest in our flora. The most important of the other reasons is perhaps the fact that the plants themselves are of intrinsic interest, and the changing ranges at large as well as small scales are particularly fascinating. Even to conservationists, there's surely something to be gained by considering whether changes affect the large-scale distribution of species. Would the loss of half our dandelion populations really matter? It may, of course, depend on what dandelions they are . . .

C.D. PRESTON, M.G. TELFER & D.A. PEARMAN

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I wish to thank Chris Preston and his colleagues for their comments on my note and can appreciate why they feel that I have misunderstood the purpose of the change index. However, their response seems to me to be somewhat disingenuous. They have already used the change index as if it were a robust analytical tool in *The Changing Flora of The UK*, calculating averages to allow comparisons between different habitats and other species groupings. The *New Atlas* will for many years to come be a classic and authoritative reference work, and rightly so. *The Changing Flora of The UK* will be similarly influential amongst those concerned with planning the future of the countryside. My note was simply intended to provide the missing 'health warning' for the change index: This index needs to be applied with the utmost care and we must ensure that others are not tempted to use it selectively, uncritically and inappropriately to question the conservation value of particular sites or species.

To end on a positive note, I am pleased to see that a 'change index' relating to plant populations or small recording units may not be an impossible dream. Chris Preston and his colleagues have the data to analyse floristic change at a variety of scales. They have limited datasets for recording units smaller than the 10-km square and could also use *New Atlas* data to produce new 'aggregated' datasets for larger units comprising, for example, two, four or eight 10-km squares. Perhaps these could then be used in combination to investigate the effect that the *size* of recording unit has on the nature and severity of observed change. It might even be possible to extrapolate from these findings down to the scale of site or population. An analysis of this sort would surely be of great interest to conservation and planning agencies. Perhaps these agencies could be approached for the relatively small amount of money necessary for such an investigation?

JOHN HODGSON

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## CHANGING FLORA OF THE UK: OVERGROWN ROAD VERGES AND HEDGES

Having witnessed the bruised and lacerated roadsides and hedges near Luton, Stephen Hawkins (*BSBI News* 92: 41) questions the generalisation in Preston *et al.* (2002) that roadsides and hedges have, in general, become more overgrown (Hawkins 2003). Since this statement was based on the results of Countryside Survey (CS) rather than Atlas recording and since I was the individual responsible for the analysis of CS vegetation change between the most recent surveys of 1990 and 1998, allow me to clarify, enlighten and hopefully convince.

The first and most important point to make is that the CS is a sample of British vegetation. It estimates quantities such as change in species richness for the whole of GB but based on a relatively small sample of all possible locations and plant assemblages. Hence change in species richness is coined as a mean with an associated measure of how reliable the mean is for each relevant part of the sampling domain. The level of confidence we can have in the mean is influenced by the number of CS plots that contributed to its computation plus the variability in species richness among those plots. So, estimates of the mean tend to be more reliable the larger the sample and the less variable the population being sampled. In short CS performs better at larger scales. My second point is that CS may well have got it wrong for the verges and hedges that bound Stephen's Luton beat because in any population there is variation about the mean. Therefore the particular verges and hedges that have been identified near Luton would presumably sit relatively far from the mean change. However, an initial comparison of hedges and road verges sampled in 1998 in the 4 CS squares nearest to Luton (Amersham, Hitchin and 2 south of Milton Keynes) does suggest little difference between the locale and the rest of south and eastern England (Fig 1, p. 51).

In fact CS was never designed to yield reliable estimates for relatively small fractions of the GB sampling domain. This does raise another question though. If CS appears to be wrong for Luton then where is the proof that it is right for *non*-Luton? The two main types of analyses that were used to infer movement along a successional gradient, *i.e.* from open weedy assemblages through to closed woodland were a) change in mean Ellenberg light score (Hill *et al.* 1999) and b) movement of plots between the eight aggregate classes of the Countryside Vegetation System (Bunce *et al.* 1999). These results showed that, on average, less fertile species-rich grassland on road verges has tended to be replaced by assemblages of taller, more aggressive grasses and forbs including *Arrhenatherum elatius* (False Oat-grass), *Anthriscus sylvestris* (Cow Parsley), *Galium aparine* (Cleavers), *Aegopodium podagraria* (Ground-elder) and *Urtica dioica* (Common Nettle). This trend was most apparent in England & Wales and was also seen from 1978 through to the 1990 survey and thence up to 1998.

Turning to hedgerows, the GB sample showed less change between the 1978, 1990 and 1998 surveys than other linear features but again there was a perceptible shift in favour of plant species typical of tall grassland at the expense of shorter, infertile grassland assemblages suggesting reduced disturbance and also increased fertility. Analyses of change between the 1984 and 1990 surveys also revealed a significant increase in unmanaged, relict hedgerow; basically lines of shrubs and trees that have been unmanaged for long enough to assume their more natural growth forms (Barr *et al.* 1993). I am interested in an, as yet untested, hypothesis that links the tendency for increased tall grassland in CS hedge plots with changes in management. Lack of maintenance of hedges as stockproof boundaries could reflect the ease with which their sides can be fenced off rather than the hedge laid. Installation of new fencing would then trigger biomass accumulation in the newly undisturbed strip between fence and hedge. This would place at additional risk any short grassland species previously confined to the narrow refuge between shaded hedge bottom and intensively managed field.

Moving away from plant ecology, can I lastly return to an interesting philosophical issue raised by this exchange. There is a difference in the ease with which our species naturally believe our own eyes when beholding an annually trashed portion of road verge versus the difficulty in visualising mean change for England or Scotland, plus or minus a confidence interval. The philosopher Philip O'Hear has said that humans are only equipped to perceive 'medium-sized, dry goods', meaning we are biologically limited in the scales our senses can access. Because of this we find the local and visible

easier to value while comprehension of larger-scale phenomena must sometimes be done second-hand, filtered through abstract messengers such as means and their confidence intervals. Thus, the vision that the eye beholds is naturally trustworthy while statistics are dispassionate (a clear advantage in my view) but suspect. Since it is impossible to record fine-grained changes in plant species composition in every possible location, you need to sample and therefore must resort to slippery customers such as means and their measures of uncertainty. It is only to be expected that such estimates may not apply particularly well to some locations.

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## RUDDY DUCK CONTROL PLAN - CHARITY SHOULD BEGIN AT HOME

The White-headed Duck (*Oxyura leucocephala*) is a globally threatened species with only 2,700 in Western Europe, and no more than 10,000 globally. Cross-breeding with non-native North American Ruddy Duck (*O. jamaicensis*) migrating from the UK is supposed to be a major threat to the long-term survival of the White-headed Duck in Spain. Reducing the UK Ruddy Duck population from an estimated 6,000 to fewer than 175 individuals will take between four and six years and is likely to cost up to £5.4 million. A regional Ruddy Duck Control Trial has been undertaken as part of the UK Government's commitment to the European White-headed Duck Action Plan. It tested control methods in various habitats, investigated the feasibility of a national eradication programme, and concluded that shooting is the most effective means of control.<sup>1</sup> How the figure of £900 to shoot each duck was derived and why they want to leave a residual population of 175 are aspects beyond my comprehension.

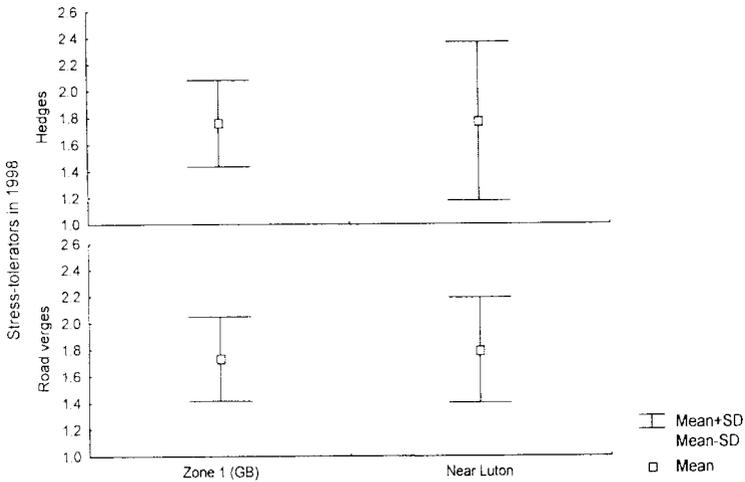
I wonder why the UK taxpayer is so readily expected to pay for action to conserve and protect a threatened species abroad when we have so many species heading towards extinction here at home. As the Equine Welfare (Ragwort Control) Bill (B13) goes to its second reading in the House of Commons (21 March 2003), a Bill that threatens to introduce legislation to control native species<sup>2</sup> at the expense of the community charge payer, I wonder just how much (or little) money is filtering down to the sharp end of botanical conservation here at home? How many readers involved in Local Biodiversity Action Plans six to ten years ago have seen any usefully applied expenditure? Has anyone seen any money spent on effecting Species Action Plans or the control of Japanese Knotweed, Rhododendron and Indian or Himalayan Balsam, etc.? A sum of £5.4 million handed directly into the hands of conservation organisations could produce a dramatic reversal of decline.

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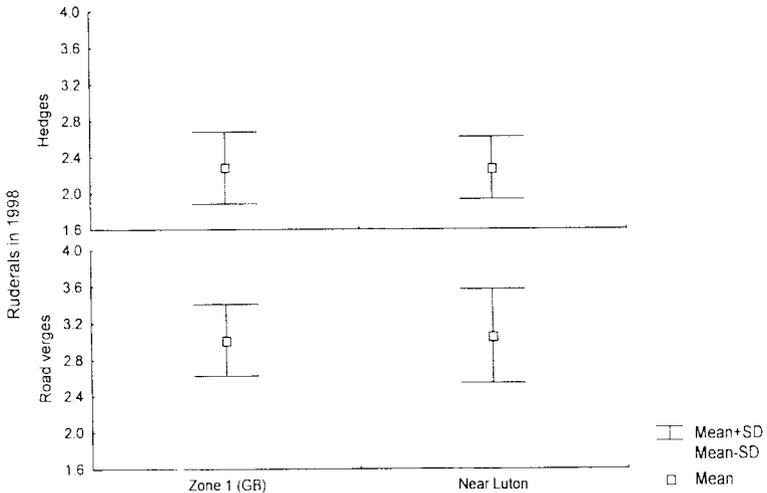
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Figure 1. A comparison of two botanical indicators between 8 Hedge plots and 20 Road verge plots in 4 × 1-km Countryside Survey squares near to Luton versus 227 Hedge plots and 591 Road verge plots in 123 × 1-km squares in the rest of East and South Eastern England. Data are taken from the 1998 survey and refer to a) The proportion of species in each plot that exhibit stress-tolerant traits, *i.e.* slow-growing species typical of infertile but relatively less-disturbed conditions, b) The proportion of species in each plot that exhibit ruderal traits, *i.e.* species able to tolerate frequent disturbance often by rapid completion of their life-cycle and investment of a large proportion of resources into seed production (Grime 1979). Means plus and minus Standard Deviations are shown since this reflects the variation about the mean but is not influenced by the large differences in sample size between regions.

a)



b)



# ALIENS

## WHAT IS *GUNNERA MANICATA*? – AND WHENCE?

The large and majestic plants of *Gunnera* (Giant-rhubarbs) that decorate the edges of lakes and streams in large gardens (and outside them) in Britain are known to almost everyone, but naming them to species level is certainly not as easy as the books suggest. A closer look at the literature soon reveals an abundance of conflicting facts. This article attempts to clear some of the mists of misconceptions.

Two species are featured in Stace's *New Flora* (1997: 439). The first, *G. tinctoria* (Molina) Mirb. (Giant-rhubarb), based on *Panke tinctoria* Molina, from southern Chile and Argentina presents no serious nomenclatural problems, although some authors still use the later synonym of *G. chilensis* Lam. The second, *G. manicata* Linden ex André (Brazilian Giant-rhubarb), presents a severe problem, and it soon emerges that 135 years after its first usage, the name is still applied to (at least) three distinct species (or taxa) from different parts of S. America, as detailed below.

**Taxon 1.** The name *G. manicata* was first published (invalidly) in *La Belgique Horticole* 17: 104 (1867) when seeds were offered for sale claiming to have originated from the cold icy regions of the foothills of Campos de Lages in **S. Brazil** collected by [Joseph] Libon (the habitat sounds very wrong to me!). It is a *nomen nudum*, since only one inadequate descriptive phrase appears, saying that each leaf acquires 5 m in circumference.

**Taxon 2.** Not until six years later did E. André, in *L'illustration Horticole* 20: 156-157 (1873), admit that this plant lacked a description, but he then proceeded to state that it was introduced by M.J. Linden from la Nouvelle-Grenade (= **Columbia**, of today) and validly describes a ?different (smaller) plant! — viz. one with petioles 1.6 m and more, with the leaf blades peltate, pedately lobed, of 1 m and more in diameter with fine white, transparent nerves, the lower face covered with soft rose-coloured filaments. (Translation from French by EJC). The huge panicles were 'longtemps passée', and so the flowers and fruits were not described.

**Taxon 3.** Numerous books describe, usually somewhat inadequately, the plant long grown in gardens in **England** and **Ireland**. Especially helpful is *The Garden* 16(11): 412-414 (1879) which includes a fine plate showing the leaf, inflorescence and single spike of *G. manicata* (and of *G. scabra*, too). Conveniently, it is reproduced in *BioScience* 41(4): 226 (1991). It is this taxon that Stace *l.c.* describes, with the exception of omitting 'leaves pedately lobed.' The leaves can appear almost 'peltate' as they first unfurl, but no mature *Gunnera* leaf in Britain ever has the leaf stalk originating away from the leaf margin as does *Hydrocotyle vulgaris* (Marsh Pennywort) *et al.*

Plant seeds and labels in botanical gardens obviously get mixed up sometimes, and hybrids can replace the parent(s) over time. Confirmation from native localities is required: here a startling story emerges when we look at the S. American countries and their respective plants.

**S. Brazil.** The plant from the region of Campos de Lages is described in *Kew Bull. Misc. Inf.* 1919: 376-378 (1919) and in *Flora Illustrada Catarinense. Guneráceas* (1976). The description is very unlike **Taxon 3.** and it grows amongst (sub)tropical species.

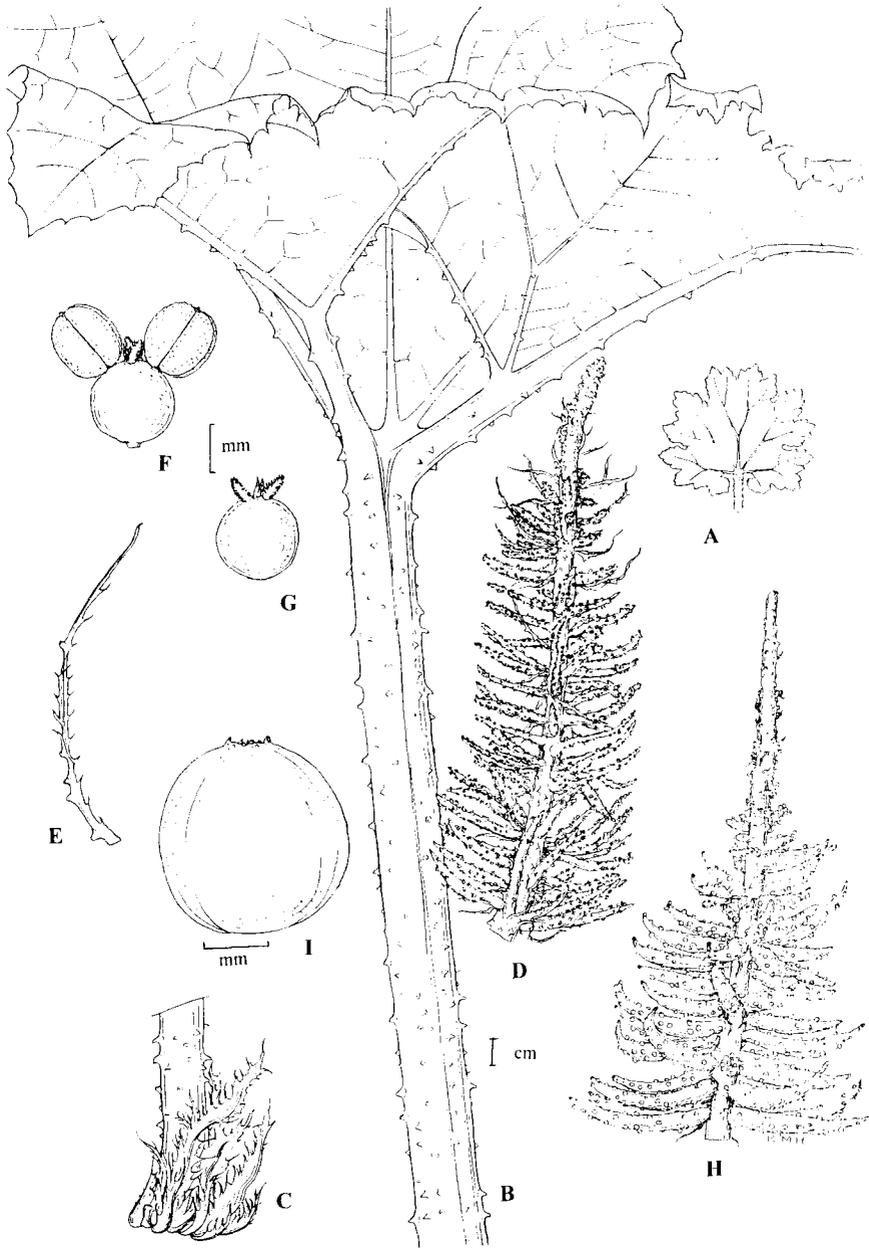
**Columbia.** A host of species occur, but *none* are shared with Brazil. *Flora de Colombia* 3: 1-178 (1984) contains nothing matching **Taxon 3**, but the author, Luis E. Mora-Osejo, proposes (p. 133) that **Taxon 2** might be a hybrid of *G. brephogea* Linden ex André with a previously nameless Colombian species that he typifies as being the true (pure) *G. manicata*!

A wider search of S. American countries for a match with **Taxon 3** is clearly necessary: I discovered five candidates, which I now list:

***G. scabra*** Ruiz & Pavon is described from Chile and Peru (thereby presumably uniting two different species!). The type description clearly lists *Panke tinctoria* Molina as a synonym, a binomial name that has priority, and hence *G. scabra* is a superfluous *nom. illeg.* and should not be used for any plant.

***G. apiculata*** Schindl., from NW Argentina and Bolivia, is similar, but much too small in stature. There is an excellent account, including a page-size plate, by Prof. L.J. Novara in *Aportes Botánicos de Salta — ser. Flora*, 2(25): 1-6 (1994), wherein it is inexplicably referred to, throughout, as '*G. acuminata* Schindl.', a name that does not exist!

## 82. GUNNERACEAE



***Gunnera manicata*** auct., non Linden ex André (Brazilian Giant-rhubarb). A outline of leaf; B central part of leaf; C base of leaf surrounded by scale-leaves; D distal part of inflorescence; E scale-leaf from scape; F bisexual flower; G female flower; H part of fruiting panicle; I drupe. (Caledonia Nursery, Guernsey). STACE 519/439.

*G. berteroi* Phil. (*G. laxiflora* Phil.), from C. Chile, is a near match, spoilt mainly by the leaf teeth described as being usually enlarged into a glandular point. This species is in cultivation (Oct. 2002), unlabelled, at Hillier's Gardens and Arboretum (Ampfield, S. Hants), sited at the top of the valley leading SW from the Pond, but seems to be absent from gardening literature. A (Spanish) description appears in Reiche's *Flora de Chile* 2: 271-274 (1898); R.M. Burton has kindly translated it for us here: 'Petiole and nerves of lower surface [of leaf blade] almost without pointed warts. Hairs soft and ± dense on both sides, not rough. Marginal teeth sometimes lengthened into a glandular point. Otherwise as in *G. chilensis*. . . . From repeated observations, it must be observed that there exist transitions between this species and *G. chilensis*.'

*G. chilensis* var. *meyeri* L.E. Mora (to be corrected from 'meyerii') and var. *valdiviensis* L.E. Mora are both described as new taxa from Argentina and Chile / Chile only, respectively, in *Mutisia* 45(9): 9-11 (1978). The latter is certainly very close and is described as the plant of maximum size [in the genus?], with the lamina up to 3 m broad (thus keying out to *G. manicata* in Stace's *New Flora*), but the inflorescence branches are listed as being of only 1.5-3-4.5 cm [sic] long. *Darwiniana* 21: 481 (1978) similarly gives a **huge** height for *G. tinctoria*, up to '3.5 m de altura'.

My provisional conclusion is that the British plant (**Taxon 3**) is probably best included within a very variable *G. tinctoria* concept; probably also to include *G. berteroi*, although the latest checklist for Chile, in *Gayana Bot.* 42(1-2): 48 (1985), upholds its separation. This broad viewpoint appears to be supported by the observations of others that I now quote.

Allen J. Coombes tells me that a plant (accession no. 92-0527) acquired by Hillier's Garden & Arboretum from Edinburgh Botanic Garden, as '1992. 1565. *G. tinctoria*, collected by M.F. Gardner and C.N. Page at Los Lagos, prov. Valdivia, region x, Chile' changed over several years from a plant acceptable as *G. tinctoria* into one matching *G. manicata* auct. Ang. Time and edaphic conditions have transformed it!

George Hounscome, in *Newsletter London Natural History Society* 174: 8 (2002), writes: 'Two clumps of a *Gunnera* with cordate leaves and bendy green spines, *G. tinctoria* according to Stace, are naturalised on the riverbank in Ware [Herts]. In Tresco Abbey Gardens [Scilly Isles] and in the Winkworth Arboretum [Surrey], whose authority I would not dream of questioning, plants that appear identical to this one are labelled as *G. manicata*, which should have peltate leaves and reddish spines.'

Finally, both British 'species' were drawn, from material carefully selected by David McClintock, for his (unpublished) illustrated alien plant flora. They appear, to me, to be remarkably similar: the 1979 drawing by Kathleen Hollick of *G. manicata* is reproduced here (p. 53). Furthermore, Dr A.H. Powling has generously provided photographs (see colour section, plate 4 & photos p. 55) of *G. manicata* as it grows by the lake at the National Trust property of Stourhead (near Mere, Wilts.). The scale bar is a reticent EJC, full-grown at 1.67 m on 21<sup>st</sup> Sept. 2002.

The above part of this ramble was drafted before Dr Livia Wanntorp (Stockholm, Sweden) very kindly sent to me no less than three papers that she had authored, with Swedish colleagues, on the genus *Gunnera*, which make fascinating but very technical reading, being mostly about molecular phylogenetic analyses. They appeared in *Plant Syst. Evol.* 226: 85-107 (2001); *Taxon* 51(3): 493-497 (2002); and *Systematic Botany* 27(3): 512-521 (2002).

The *Taxon* paper is entitled 'The identity of *Gunnera manicata* Linden ex André — resolving a Brazilian-Colombian enigma'. It explains, in much more detail, the historical and nomenclatural facts that I have outlined above. One accession, *cult.*, L. & H.-E. Wanntorp 560, grown in a greenhouse, was analysed, and 'the new results corroborate the Brazilian origin for the cultivated *G. manicata* and firmly reject a Colombian provenance' (p. 493). Most unhelpful (for me!) was the lack of a morphological description or an illustration — the fine colour photographs of a *Gunnera* on the front cover, next to the caption 'The identity of *Gunnera manicata*' are, amazingly, *not* of this species; when one reads the inside of the *back* cover one learns that the illustration shows a 'Costa Rican relative, *G. insignis*' (that is ?not grown in gardens)! This result, alas, conflicts with my own conclusions given above: clearly, within Europe, *G. manicata* Hort. represents more than one species. More worrying, Dr Wanntorp *et al.* reject the earlier (1984) neotypification by Mora-Osejo that selected a Colombian plant as the 'true' *G. manicata*, and they select a NEW neotype (wrongly called, therein, a lectotype: this correction, by Kanchi Gandhi, appears in *Taxon* 51(4): 845 (2002)), choosing a representative of

my **Taxon 3** (and very conveniently for London botanists!): U.K., Sir G. Macleay's Garden, 11 June 1886, collector unknown (**K**), as 'being the oldest comparatively well-preserved specimen from cultivation.' I suspect that better candidates might exist in 'Herb. München [and] Petersburg', as quoted from Schindler's monograph in *Das Pflanzenreich IV. 225, Halorrhagaceae*, pp. 122-123 (1905), wherein *G. manicata* was described in great detail (in Latin).

Until all botanists unite and agree on *one* name-fixing neotype specimen, the meaning of the name *G. manicata* remains unresolved. No wonder that taxonomic nomenclature has such a terrible image in the field of 'science'!

Any reader upset by *Gunnera* taxonomy can digest the problem (literally). The stems of *G. tinctoria* can be pared and the sharp (and purgative) flesh enjoyed, as is well-known in Chile.

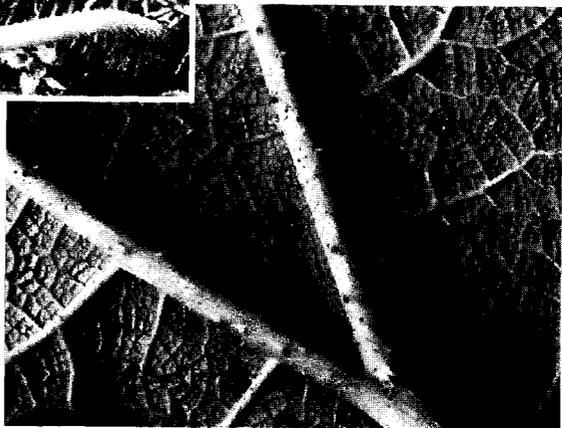
For the pub-quiz enthusiast I now pamper: surprisingly, *Gunnera* is unique among all angiosperms in exhibiting endocellular symbiosis: the rhizomes harbour glands that contain the blue-green algal genus *Nostoc* (Cyanophyceae) that assists in nitrogen fixation. The fern *Azolla*, as well as cycads and lichens, share this feature. Recent DNA work is now indicating, not surprisingly, that this genus, unique in its own family, is clearly related to none other, and is of an ancient, basal origin.

I am preparing another article on this plant. Meanwhile I must sincerely thank R.M. Burton, A.J. Coombes, G. Hanson, M. Grant (RHS, Wisley), Dr B. Osborne, Dr A.H. Powling, Dr T. Rich, I. Thirlwell and Dr L. Wanntorp for invaluable assistance in conveying information and references to me over the past two years.

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*Gunnera* shoot apex



*Gunnera* leaf underside

## ZIZANIA AQUATICA IN BRITAIN

Further to recent articles in *BSBI News*, reporting *Zizania latifolia* (Manchurian Wild Rice), mention was also made in *BSBI News* **84** (pp. 40, 41) of the closely allied species *Zizania aquatica*.

Surprisingly, this annual species of Wild Rice, also known as Tuscarora grain, was introduced to England over 200 years ago. *Zizania aquatica* is a native of North America and C. Johnson in *The Grasses of Great Britain* (1861) says that the Native Americans collect the seeds to use as corn. Johnson also says that Sir Joseph Banks introduced *Z. aquatica* into England in 1793. Apparently, experiments were made on its cultivation in Middlesex, Rossshire and other places, to see if it would prove useful as a crop. It grew and ripened its seeds freely on the borders of rivers, brooks and ponds, but no economic result ensued.

J.M.J. de Wet in *Grass Evolution and Domestication* (G.P. Chapman (ed.) 1992) mentions that the Swedish naturalist Peter Kalm collected seeds of *Z. aquatica* in America in 1748. These seeds were brought to Europe but the introduction failed. However, he sent seeds in a bottle of water to the Royal Botanic Gardens at Kew and these germinated well. They were successfully introduced into ponds on several English country estates.

It would be interesting to know how long these introductions survived, and indeed whether any plants of *Z. aquatica* could be hiding amongst the established stands of *Z. latifolia*!

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## HOW IS CHENOPODIUM QUINOA FARING?

The Andean *Chenopodium quinoa* Willd. (Quinoa) is very briefly mentioned in Stace's *New Flora of the British Isles* (1997, p. 136); in the last decade it has been grown sparingly in Britain as a field crop normally destined as food for pheasants rather than peasants. But it is an ancient grain crop, very high in protein that has a better balanced amino acid composition than the major cereals, with many varieties developed over the centuries. It is a cultigen unknown as a wild plant. Mike Mullin offered it (cooked) to BSBI members for tasting back in 1989 — see *BSBI News* **54**: 52 (1990). Sue Phillips describes it as of 'rather a pleasant crunchy-nutty taste and texture' in *The Garden* **117(11)**: 507-511 (1992), where she also provides a fine coloured photograph of the growing plant. [It is still eaten frequently in the Wolstenholme household. LW]

I have heard of a trickle of records since this date, but almost all have been of sown crops (or relics thereof). It has not become a casual weed, as was predicted by some sources. I will list just a few recent ones (in date order):

- Suffolk:** in sunflower fields at Henstead, Hulver and Wreatham, Aug.-Sept. 1998. T.R. Abrehart.
- Glos:** headland of field, near Wotton-under-Edge, Nov. 1999. **Comm.** M.J. Trotman.
- N. Hants:** see *BSBI News* **87**: 58 (2001).
- S. Hants:** Allington Lane, West End, 2000. P.J. Selby.
- Wight:** Dunsbury, near Brook, Aug. 2000. P. Stanley.
- Surrey:** Langley Vale, 2002. J.B.S. Hodge & J.E. Smith. With 'weeds' of *Echium plantagineum* and *Phacelia tanacetifolia*. See *Surrey Flora Committee Newsletter*, n.s. **2**: 25 & 26 (2003).  
The first v.c. 17 record was from Shamley Green in 1990, K. Page *et al.*

Good line drawings of Quinoa (correctly pronounced as 'Keen-wa', and with an accent over the 'i'), the 'Mother-grain of the Incas', are not easy to find — hence the great value of our cover drawing by Graham Easy. Grown in his own garden, it shows the plant in all of the stages from cotyledon age up to mature fruits. The leaves were remarkably variable (hence the six samples shown!), but the large seeds (2 mm diam.) with a flattened or depressed equatorial band, cream (to gold/pink/violet) in colour, are very unlike the smaller black seeds of *Chenopodium album* (Fat-hen). The fruiting clusters are typically much more congested than the plant drawn: it is an uninspiring plant, looking very much like a hefty fat-hen or some *Amaranthus* species.

I read that *C. quinoa* is a gynomonocious annual — *i.e.* on one plant there are both female and bisexual flowers, the latter mostly occurring at the cyme apices. Neither Stella Ross-Craig (nor I) have observed this feature in *C. album*.

There is a huge amount of information about Quinoa to be found in journals, such as *Economic Botany*, or on the world wide web. From c.1982 onwards NIAB (Cambridge, UK) gallantly attempted to develop and promote this fine 'pseudocereal' (as it has been dubbed), but the research has apparently now ceased. Only the game birds have benefited?

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### **HEDERA HELIX subsp. POETARUM NYMAN (YELLOW-BERRIED IVY) (f. POETARUM (NYMAN) McALLISTER & A. RUTHERF.)**

*Hedera helix* subsp. *poetarum* (**Herb. KWP**) has been found growing on a Silver Birch (*Betula pendula*) to a height of 6 m (19 ft). It was also forming ground cover around the base of the tree. Although recorded in the spring of 2001 its orange/yellow berries were still persisting [in late 2002]. The site was light woodland in the vicinity of houses on Littleworth Common, Esher, Surrey. Treated as a *forma* by Rutherford, McAllister & Mill (1993) this taxon is a plant of central and eastern Mediterranean; north Africa and south-west Asia. In Italy and Greece it is well naturalised. Compared with subspecies *helix* its leaves are less deeply lobed and of a brighter green. This ivy has a long history dating back to Pliny and those interested in this aspect should refer to Rose (1996).

Stace (1991) included this taxon in 'other spp.' and gave it its own entry (but not as a lettered subspecies) in his 2<sup>nd</sup> edition; in May 2000 it was spotted by Mark Kitchen in County Down (Hill 2000) growing in a roadside hedge with orange berries still persisting from the previous season.

Other records (specimens in Cambridge Herbarium) are from Peter D. Sell and C.M. Parnell, 12 April 1980, on an old wall by a road, Stow-on-the-Wold, E. Gloucestershire (v.c. 33) at SP193259; and P.D. Sell and J.G. Murrell, 12 March 1992, along the same wall at SP182259.

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### **LUDWIGIA GRANDIFLORA — A VIEW FROM ACROSS THE CHANNEL**

Readers of Eric Clement's note on *Ludwigia grandiflora* (Michx.) W.Greuter & Burdet in S. Hants (Clement 2001) may be interested in the recently published paper '*Pour contrôler la prolifération des jussies (Ludwigia spp.) dans les zones humides méditerranéennes*' (AME 2002). While written with the Mediterranean wetlands as its main area of concern, it provides a good review of Water-primrose biology, history and control in France overall, and includes a bibliography for the numerous papers which attest to the serious pest status of these plants in mainland Europe. I hope the following digest of some points from this long treatise, likely to be relevant to the British situation (with a few comments of my own thrown in), will be of value.

The authors consider that two species, *Ludwigia grandiflora* and *L. peploides* (Kunth) Raven, are of pest status in France; they distinguish them on flower size and on the leaf shape, leaf hairs and petiole length of emergent-stem leaves. One or perhaps both species have been naturalised since 1830;

they were not distinguished in early records. Up to about 1950 they were largely confined to an area centred on Provence and Languedoc-Roussillon. Between 1950 and 1970 they spread westwards to the Atlantic coast as far north as Charente; since 1970 they have extended their range to almost all regions of France. They are also present in Belgium and the Netherlands.

In the Mediterranean zone, *L. peploides* attains its greatest annual growth extent in June, contrasted with August for *L. grandiflora*. Interestingly *L. grandiflora* is said to set seed in the Atlantic regions but not in the Mediterranean areas, while *L. peploides* fruits in both. Eric Clement (*pers. comm.*) suggests that the Mediterranean populations of '*L. grandiflora*' will prove to be hybrids. However in all areas node-bearing stem fragments are the main mode of dispersion. Although this accounts for spread through a natural or artificial drainage system, human agency is believed to be responsible for introductions to new areas.

The species appear to be indifferent to underlying geology, water pH and mineral content, and can tolerate shade when other conditions are favourable. *L. peploides* (at least) benefits from elevated nitrogen levels and is only checked at levels of 140mg/litre. Despite their subtropical origin, Water-primrose rhizomes and decumbent submerged stems appear to survive frost well. (This is no doubt borne out by the spread to eastern France and farther north.)

The ecological impacts are those one would expect of a rampant and blanketing water-weed: reduction of sub-surface water temperature in the warm seasons; reduction of water pH and dissolved oxygen; litter accumulation with loss of open water; suppression of less competitive plants (including rare and characteristic natives), and of their dependent fauna — though some dragonfly species seem able to thrive.

A range of control measures is discussed, but it is emphasised that there is no simple or universal solution. Readers who have had to deal with *Crassula helmsii* (New Zealand Pigmyweed) or other invasive aquatics will experience a gloomy sense of *déjà vu* as they read of the difficulties or limitations of many of the methods. Some are in any case inapplicable to the British Isles: for instance, reverting to the traditional Camargue practice of allowing wetlands to dry out and bake in the sun for a period of 6-12 weeks(!) The authors mention biological control, but state that laboratory trials with homeland invertebrates are not promising so far. This is in sharp contrast to the statement of the (UK) Centre for Aquatic Plant Management (IACR 2001) that 'the only effective method of control is biological control using insects . . .'

As might be expected, early intervention has more chance of success and is likely to be less costly than late, but the authors warn against underestimating the costs of the first moves towards control. Some sites have opted for restraint of the plants, considering eradication to be infeasible. The authors express the conventional hopes for the value of public education, but would like to see an eventual ban on sale of the relevant species; at present Britain, like France, has no ban.

Anyone reading this paper will find nothing in it to reassure them that 'it couldn't happen here', and much to suggest that control will be just as problematic if it does. One can also speculate that there are more contenders than the two species discussed. The '*Global Compendium of Weeds*' (Randall 2002) lists nearly 30 weed species of *Ludwigia* world-wide, several being of the showy 'Water-primrose' type. The US Department of Agriculture (USDA 2002) adds *L. decurrens* Walt. to the two already mentioned in its roll-call of noxious weeds in temperate states. While American botanists consider *L. grandiflora*, *L. uruguayensis* (Camb.) Hara and *L. hexapetala* (Hook. & Arn.) Zardini, Gu & Raven to be synonyms and *L. peruviana* (L.) Hara to be distinct, some Australian botanists seem to lump *L. peruviana* and *L. grandiflora* together and distinguish them from *L. uruguayensis* / *L. hexapetala*. Be that as it may, the authorities in New South Wales blazon '*Ludwigia peruviana*' as one of 'Australia's Twenty Worst Weeds — Wanted Dead' (NSW 2000).

*Ludwigia grandiflora* is currently on sale in this country, sometimes under the generic name *Jussiaea*, as an ornamental pond marginal; indeed, it has an entry in the *RHS Plant Finder* which also lists '*L. uruguayensis*' as a separate plant. I have not been able to find any other of the 'prime suspects' for sale. Aquarists' suppliers offer several other Ludwigias (in this case, as '*Ludwigia*') as submerged foliage plants for tanks, under at least 7 names. Of these, the North American *L. arcuata*

and its hybrids may deserve conservationists' attention. A useful key to all *Ludwigia* species so far recorded in the wild in Europe is found in Clement (2000).

I am indebted to Eric Clement for his comments on this article.

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## CRASSULA MULTICAVA IN THE BRITISH ISLES

In *BSBI News* **92**, there was a discussion of *Crassula multicava*, accompanied by a nice drawing of a specimen on the front cover. Eric Clement, the author of the article, was puzzled that the *Flora of New Zealand* **4**: 573 mentions the flowers as 5-merous, while other sources give it as 4-merous. This confusion is easily resolved. H.R. Toelken, in *Flora of Southern Africa* Vol. **14**, explains that there are two subspecies of *C. multicava*. The first is subsp. *multicava*, with flowers 'mainly 4-merous', whereas subsp. *floribunda* has flowers 'mainly 5-merous'. It would therefore seem that the plants which have become naturalised in New Zealand are the latter, while we can go further and say that the escaped plants in the UK are subsp. *multicava*.

Incidentally, two other superficially similar species which are widely grown in succulent plant collections in the UK are *C. ovata* (also known as *C. portulacea* and *C. argentea*, and as the Jade Plant and the Money Plant), which (normally) has shiny green leaves, and *C. arborescens*, with grey to whitish leaves. *C. multicava* seems to be less popular as a greenhouse or house plant than these other two. *C. multicava* can readily be distinguished from them by its dull (not shiny) green leaves which have a distinct petiole. It would be interesting to know if either of these other species have also escaped in some warm part of the British Isles.

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## CRASSULA MULTICAVA IN A GUERNSEY GARDEN

I was interested in Eric Clement's note on this South African species, which has been recorded outside the Abbey Gardens, Tresco (*BSBI News* **92**: 46).

I collected a small fragment of this plant by the roadside on the north coast of Madeira in 1996. It has flourished in our Guernsey garden ever since, in fact it has become something of a weed. It flowers intermittently from April to June, but does not appear to set seed.

It spreads vegetatively, partly by creeping and rooting at the nodes, but more effectively by propagules which break off from the inflorescence. These are green, obovate, leaf-like bodies, concave beneath, between 5 mm and 10 mm long. I am not sure of their correct morphological

description, but they look to me like bracts. They soon give rise to a carpet of the plant, which seems equally happy in sun or shade.

This method of reproduction is effective over short distances, but does not seem to result in wide dispersal. The plant has not yet been seen outside the garden, nor, as far as I know, anywhere in the wild in the Channel Islands.

NIGEL JEE, La Houquette, Castel, Guernsey GY5 7JP

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### WHICH SOLIDAGO?

I notice that the *New Atlas* follows Stace in suggesting that *Solidago canadensis* (Canadian Goldenrod) is commoner in England than *S. gigantea* (Early Goldenrod). This seems doubtful to me.

My experience of urban botanising in Norfolk over the last 10 years, and recently in Cambridgeshire, is that *S. gigantea* is the prevalent species, and I have been interested to see that from far-off Dorset Bowen, in his *Flora* of that county (2000) agrees that *S. gigantea* is the commoner of the two there. What do botanists in other areas think?

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### GIANT HOGWEED — AN 'INVISIBLE' ALIEN WEED IN CHESTERFIELD AND N.E. DERBYSHIRE

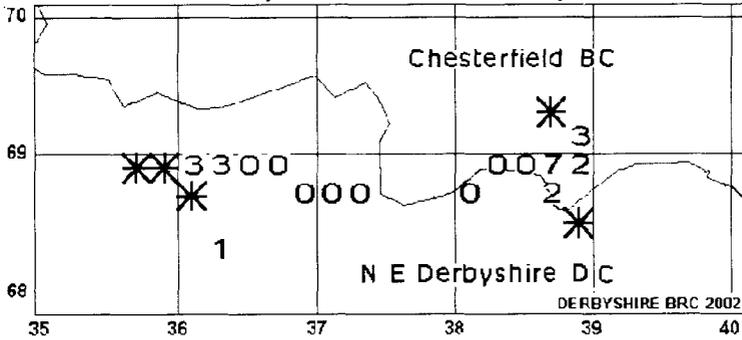
Following belated news in July 2002 of the Department of the Environment's 2001 Review of Policy on Invasive Non-Native Species, a rapid reconnaissance of Chesterfield's watercourses was carried out in September 2002. A video camera loaned from Sheffield University was employed for the first time for record purposes. This updated earlier hand-written recording and photography of riparian Japanese Knotweed (*Fallopia japonica*) (by 100% enumeration) and Indian or Himalayan Balsam (*Impatiens glandulifera*) in the mid-1990s, when Giant Hogweed (*Heracleum mantegazzianum*) was observed once in the small front garden of a terraced dwelling but not in the wild.

Giant Hogweed is described in detail in the *Biological Flora of the British Isles* (Tiley *et al.* 1996), who quote a claim that it is the largest herbaceous plant (3-5 m) in the European flora. Phytophotodermatitis can result from contact with the sap of Giant Hogweed, especially with children; the condition is illustrated in a free booklet (Environment Agency 1996). Although cases are not always clinically recorded or recognised, the plant may not be notifiable as an environmental health hazard. The Wildlife and Countryside Act 1981, Chap. 69, Section 14 (2) makes it an offence 'if any person plants or otherwise causes to grow in the wild' Giant Hogweed, a Schedule 9 listed species.

An early published record in the *Flora of Derbyshire* (Clapham 1969) described this species as 'Commonly grown in gardens and occasionally establishing itself' (in the wild), and citing one record, 'Roadside bank between Ashford-in-the-Water and Ashford Dale SK 1869'. A *Flora of the Sheffield Region* (Shaw 1988) covering Chesterfield, lists seven records in Sheffield since 1980, but none in Derbyshire. One pre-1987 Giant Hogweed record, and twelve more since reported in Derbyshire by the Derby Biological Records Centre by 1999 (indicating a mean annual rate of increase of 12.4% or a doubling of cumulative records in 6 years), did not include any record in Chesterfield 10-km square SK36. A record of Giant Hogweed at SK3981 from the Moss Valley Group and reported some years ago was confirmed by the author in September 2002. A Bakewell resident reported control of Giant Hogweed in the drained Lake at Lumford Mill, and a request has been made to officials of the Peak District National Park and the Environment Agency for details of the monitoring and control of this and other invasive weeds in the Park.

The putative hybrid *H. mantegazzianum* × *H. sphondylium* is not recorded in the County.

Fig. 1 — Giant Hogweed in Chesterfield & N.E. Derbyshire  
Preliminary Enumeration 2-km × 5-km, September 2002



Data J.R. Charter, Dunston Woodwatch, Chesterfield. Map & Plot, N. Moyes Derby BRC 2002

Numerical codes represent the number of Giant Hogweed plants counted or estimated per 200 m × 200 m sub-square, as its exponent to base 3, as follows:

- \* = Zero, no plants recorded
- 0 = 1-2 plants
- 1 = 3 - 8 plants
- 2 = 9 - 26 plants
- 3 = 27-80 plants
- 7 = 2187-6561 plants.

The River Rother flows S-N west of eastings line SK39, and Birdholme Brook W-E along northings line SK69.

A forest-like 50 m × 60 m expanse (0.3 ha, 1 acre) of Giant Hogweed is now reported (for the first time?) invading stinging nettle seasonal swamp (SK38736884) by the thousands to the south of Chesterfield on the east bank of the R. Rother ('7' on map). More than a hundred of the plants upstream on Birdholme Brook in well-wooded Walton ('3,3' on map) are apparently linked with those in this swamp downstream by a number of isolated near bankside plants ('0' on map) widely spaced along some 3 km of the Brook in N.E Derbyshire countryside.

Through the good offices of Ms A. Cooper, Derbyshire County Council Environment Department, and the Derbyshire Wildlife Trust, Derby, copies of three of the County Wildlife Site records of the area were made available:

- CH002 Turnoaks Lake 3.9.83, 7.9.84, 14.10.87, July 1991, 28.2.92. 19 vasc. spp. 'R Rother. Tall grass + ruderals on other side - to East'
  - NE 034 Walton Wood 14.10.87 'Forestry Commission, Pinus nigra', 50 spp (+ W end Birdholme Brook)
  - NE 040 Chesterfield Golf Course 14.10.82, 5.11.91, 50 spp. 'The most interesting woodland runs along by the stream (Birdholme Brook)'
- also, from the biological recorder for square SK37:
- Dupree, D. Confluence of Birdholme Brook and R. Rother south of Birdholme/McGregor's Pond. Summer 1997. SK38626875 Giant Hogweed (pers. comm).
  - Charter, J.R. Birdholme/McGregor's pond/R. Rother left (west bank). 13.12.97. 'flood plain and willow to E' Himalayan Balsam (but no Giant Hogweed or Japanese Knotweed) SK387687/8/9.

None of the three official site records 1983-1991 includes any of the Environment Agency's 'headline' invasive alien weeds, Japanese Knotweed, Giant Hogweed and Himalayan Balsam. Six years later there is a single (oral) record of Giant Hogweed, and eleven years later, in September 2002 two plants of Japanese Knotweed were found on Birdholme Brook at Walton (SK36146890), thousands of Giant Hogweed on the Rother with more than a hundred on Birdholme Brook (see Fig 1, above), and thousands of Himalayan Balsam centred on the right (east) bank of the R. Rother (SK38736890) north of the main area of Giant Hogweed. Several small outlying clumps of Giant Hogweed are scattered in very dense stinging nettle in the swamp, with one near bankside clump of 50 Hogweed plants further downstream.

The dense Giant Hogweed on the right bank of the R. Rother is a conspicuous feature of the landscape (except where it is screened by *Salix fragilis* (Crack Willow) as viewed from Birdholme Pond on the left, west bank). The white umbels in the mass are said by local people to be visible from up the Rother valley as far as the eye can see in summer. These Giant Hogweeds may be recorded on aerial photographs, and this could be the principal site for the species in Derbyshire. Although all its large distinctive leaves decay early in winter, many of the browned off flowering stems with remnant umbels persisted in February 2003. The plants are therefore likely to be easily recognisable throughout most of the year (see colour section, plates 10 & 11).

### Discussion

No Giant Hogweeds were observed in 2002 (or reported by local people) on the R. Rother upstream of the confluence with Birdholme Brook, and none has been recorded to the south on the Chesterfield-Steveley Rother. Since 1996, and very numerous observations locally, in no confirmed instance has riparian Japanese Knotweed or Himalayan Balsam been observed to spread perceptibly upstream — *i.e.*, against the water current, except by human agency. It is accepted that this Giant Hogweed population did not spread to this locality down the Rother, but proliferated here either after introduction to this swamp site, or more likely by spreading downstream to it along Birdholme Brook (a linking chain of widely-spaced individual plants along the Brook is evidence of this — Fig. 1 p.42). If its rate of growth in area is correlated to its mean height of 3 m, Tiley (1996), Giant Hogweed might spread 60 m into this swamp in 60 years. The 100-plus most upstream plants on the Brook in Walton, a well-to-do residential area, could be relics of plantings in what now looks like a long derelict Italianate water garden complete with miniature footbridge and overgrown Cherry Laurel and Rhododendron. These survive around a silted-up oxbow formerly fed by a series of now breached weirs, the accumulated alluvium providing an ideal substrate for the Giant Hogweed even under a closed canopy. The plant also occurs at least at two sites in a plantation and in woodland nearby to the south, where a notice ‘Rare Plant Do not Disturb’ was nailed to a tree.

It obviously would be useful to construct a case history of the introduction and spread of the Giant Hogweed and the two other alien weeds into about seven different habitats in this area. This must be the best indicator of what may happen in the future (and at what rate). However a long time scale of many decades for all this is as yet unsupported from local historical sources, and may conflict with the botanical records and anecdotal reports of when the Hogweed was first noticed in various parts of the area.

### Conclusions

Whether present in south Chesterfield or N.E. Derbyshire for less than ten years or for decades, these alien plants, particularly the Giant Hogweed, are well known to local people but there is no requirement to report them: the Giant Hogweed is apparently ‘invisible’ to the Local Authorities and various other Agencies. No documented information on their policy and practice on the monitoring or control of local invasive alien species (Anon 1992) was available (at least from the staff answering enquiries) from Derbyshire County Council, Chesterfield Borough Council, N.E. Derbyshire District Council, North Derbyshire Chamber of Commerce & Industry, East Midlands Development Agency, Peak District National Park Authority, English Nature, Environment Agency, Derbyshire Wildlife Trust, English Golf Union in time for publication of this report. The implications of the continuing spread of Giant Hogweed into local urban areas, the countryside and further downstream on the Rother may not be recognised.

In Derbyshire there is not known to be ‘Any person authorised by the Secretary of State [under Ch. 69 Subsection 14(5) of the 1981 Act, who] may . . . enter any land for the purpose of ascertaining whether any offence under Subsection (1) or (2) is being, or has been committed on that land, . . .’

A duty of care is expected from landowners, including Local Authorities, in respect of the environmental health hazard posed by Giant Hogweed, particularly to children. Offers were made by the author to direct officials to the location of the plants in question and to confirm the identification on site.

Information from official sources is expected on the basis of DEFRA Review recommendations and the United Kingdom’s adherence to the 1992 Rio Declaration on Environment and Development, and Principle 10 thereto:

At the national [U.K.] level, each individual shall have appropriate access to information concerning the environment that is held by public authorities . . . States shall facilitate and encourage public awareness and participation by making information widely available.'

### Acknowledgements

Much help is gratefully acknowledged from N.J. Moyes of the Derbyshire Biological Record Centre, Derby; from W.A. Ely, Rotherham Biological Records Centre, Rotherham M.B.C. and Corporate Information & Computing Services, University of Sheffield with the preparation of the computerised grid map, and from Emeritus Professor A.J. Willis, Animal & Plant Sciences Department, University of Sheffield.

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- JOHN R. CHARTER, Dunston Woodwatch, 16 Spring Wood Close, Dunston, Chesterfield S41 8BS;  
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## NOTICES (BSBI)

### ALTITUDES

The *New Atlas* attempted to compile details of the highest records for all plants occurring over 305 m (1,000 ft), and also the lowest records for all alpine plants.

For full details please see the Introduction of the *New Atlas*, but briefly, apart from the many good records in the *Flora of Cumbria* (Halliday 1997), there has been very little work done on this subject since the war. The standard summary is contained in an off-print from the *North Western Naturalist* by A. Wilson in 1965. In fact examination reveals that much of this is based on Victorian records.

The BSBI Leicester database has collated these records (together with any corrections that have come to light since publication of the *New Atlas*), and they are now available in two forms:

- a) Online, on the BSBI Web site.
- b) In a little booklet, available from me at the address below, for £2, incl. p&p. (cheques payable to D.A. Pearman).

Please bear in mind that these are draft, but there is so much that can be done! Wilson (1965) refined his lists by citing highest records from England, Ireland, Scotland and Wales, but for the moment we have only compiled records for the British Isles as a whole. Details required are height, 6-fig. grid refs., site and vice-county. Use a GPS by all means, but check it against a map, please!

We are holding a field meeting in July (on Ben Lawers — see the *Year Book 2003*) and hope to arrange others in future years.

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## ALIEN PLANTS IN BRITAIN

### First records from the Wild in Britain and Ireland

The *New Atlas* (Preston *et al.* 2002) attempted to compile details of these, but there were constraints of time, and we were handicapped in that little serious work had been done on the subject since the 1920s. The introduction to the *New Atlas* contains more background (pp. 18-19).

Since publication of the *New Atlas*, we have been able to undertake some extra work, and to start looking at herbaria, though to search the latter, whilst often very rewarding, is a huge task! This extra work has produced earlier 'first records' for about 250 of the 1700 odd aliens dealt with in the *New Atlas* and accompanying CD-Rom.

We would very much like to ask members if they feel they can assist us, particularly by searching herbaria, public or private, and to this end the data we have compiled so far is available in two forms:

- a. A booklet, giving our records, the source, the date, the vice-county and some details if in a herbarium, though the last is very incomplete. This is available from DAP at the address below, for £2, incl. p&p. (cheques payable to D.A. Pearman).
- b. An Excel spreadsheet, containing the same data.

We must stress that much of the information is only a draft, and there may well be cases where the identification in the literature sources we have used has been subsequently redetermined. This is a working document for an ongoing project, and we ask that the corpus of information be treated as our copyright for the time being.

We would be very pleased to hear from any member who feels that they may be prepared to assist.

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CHRIS D. PRESTON, CEH Monkswood, Abbots Ripton, Huntingdon, Cambs, PE28 2LS

## NOTICES (NON-BSBI)

### THE 'FLOWERS OF DORSET' EXHIBITION

The 'Flowers of Dorset' exhibition will be held at the Dorset County Museum, Dorchester, from 17<sup>th</sup> May - 20<sup>th</sup> July 2003.

The exhibition will celebrate the life and work of the Victorian botanist, John Clavell Mansel-Pleydell, and show the relevance of his legacy to the present day. It will also demonstrate the remarkable richness of the Dorset flora which results from the great diversity of species-rich habitats found in the county.

As well as displays on Mansel-Pleydell, a highlight of the exhibition will be paintings by botanical artists of plants from 12 different habitats found in Dorset. The same group of artists has also produced a limited edition 2004 calendar; this will have images of some of the paintings and will be on sale at the exhibition. The artists will also be giving demonstrations of botanical painting each Wednesday and Saturday morning during the exhibition. Other features will be:

- A section on the three Dorset Floras: Mansel Pleydell's, Ronald Good's (1948) and Humphry Bowen's (2000) and the changes to the Dorset flora over the past 130 years which they reveal.
- A display of photographs of Dorset plants and their habitats, a continuous sequence of slides of Dorset plants and a map showing the major habitats in Dorset produced by the Dorset Environmental Record Centre.
- A display of examples of field guides from the mid-19<sup>th</sup> century to the present day, including an original watercolour plate from Keble Martin's *Concise British Flora in Colour*. This section will also include an interactive touch screen demonstration of botanical keys enabling visitors to experience for themselves the use of a key.

The exhibition will be open from 10 a.m. to 5 p.m. daily. Admission to the exhibition (including the museum as a whole) is £3.90 for adults, £2.60 for concessions and free for accompanied children (up to 3 per adult, and aged up to 15 years); an audio-guide to the exhibition and the museum as a whole is included free of charge.

For further information please contact:

JOHN GRANTHAM, Dorset County Museum, Dorchester, Dorset DT1 1XA; Tel.: 01305-756821.

## REQUESTS

### PUBLISHER SEEKS RAILWAY FLORA SPECIALIST

BOTANISTS with a special interest in railway flora are being sought by a publishing company for help with a new guide book.

Pomona Press would very much like to produce a beautifully presented and illustrated guide to the wild flora found specifically around the UK's railways and would like to find botanists who specialise in this field who could help in the compilation of the book.

We are sure that this book will have a broad appeal and we will be happy to include details about the WFS and BSBI to encourage readers to take a further interest in botany.

If you are interested (or know someone who might be) please contact me at the address below.

URSULA LUMB, Pomona, 36 Bridgegate, Hebden Bridge, West Yorks, HX7 8EX; Tel: 01422 846900;  
e-mail: [ursula@pomonahq.freeseerve.co.uk](mailto:ursula@pomonahq.freeseerve.co.uk)

### CRASSULA HELMSII QUESTIONNAIRE

I am a second year Ph.D. student based at Chester College of Higher Education. The working title of my research project is '*Crassula helmsii* and Newt Conservation', and I am investigating the impacts of this non-native invasive species on native flora, and newts which lay their eggs in folded plant leaves, at pond margins.

*C. helmsii* is known under the common names of Australian Swamp Stonecrop and New Zealand Pigmyweed. It is a non-native plant that was introduced from Australasia early in the 20<sup>th</sup> Century. Now it is fairly widespread throughout the UK, inhabiting a wide range of water bodies including ponds. Given the right conditions it thrives, colonising water up to 3 metres deep, pond margins, and will even grow on damp soil as a mat of sprawling stems. It is a succulent plant, which can be confused with *Callitriche* spp., but its leaf tips are acutely pointed instead of being notched. It sometimes bears small white or pink flowers with four petals.

Due to its often vigorous growth patterns, it has been reported to have suppressed other plants at sites it invades. Despite these claims, there is no documentary scientific evidence that proves *Crassula* does suppress other plants. Nevertheless, it is often targeted as a threat and is heavily subjected to intense control measures such as spraying with glyphosate. These control measures could be having a very negative effect on other organisms, especially plants, at the control sites.

As a part of my research, I am carrying out a questionnaire-based survey of BSBI v.c. recorders and members, to gain insight of botanists into perceptions of *Crassula* across the UK. Even if you are unaware of *Crassula* and have not come across it in the field, I value your input to this survey. If you would like to be involved, or have any information that you think might be useful, please contact me using my details below. Alternatively, the questionnaire is in electronic format on the BSBI website in the February News section, and can be downloaded for e-mail or postal response.

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## OFFERS

### BSBI PUBLICATIONS FOR DISPOSAL

The following publications are surplus to requirements; if anyone is interested they should contact me at the address below.

*Proceedings of BSBI* — 1(4), 2 (1,2,4), 3 (1-4), 4 (1-4) + Supplement West Norfolk Plants), 5 (1-4), 6 (1-3), 7 (1-4).

*Watsonia* — 3 (5), 4 (2-6), 5 (1-4), 6 (1-6), 7 (1-3), 8 (1-3), 9 (1,2).

*BSBI Abstracts* — 1, 2.

CHRIS PARKER, 5 Royal York Crescent, Bristol BS8 4JZ; e-mail: [chrisparker5@compuserve.com](mailto:chrisparker5@compuserve.com)

### SEEDS FROM WARE — 2002

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.

*Actaea erythrocarpa* – cult.

*Actaea rubra* – cult.

*Agrostemma githago* – cult.

*Atriplex micrantha* – Germany

*Bidens pilosa* var. *minor* – Madeira

*Briza minor* – Australia

*Bupleurum rotundifolium* – cult.

*Canarina canariensis* – Gran Canaria

*Carthamus glaucus* ssp. *anatolicus* – Israel

*Centaurea maculosa* – USA

*Centaurea rhenana* – Berks.

*Ceratochloa carinata* – Mexico

*Cnicus scabrum* – Portugal

*Conyza bonariensis* – Argentina

*Cynosurus echinatus* – Majorca

*Datura tatula* – Isle of Wight

*Eragrostis barrelieri* – Australia

*Eragrostis mexicana* – Mexico

*Erodium chium* – Madeira

*Erodium moschatum* – Madeira

*Euphorbia pubescens* – Majorca

*Euphorbia terracina* – Madeira

*Geranium palmatum* – Tenerife

*Hibiscus trionum* – New Zealand

*Hymenocarpus circinnatus* – Crete

*Hypochaeris achyrophorus* – Majorca

*Ipomoea purpurea* – USA

*Lavatera arborea* – Anglesey

*Malvastrum coromandelum* – Madeira

*Medicago truncatula* – Sicily

*Misopates orontium* – Majorca

*Phaenosperma globosa* – cult.

*Physalis philadelphica* – Herts.

*Polycarpon tetraphyllum* – Majorca

*Polypogon elongatus* – Argentina

*Ricinus communis* – Cyprus

*Sesamoides purpurea* – Portugal

*Silene gallica* – Madeira

*Solanum americanum* – Jamaica

*Solanum sisymbriifolium* – Argentina

*Solanum villosum* – Majorca

*Stipa ramosissima* – Devon

*Tipuana tipu* – Madeira

*Tithonia rotundifolia* – USA

*Tordylium apulum* – Sicily

*Torilis arvensis* ssp. *elatior* – Majorca

*Tradescantia reflexa* – USA

*Tragopogon hybridus* – Majorca

*Tripleurospermum inodorum* – Dorset

*Verbascum sinuatum* – Majorca

GORDON HANSON, 1 Coltsfoot Road, Ware, Herts. SG12 7NW; e-mail: [gordon27@tesco.net](mailto:gordon27@tesco.net)

## GOFYNNE SEED LIST 2003

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

<i>Anagallis arvensis</i> (blue)	<i>Potentilla argentea</i>
<i>Arabis glabra</i>	<i>Potentilla rupestris</i>
<i>Arabis scabra</i>	<i>Primula elatior</i>
<i>Allium schoenoprasum</i>	<i>Pulicaria vulgaris</i>
<i>Bupleurum rotundifolium</i>	<i>Ranunculus arvensis</i>
<i>Crassula aquatica</i>	<i>Ranunculus parviflorus</i>
<i>Cynoglossum germanicum</i>	<i>Ranunculus tripartitus</i>
<i>Dianthus armeria</i>	<i>Rorippa islandica</i>
<i>Draba aizoides</i>	<i>Rumex maritimus</i>
<i>Erinus alpinus</i>	<i>Rumex palustris</i>
<i>Euphorbia platyphyllos</i>	<i>Rumex rupestris</i>
<i>Herniaria ciliolata</i>	<i>Sagina subulata</i>
<i>Herniaria glabra</i>	<i>Sedum forsterianum</i>
<i>Illecebrum verticillatum</i>	<i>Silene gallica</i>
<i>Limosella aquatica</i>	<i>Stachys germanica</i>
<i>Lychnis viscaria</i>	<i>Teesdalia nudicaulis</i>
<i>Marrubium vulgare</i>	<i>Trifolium ornithopodioides</i>
<i>Meconopsis cambrica</i>	<i>Trifolium subterraneum</i>
<i>Misopates orontium</i>	<i>Verbascum lychnitis</i>
<i>Moenchia erecta</i>	<i>Vicia bithynica</i>
<i>Myosurus minimus</i>	<i>Vicia orobus</i>
<i>Nicandra physalodes</i>	

ANDREW SHAW, Gofynne, Llanynis, Builth Wells, Powys, LD2 3HN;

e-mail: 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.

\**Bryophytes of Native Woods* (3<sup>rd</sup> edn). Carol L. Crawford. Pp. 40. Natural Resource Consultancy. 2002. Price £6.50 incl. p.& p. from the publishers at 4D New Bridge Street, Ayr, KA7 1JX. ISBN 0 9543795 0 0.

[Subtitled 'A field guide to the Common Mosses and Liverworts of Britain and Ireland's Woodlands', this little booklet covers, in full colour, 33 mosses and 3 liverworts. The colour reproduction is first rate, and the text is colour-coded to cover habitats, NVC communities, key identification features and similar species.]

*Hewett Cottrell Watson: Victorian plant ecologist and evolutionist*. F.N. Egerton. Pp. xxviii + 283. Ashgate Publishing, Aldershot. 2003. Price Hbk £47.50. ISBN 0 7456 0862 X.

\**Wildflowers of Wells-next-the-sea, 1998-2002. A five-year survey, undertaken by three local residents*. Erica Goode, Dorothy Vick & Madge Smith. Pp.197. Quarto hardback. Not for sale. No ISBN.

This a very pleasantly produced book covering 14 areas of this small town on the north Norfolk coast (v.c. 28). A map would have been very helpful, to orient oneself, but each area, such as the churchyard, the embankments, School Alley and others, is described in detail. This covers a page or two of text, and is followed by lists of all the plants recorded for each. A table of the dates of all visits is appended, and the whole is completed by summary lists both by English and scientific names — a total of 474 species.

A very short list this time, and not because of time considerations! We just do not seem to have heard of any new pertinent publications. My plea, a year or so ago, for news of any county publications that might be of interest to a wider audience, such as 'Botanical Cornwall', does not seem to have borne any fruit. **Please** send me a note of anything of interest.

DAVID PEARMAN, The Old Rectory, Frome St Quintin, Dorchester, Dorset DT2 0HF

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## CATALOGUE OF CAMBRIDGESHIRE PLANT RECORDS SINCE 1538 PART 2 ALIENS

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

The second part of the catalogue of the plant records for v.c. 29 has now been completed and added to the same website ([www.MNLG.com/gc](http://www.MNLG.com/gc)). It consists of over 1100 species of Aliens and it can once again be freely downloaded as was Part 1. A number of species native in Britain but usually not in Cambridgeshire are included, especially if they have been extensively planted such as Juniper, Yew and Mistletoe, or are usually alien but in some localities are considered native such as *Onobrychis*. Conversely there are species which are usually native such as *Herniaria* and *Marrubium*, but are now increasingly recorded as garden throw-outs. Aliens or doubtfully natives which are already in Part 1 are added to Part 2 if there are recent additions and corrections and a link is provided between Parts 1 and 2.

A printed-out version will be deposited, as was Part 1, in the libraries of the Natural History Museum at South Kensington, and at Cambridge in The University Library, the Department of Plant Sciences, The University Botanic Garden and the Cambridge Collection section of the County Council Library at the Lion Yard, Cambridge.

When the facility for freely downloading was made, it was decided that there would not be any need for a CD-ROM and this was therefore never made (*BSBI News* 88).

I am greatly indebted to Graham Easy and Alan Leslie, who between them have not only made about 80% of the records in Part 2, but have also read through all 680 A4 pages of the text, and made invaluable additions and corrections.

GIGI CROMPTON, 103 Commercial End, Swaffham Bulbeck Cambridge, CB5 0ND.  
e-mail: [gigicrompton@virgin.net](mailto:gigicrompton@virgin.net)

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## DATING ONE'S BENTHAM

**'MISSING' EDITIONS AND ISSUES OF GEORGE BENTHAM'S HANDBOOK OF THE BRITISH FLORA (1858–1954) AND ASSOCIATED WORKS ILLUSTRATED BY W.H. FITCH AND W.G. SMITH**

During editorial work on papers from the symposium, jointly organised by the Society for the History of Natural History, The Linnean Society and the Royal Botanic Gardens, Kew, in September 2000 to mark the bicentenary of George Bentham's birth, to be published in *Archives of natural history*, it became clear that Bentham's remarkable *Handbook of the British flora* and its associated illustrated works pose some bibliographic problems. For example the 1900 reissue of the sixth edition is incorrectly called the "seventh edition" and likewise the 1904 reissue is labelled the "eighth edition". The "real" seventh edition, edited by A. B. Rendle, was published in 1924. While most major botanical libraries have a miscellany of copies, none has a complete set including all of the numerous reissues. We are trying to trace "missing" issues and would welcome information from anyone who may possess copies, or otherwise know of their existence. More detailed information can be provided, as typescript or by email (in Wordperfect, MS Word, or .rtf format).

BENTHAM, G. and FITCH, W., [?1863–]1864–1865 *Handbook of the British flora; ... with illustrations from original drawings by W. Fitch*. 2 volumes.

This was the **2nd edition** of Bentham's *Handbook*. Reviews published during 1864 and 1865 indicate that this was issued in 28 separate parts. Does anyone know of the existence of copies of **individual parts in original wrappers**, or of **wrappers alone**, for this edition. Can anyone confirm a publication date as early as (?late) 1863?

BENTHAM, G., *Handbook of the British flora*

There are reports of editions/issues dated **1873**, **1881**, and **1897** but we have not found copies. Information about these would be very welcome.

FITCH, W. H. and SMITH, W. G., 1880 *Illustrations of the British flora: ... forming an illustrated companion to Mr. Bentham's handbook and other British Floras*.

The first edition was published in 1880, and the second in 1887. Problems arise from the third edition (which was published in 1892) onwards.

The **1897** reissue of the third edition is incorrectly call the 'fourth edition' and we know that the **1908** reissue was called the 'seventh edition', but we have not traced the intervening issues which presumably are called the '**fifth**' and '**sixth**' editions?

The 'fourth revised edition' is dated **1916**, but is there any evidence for reissues or editions between 1908 and 1916? The **second issue** of this edition had not been traced, while the third issue is dated **1923**.

The 'fifth revised edition' was published in **1924**, and it was reissued several times. A reissue dated **1931** is known. Were there any reprints issued between 1931 and 1939?

In **1939** what was still called the 'fifth revised edition' was published with **three** additional illustrations, so it was not a simple reprint. This was reissued in **1944** and **1946** (and then called the 'fourth issue') and **1949** ('fifth reprint'). Was there another reissue?

I acknowledge the collaboration of Dr David Allen, Philip Oswald and Mike Walpole in trying to compile an accurate listing of Bentham's *Handbook* and related works.

DR E. CHARLES NELSON (Honorary editor, *Archives of natural history*), Tippitiwicheet Cottage, Hall Road, Outwell, Wisbech PE14 8PE, Cambridgeshire. e-mail: [tippitiwicheet@zetnet.co.uk](mailto:tippitiwicheet@zetnet.co.uk)

## WHITE ELEPHANT

While not wishing to decry the extremely impressive amount of hard work and energy that has been applied by so many people to produce the *New Atlas of the British & Irish Flora*, it would appear the decision to include a CD-Rom was intended to make it more acceptable.

Computer users can peruse in comfort the results of the labours of the last few years. I am sure the data is fascinating, but I am unlikely to know as I do not yet own the necessary hardware to use the CD-Rom. My fault entirely. I am reliably informed the *New Atlas* weighs in at 14 lb (6.35 kg). For me, this is a serious deterrent. Books are made to be read, and enjoyed, but this one has defeated me. Clearly not intended for use in the field, but obviously too cumbersome for armchair. Even placed on a table, problems arise. So, sadly my copy has become a 'white elephant', unloved and unused.

P.S. I have, however, found it a new home where I am sure it will be put to good use — via the CD-Rom!

ELIZABETH J. RICH, Jesmond Dene, Five Ashes, Mayfield, East Sussex TN20 6JG

# LIVERPOOL FLORA WRITERS CONFERENCE

## ECONOMICS OF FLORA PUBLISHING

Michael Braithwaite and I gave more or less complementary talks at Liverpool in April 2002. The following is a summary of my talk, which was subject to time constraints at the conference.

This subject has been aired several times in BSBI publications, the last being an article in *News* in 1990 by Arthur Chater (*BSBI News* 55: 13-15 — copies available if needed). Our impressions on Records Committee is that every new Flora writer encounters the pitfalls of book production, funding and marketing afresh, and these notes are meant as an aide-memoire. Above all, please come and ask at an early stage, both for expertise and fund-raising assistance. Mind you, this was what was said in 1990, too!

1. Start thinking about economics before finishing your flora — better still before you start!! (Michael had some pertinent points.)
1. Print runs. Most flora writers are wildly over-optimistic. Far better to produce to sell out in, say, 5 years or less than to have stocks for evermore, as has happened often. A rough guide of the sales for the first 5 years of a selection of recent publications, little different from the figures cited in Arthur Chater's 1990 paper, would be:

Major floras 750-1000, with very few exceptions. Of recent issues, Norfolk and Cumbria sold more. Cornwall less. Marketing or attractiveness may well have made the difference.

Minor floras and checklists 200-400

Summerfield Books tell us that reprints can now be incredibly cheap for some sorts of books.

This would presumably be not applicable to multicoloured floras.

3. Pre-publication offers. Again, I can only repeat Arthur's comments. It is difficult to say that they increase total eventual sales, but they do bring in welcome funds at the start of the project — even to the extent of covering printers' costs before you have to pay them!! Recent experience suggests such an offer might shift a third to a half of all copies eventually sold.
4. Printing costs. Technology, particularly the facility of being able to present a printer with camera-ready copy, has definitely the potential to trim costs, but it is difficult to generalise. The use of colour adds enormously — at very roughly £100-£150 per page. From the appended examples you can see that printing costs per page range from £15 for Tiree and Coll, which was black and white only, to £100 for the superbly presented Norfolk. An attractive cover seems a real plus.
5. Hardback / Softback or mix. I have no figures which are useful, other than I recall Cumbria sold more of the hardback and less of the softback than they expected.
6. Choice of publishing route. This can be private, via a commercial publisher or in conjunction with a local Naturalist Society or County Wildlife Trust. I actually favour the last, because it spreads the angst and gives publicity and access to many more people. I would only add that at least four recent Floras have used a company from Newbury, Berkshire in a total package, and I am sure there are others doing the same. The author or associates put up a deposit with the balance, hopefully, covered by pre-publication sales before becoming due. The deposit is then repaid from future sales after a royalty to the publisher.
7. Other points. As with most things, do not go for anything over the top, but, conversely, there is no real need to skimp. I always think of Captain Roe's *Flora of Somerset*, where production was just not good enough for the superb content that he had available. The price was low, as he intended, but it didn't sell very well because of the format and layout. A great shame.
8. Publications Committee have agreed to keep these notes on file, with Michael Braithwaite's observations, and update them with new examples. Please ask their secretary, Chris Boon, for a copy.

**Appendices of recent flora costs: Tیره & Coll; Dorset; Assynt****TIREE & COLL 168pp £9-00**

Designer / Typesetting		£750
Cover picture		100
ISBN		60
Printing		2,310
		<hr/>
400 copies		£3,220
Grants		
- SNH	440	
Glasgow NHS	2,000 *	
		<hr/>
		2,440
		<hr/>
Net cost		<u>£780</u>

\* Now repaid £500

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Printed		400
Pre-publication sales	170	
Free, etc. (review copies, authors and friends, damaged)	30	
		<hr/>
		200
		<hr/>
		200
Sales – first two years		125
		<hr/>
Stock 31.3.2002		<u>75</u>

**DORSET 374pp £45**

Contract	£19,000	
Deposit from Authors	6,000	
		<hr/>
Balance, to be covered from pre-pub sales	£13,000	
		<hr/>

Thereafter Author receives 80% of retail price, even if discounted.

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Printed	1,000	
Sales to November 2000 (publication date)	450	16200
Sales to September 2001 (i.e. 9 months after publication)	181	<u>6500</u>
		£22700

NOTE: NO GRANTS – none applied for

All repaid 9 months after publication

ASSYNT 284 pp £15

Costs	£10,300
Grants	£7,000
	<hr/>
	£3,300
Sales to April 2002	£3,000
<hr/>	
Printed	750
Pre-pub	(200)
Sales to April 2002	(100)
	<hr/>
	450
	<hr/>

## OBITUARY NOTES

With regret we report the following deaths:

\***Mr John Bowra** of Warwick, a member since 1978 who made a special study of *Oenothera* species and hybrids. For many years he was BSBI Referee for this genus, contributing to the studies of this complex and controversial group. The part that *Oenothera* had played in John's life was acknowledged by his daughters who had arranged sprays of Evening-primroses on his coffin at his funeral service. There will be an Obituary in *Watsonia*.

**Mr Hugh Corley** was a pteridologist and although not a member of BSBI, generously gave his services to the Society as joint Referee for *Dryopteris filix-mas* agg. for many years.

The death of **Mrs Marjorie Parish** of Wimborne, a member from 1975 was reported in the Avon Advertiser under the headline: 'Famous botany enthusiast dies'. With her husband, Mrs Parish had travelled widely photographing wild flowers in the UK, Ireland and the Alps, and their books on these were published in the 1980s.

Very recently we have heard of the death of **Mr Dave Philcox**, a botanist with a world-wide knowledge of plants. Working in the Herbarium at the Royal Botanic Gardens Kew, he made a special study of Scrophulariaceae, and Bromeliaceae, and contributed to the *Flora of Trinidad & Tobago*, the *Flora Zambesiaca* and *A Revised Handbook to the Flora of Ceylon*.

Dave was a BSBI member from 1956-1972, recorded British plants in Sussex, and during his years at Kew he identified and commented on plants from many parts of the world for many members.

**Mr W. Marson Peet** of Wainfleet was a member from 1984. Mrs Irene Weston, BSBI Recorder for v.c. 53 (S. Lincs.) sends the following note:

'I first met my friends Marson and Kaye Peet when we came to Lincolnshire in 1960. Marson was then Hon. Treasurer of the Lincolnshire Trust for Nature Conservation and an eminent ornithologist. He recorded extensively at the Gibraltar Point Nature Reserve with the accuracy and remarkable passion for numbers which was characteristic of his career as a bank manager. Marson was a frequent attendee at field meetings of the Lincolnshire Naturalists Union and the Trust, and in 1977 he produced a very comprehensive list of plants and collection of slides of the Nature Reserve at Gibraltar Point. This was later to become the basis of his Presidential Address to the L.N.U. in 1986 and was also printed as the Guide to the plants of the National Nature Reserve.

In 1978 Marson and Kaye went on their first of many botanical holidays with Mary Briggs, and they were encouraged to join BSBI in 1984. By then Marson had become passionately interested in plant hunting and in country recording. The two v.cc. 53 and 54 (S. & N. Lincs), cover a very large

area and a basic system of master cards for the counties was set up. Each year Marson was most keen to update these 'squares' and record the new totals.

In 1985 Marson visited all of the Trust Reserves and road verges and established a plant list for each. He took a very active part in the Monitoring Scheme and was dubbed 'Computer Peet' by Tim Rich — although he had no computer skills at that time. Marson could not tolerate any degree of error — even 0.2% was alien to his training. He also recorded for the Scarce Plants survey and was looking forward to the completion of the Atlas work. His input to the botanical recording in the counties was legion and I am most grateful for all his support and friendship.

Marson had an engaging personality, an active wit and a generous way with visitors to our field meetings and nature reserves. At Gibraltar Point for example, he would always promise both children and adults that he would introduce them to both Sam and Frank by the end of the day. All were mystified until *Samolus* was discovered; the very rare *Frankenia* at the end of the day was a bonus. His input to my adult education classes was a joy to all and his escapades with his 'yellow peril' car on the out-of-county field courses a talking point for the less adventurous. He is greatly missed but very well remembered by his friends who send sympathy to Kaye and his family.'

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

## REPORTS OF FIELD MEETINGS — 2002

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.

### CARMARTHENSHIRE RECORDING WEEKEND (v.c. 44) 29<sup>th</sup> June – 2<sup>nd</sup> July 2002

The weekend began with about nineteen BSBI members meeting at Glynhir Mansion for lunch. Many of the regular attendees were present plus a few new faces. The mansion was fully occupied by BSBI people and a few were accommodated in the Paddock Flat. Also staying at Glynhir were members of the British Bryological Society which gave a welcome opportunity to exchange expertise and run a joint field meeting to the coastal dune system at Laugharne Burrows.

After the meal the party congregated in the yard where *Epilobium roseum* (Pale Willowherb) is quite frequent, to decide on excursions for the afternoon — a couple of members who had not stayed at Glynhir before were encouraged to visit the nearby waterfall to monitor the few plants of *Dryopteris aemula* (Hay-scented Buckler-fern) and the colony of *Hymenophyllum tunbrigense* (Tunbridge Filmy-fern), whilst the rest of the party examined the lanes and fields around Glynhir and next-door Caeglas. In the lane to Caeglas, Graeme Kay and Arthur Chater (AOC) gave some useful instruction on hybridisation between *Rosa arvensis* (Field Rose) and *Rosa canina* (Dog Rose) which prompted much discussion and a hybrid *Potentilla* (Tormentil) was determined as *P. × suberecta*. The party was pleased to find *Carum verticillatum* (Whorled Caraway) which was frequent locally in some wet, cattle poached rushy fields, in which also grew *Anagallis tenella* (Bog Pimpernel), *Triglochin palustre* (Marsh Arrowgrass), *Isolepis setacea* (Bristle Club-rush) and several sedges including *Carex echinata*, *C. nigra*, *C. laevigata*, *C. flacca*, *C. panicea*, *C. viridula* subsp. *oedocarpa*, *C. hirta* and *C. ovalis*. *Carum verticillatum* is very abundant in some Carmarthenshire grasslands and Richard Pryce (RDP) pointed out the characteristic features to those members not familiar with the plant. (Mary and James Iliff, BSBI members who live locally, tell me that when recording in the county, they feel they have not succeeded until they have found some *Carum* for Richard!)

After enjoying a good, relaxing evening meal the party adjourned to the converted loft upstairs to determine and discuss the day's problematic collections and to plan the following day. Most people

wished to visit the Pendine MoD Ranges on Laugharne Burrows for which special arrangements had been made.

After a good sleep (or not, depending on one's ability to ignore the cries of the early-awakening peacocks!) we met up for cooked breakfast which was served with much good humour by Carol, especially considering that everyone ordered different combinations. Then we collected packed lunches and proceeded in cars to the MoD Establishment, where we met John Rees, who was to lead the party, and the BBS members. John, a native of Laugharne worked with the MoD for many years and is very knowledgeable about the plants and the site. The weather remained fine for most of the day but rain was constantly threatening during the afternoon and by the end of the day had set-in with a vengeance.

The first stop, in dry dune-grassland on the C7 Range was notable for the few albino *Ononis repens* (Common Restharrow) growing amongst many normal-coloured plants. The dunes adjacent to the C9 Track were the next stop where many strong colonies of *Ophioglossum vulgatum* (Adder's-tongue) were growing in the rank, unmanaged sward and one remaining *Botrychium lunaria* (Moonwort) in a small rabbit-grazed area (more were seen during a Wildlife Trust visit two weeks earlier, but had died-down in the meantime). The area of tall-fen at the south-eastern corner of the Witchett Pool continues to support *Carex pseudocyperus* (Cyperus Sedge) at its only extant Carmarthenshire site, in company with *Rumex hydrolapathum* (Water Dock), *Scutellaria galericulata* (Skullcap) and growing in the water at their roots, *Utricularia australis* (Bladderwort).

The party had lunch at the western bank of the Pool where the only native v.c. 44 station of *Ranunculus lingua* (Greater Spearwort) was unsuccessfully searched by a few intrepid explorers who braved the 3m high reed-bed! On the opposite side of the road, an extensive leached slack-area supported extensive stands of *Eriophorum angustifolium* (Common Cottongrass) as well as large numbers of *Cirsium dissectum* (Meadow Thistle) with much fewer *C. palustre* (Marsh Thistle), together with the hybrid *C. × forsteri* which was abundant locally. Here also, on drier banks were a few plants of *Ophrys apifera* (Bee Orchid) in full flower.

The final stop was at the C4 Range, the only extant Carmarthenshire site for *Liparis loeselii* (Fen Orchid). Eleven *Liparis* plants were found which compared with seven two weeks earlier, but the search time was shorter on that occasion and it was conducted with fewer people and in pouring rain. It is suspected that some of the plants seen then were additional to those discovered during the BSBI meeting and that, therefore, the total number of plants in 2003 was probably fifteen. At this site the *Liparis* plants suffer badly from slug damage and it was feared that the plants seen previously would have been destroyed, as happened in 1999. In the event, a greater number were found although all had suffered varying amounts of damage. The absence of management at this extremely sensitive site is a major contributor to the proliferation of slug-friendly rank vegetation and unless site managers act soon, it is likely that *Liparis* will become extinct in the county. A brief search on the western side of the track revealed a few plants of *Carex punctata* (Dotted Sedge) although this area has also become increasingly overgrown in recent years. By now the rain had become very penetrating and it was decided to make the return trip to Glynhir.

Rain continued on the Monday and participants split into smaller groups to carry out tetrad recording or monitor previously recorded sites or species. One group (AOC, RDP, David George and Mike Trotman) visited the disused limestone quarry at Capel Dyddgen, Crwbin where, for example, *Elymus caninus* (Bearded Couch) and *Poa compressa* (Flattened Meadow-grass) were found amongst more characteristic calcicole species, and fasciated limbs of *Cotoneaster integrifolius* (Small-leaved Cotoneaster) were frequent on the abundantly colonised rock faces. AOC was able to demonstrate the invertebrate fauna as he had visited the site some years ago recording, amongst other creatures, molluscs and woodlice. It was not long before he found *Matatrichoniscoides celticus*, a small woodlouse, which was only the second world record when discovered here! Another group (Dorothy Brookman, Annette Ford & John Killick (HJK)) tried-out the methodology for the 2003/4 Local Change monitoring scheme by recording in the SN42A Carmarthen town tetrad. They recorded a considerably larger number of species than in the 1986/87 visits and amongst them were new 10-km square records of *Lobelia erinus* (Garden Lobelia), *Oxalis stricta* (Upright Yellow-sorrel) and *Senecio jacobaea* × *S. aquaticus* (*S. × ostenfeldii*) (a hybrid ragwort).

On the final morning a few members were able to spend an hour or two botanising before leaving for home. AOC and RDP visited the disused Emlyn colliery and brickworks site at Penygroes where they were met by an abundance of *Hieracium cf. diaphanoides* (a hawkweed) growing on the colliery spoil together with dactylorchids including *Dactylorhiza praetermissa* (Southern Marsh-orchid), *D. fuchsii* (Common Spotted-orchid) and large plants of the hybrid between them, *D. × grandis*. HJK visited the Llwhwr valley at Fforest (SN50X) where he found *Rorippa austriaca* (Austrian Yellow-cross) to be abundant on the riverside and young self-established *Salix triandra* (Almond Willow) on a shoal.

All participants had had a very enjoyable weekend despite the unsettled weather, and were already looking forward to the 2003 meeting which, by common consensus, will be extended to cover a full week!

KATH A. COTTINGHAM

## ANNUAL EXHIBITION MEETING 2002 — ABSTRACTS

The reports which follow have been edited for publication by Alan Showler.

### LITTLE PINK ALIENS

The story of an Invading Alien — ‘the Pink Perscaria’ or (Pink-headed Knotweed (*Persicaria capitata*)) and its escape from ‘Horticulture’. This tiny short-lived plant with pink flowering heads sold in Garden Centres, is often grown in Hanging Baskets to ‘beautify’ town centres. It escapes from ‘cultivation’ by its seeds falling out of the basket onto the ground below. Here the seeds hide in crevices in pavement and at base of buildings, etc., to over-winter, protected from frost, street-cleaners, dogs, etc., hopefully to germinate next spring into small plants with marked leaves and pink flower heads. Only rarely, and only in frost free areas, do they survive a following winter.

The **scenario of escape** of these ‘Little Pink Aliens’ was illustrated by maps showing the changing picture of observed sites at a sequence of dated intervals:

- **Scene 1 – The early years** from its first notification in England in 1968 [Chichester] up to 1983. All these sites were restricted to southern coasts, offshore islands (Guernsey; Isle of Wight), and central London, and hence free from frost and cold winters.
- **Scene 2 – Inland** sites 1983 to 1998. Escaped ‘Little Pink Aliens’ were first noticed from inland sites in 1993 (S. Somerset), E. Norfolk in 1994 and Cheshire and Worcs in 1995. The first sighting from Wales (coastal Pwllheli v.c. 49) was not until 1998.
- **Scene 3 – from c.1999** and subsequent years. More and more of these escaping ‘Little Pink Aliens’ were now being found in scattered places around England and Wales from Cornwall in the SW and Kent in the SE, north to Yorkshire (v.c. 65); but not as yet in Scotland or Ireland.

**Climate:** early-dated sites were all in coastal ‘frost-free’ places where the isotherm for the coldest month [Feb.] delimiting the ‘mildest’ places runs along the south coast via Isle of Wight, and W towards Cornwall. The more recent sites, found in many inland places and extending N to Yorkshire are in places with far colder winter [Feb.] temperatures. Does this imply that the climate is changing to warmer winters? or could it merely show where Garden Centres are situated? But an enigmatic association with Public Houses only in eastern England has yet to be explained.

MISS A.P. CONOLLY

### BOTANICAL COLLECTIONS MANAGERS GROUP

The ‘Botanical Collections Managers Group’ has recently been established as a Specialist Group of the Linnean Society, arising out of the Botany Specialist Group of the UK Systematics Forum. The main aims are to bring together herbarium reference collections in the British Isles by:

- Raising their profile.
- Collaborating on common initiatives, such as a proposed 'Herbaria of the British Isles on-line'.
- Developing and harmonising policies on issues affecting herbaria.
- Putting forward funding applications to UK and Irish Agencies & EU for databasing initiatives and other herbarium support.

The Group meets twice a year, with at least one of the meetings being held at a member's herbarium to gain a wider appreciation of the different problems and practices of the individual herbaria. A one day conference on herbaria and herbarium issues is planned for 2003.

If you are a herbarium manager and would like to become involved in the Group please contact John David at CABI Bioscience, Bakeham Lane, Egham, Surrey, TW20 9TY; e-mail: j.david@cabi.org.

Dr J. David

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## OBLIGATE CHASMOPHYTES OF THE PELOPONNESE

Chasmophytes are plants which have developed the ability to tolerate, or take advantage of, the harsh highly specialised habitat presented by more or less vertical cliff faces. Whilst evolving they have adapted to take advantage of this very restricted habitat and in doing so have benefited from decreased competition from other plants. Growing as they do exclusively on inaccessible cliff faces, there has been no selective pressure to evolve deterrents to browsing, such as spines, rough hairs, or a pungent taste. Consequently they are invariably unable to survive other than on their inaccessible cliff face habitat. These are obligate chasmophytes, a characteristic of which is a deep root system and a woody stem and a tendency to sometimes flower relatively late in the season.

In the Greek Peloponnese and the Aegean islands, obligate chasmophytes are well represented on low-level limestone cliffs, often in reasonable proximity to the sea. Many are narrow endemics, having become geographically isolated over a long period in their cliff face refuges. Specimens and photographs of several of these were exhibited including *Stachys spreitzenhoferi*, *Helichrysum taenari* and *Inula rotundifolia*.

DR M.J.Y. FOLEY

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## OENANTHE FOUCAUDII TESSERON

The umbellifer *Oenanthe foucaudii* is restricted to coastal areas of western France where it is found along the tidal reaches of the rivers Charente, Gironde, Garonne, and Dordogne. The plant occupies a narrow ecological niche growing in soft mud in the marginal vegetation at the normal upper tidal limit. It is taxonomically closest to *O. lachenalii* and has sometimes been included within it. *O. foucaudii* is usually quite a robust plant sometimes attaining two metres in height. It is especially found along the landward margins of dense *Phragmites australis* beds often in association with *Angelica heterocarpa* another endemic of the estuaries of west and south-west France.

Plants of *Oenanthe foucaudii* were examined by the Charente at Rochefort in July 2002 when the morphological distinguishing characters were noted and reported on.

It mainly differs from *O. lachenalii* in being a more robust, much taller, hollow-stemmed plant, with broader cauline leaf segments and many more rays per umbel. It might, perhaps, be better considered as a subspecies of *O. lachenalii* although it also shows some characters of *O. crocota* and so may be of hybrid origin between them. This should be investigated. A specimen and illustrations were exhibited.

DR M.J.Y. FOLEY

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## **HIERACIUM SNOWDONIENSE (SNOWDONIA HAWKWEED) REDISCOVERED IN WALES**

As part of a jointly funded project by Countryside Council for Wales and National Museum & Gallery, Cardiff into conservation and ecology of critical species, the data for the rare Welsh endemic *Hieracium snowdoniense* (Snowdonia Hawkweed) were combined with field surveys to assess its current status. It was known historically from seven sites in Snowdonia, but it was last seen in 1953. After a number of unsuccessful searches it was feared extinct, but finally in July 2002 one plant was refound on a steep, north-facing, rocky cliff. Seeds were collected and are now being cultivated at the National Botanic Garden of Wales. The rediscovery attracted significant national media coverage as 'the rarest plant in the world'. Details will be published in *Watsonia* 24 (2003).

MR S.O. HAND & DR T.C.G. RICH

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## **CARDIFF BARRAGE — FIRST YEAR OF RECORDING**

The Cardiff Barrage had first public access in the summer of 2001. More habitats became available for close examination in 2002. The 89 vascular plants and 2 bryophytes recorded between July 2001 and June 2002 (inclusive) were listed alphabetically and by each of the six habitats identified. Only three taxa could be considered as native to coastal habitats, *Beta vulgaris* subsp. *maritima* (Sea Beet), *Plantago maritima* (Sea Plantain) and *Puccinellia distans* (Reflexed Saltmarsh-grass); the remainder being mostly ruderals. A Cardiff Barrage scrap-book showed maps, an aerial view, visitor information and local press cuttings.

Dr G. HUTCHINSON

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## **ANOTHER NEW BRITISH / AUSTRALASIAN EPILOBIUM HYBRID: E. PARVIFLORUM × E. BRUNNESCENS**

The hybrid between *Epilobium parviflorum* (Hoary Willowherb) and *E. brunnescens* (New Zealand Willowherb) was found in July 2002 on china clay waste in East Cornwall, v.c. 2. It appears to be new to science.

Relevant characters are the semi-prostrate habit, 'clenched fist' shaped stigmas and hoary stem indumentum.

The find is the sixth different hybrid involving *E. brunnescens* to be found in the British Isles. It provides further evidence of the absence of barriers to crossing between British and Australasian species of *Epilobium*, and emphasises the importance of the Cornish china clay mining area as a source of New Zealand Willowherb hybrids.

G.D. KITCHENER

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## **A PASSION FOR PLANTS — A FEMININE TOUCH**

Many women from genteel and polite society learnt to draw and paint as an elegant pastime. For others it was an opportunity to gain economic, social and intellectual independence. While the earliest female botanical artists were largely ignored, the role of women began to change during the Victorian period and they gradually gained a more prominent profile. Women now dominate a field that once was the preserve of men.

The exhibition 'A Passion for Plants', features over sixty illustrations from the botanical collection of the National Museums and Galleries of Wales. It includes works by the foremost female botanical illustrators from the seventeenth century, such as Maria Sibylla Merian, to splendid original watercolours by accomplished contemporary artists such as Gillian Griffiths and Rebecca John.

MRS M.H. LAZARUS & DR H.S. PARDOE

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## THE DISTRIBUTION AND CURRENT STATUS OF *GENTIANELLA GERMANICA* IN BRITAIN

The current status of *Gentianella germanica* (German Gentian or Chiltern Gentian) in Britain is being investigated using historical records and field surveys to provide detailed information for its conservation and for restoration and management of chalk grassland sites in Buckinghamshire. Although the work is still ongoing, preliminary indications are that it has declined from 22% of vice-counties, 36% of 10-km squares, 49% of 1-km squares and 57% of sites. The main cause of decline was habitat loss. Hybridisation with *G. amarella* (Autumn Gentian) was noted at some sites, but we do not currently consider that hybridisation is a significant cause of decline.

MR A. McVEIGH, MS J. CAREY & DR T.C.G. RICH

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## DISTINGUISHING ANNUAL AND BIENNIAL FORMS OF *GENTIANELLA*

*Gentianella* species may have a somewhat plastic life cycle in Britain, some populations apparently having a significant component of annual plants which may look very different to the biennials. 431 herbarium specimens from **ABD**, **CGE**, **K**, **NMW** and **RNG** were classified as annual or biennial and examined in detail. In general, annuals were smaller in all their parts, lacked a basal rosette (which is present in over-wintering biennials), sometimes still had cotyledons, had fewer internodes and had unbranched stems. The leaves were a different shape but were identical in length:width ratio. The corolla shape and colour were also identical. Failure to distinguish annual and biennial forms may be responsible for some errors in identification.

MR A. McVEIGH & DR T.C.G. RICH

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## CIRCUMSTANTIAL EVIDENCE THAT *BROMUS INTERRUPTUS* IS NOT NATIVE

*Bromus interruptus* (Interrupted Brome) is thought to be a British endemic, but the pattern of its records occurring scattered in lowland England in sainfoin and clover fields was more indicative of an alien than a native species (see *Watsonia* 24: 69-80). A recent analysis of records of *Berteroa incana* (Hoary Alison) and *Alyssum alyssoides* (Small Alison) showed that their distributions can be largely explained in terms of repeated reintroductions with agricultural clover and grass seed from eastern Europe. During the analysis it was noted that geographical, temporal and habitat distribution of the *Bromus* and *Berteroa* records were very similar suggesting that the *Bromus* may have also been introduced with foreign grain. Further evidence is required to test this hypothesis.

DR T.C.G. RICH & MR A. KARRAN

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## DISTRIBUTION AND VARIATION IN *HIERACIUM CYATHIS* (CHALICE HAWKWEED)

*Hieracium cyathis* (Chalice Hawkweed) is a rare British endemic recorded from eight sites in v.c. 6 (N. Somerset) and v.c. 42 (Brecon). As part of a joint project between the National Museum & Gallery, Cardiff, the Countryside Council for Wales, English Nature and the National Botanic Garden of Wales, between 2000 and 2002 its sites were surveyed to establish its current status and determine its need for conservation. A total of 1304 plants were found in 8 sites. It is probably extinct in v.c. 44 (Carmarthen), has declined markedly at Cheddar Gorge, and may have declined at Craig y Cilau. Field, cultivation and genetic investigations of its variation give little support for the suggestions that plants from the Mendips differ from those in Brecon.

DR T.C.G. RICH, MRS E.J. McDONNELL & DR M.D. LLEDGO

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**DISTRIBUTION OF *CENTAURIUM SCILLOIDES* (PERENNIAL CENTAURY)**

*Centaureum scilloides* (Perennial Centaury) is a western European endemic with a very restricted distribution in the Azores, Portugal, Spain, France, England and Wales. As part of a joint project between the National Museums & Galleries of Wales and the National Botanic Garden of Wales, we have been researching its distribution to provide information for its conservation in Wales. Data were compiled from herbaria and the literature to provide the first distribution map of this species to place the Welsh plants in a wider context. The distribution shows a series of widely scattered localities up the west coast of Europe, though in some areas it is very locally frequent on the coast, and it occurs inland in Brittany, Portugal and the Azores.

DR T.C.G. RICH, MR H. SERLE, DR K.V. PRYOR & MR S.B EVANS

**AN UNUSUAL FLORAL MUTATION IN *OROBANCHE CARYOPHYLLACEA***

During the course of an ongoing survey of Schedule 8 *Orobanche* species, the well known and extensive population of *Orobanche caryophyllacea* (Bedstraw Broomrape) present on the seashore and dune systems at Sandwich, Kent, (v.c. 15) was visited in mid-June 2002. On fixed dunes on the seaward side of the road at Royal St George's golf course (c. TR3580.5890) we found a small group of three very unusual looking Broomrape plants. Their coloration, pubescence and stature clearly indicated that they were *O. caryophyllacea* and not *O. minor* (Common Broomrape) (which was growing within a few metres) and yet all of the floral parts had been replaced by structures resembling the calyx lobes of a typical example. The two innermost structures, while still bract-like, had at their distal tip a fairly well formed stigmatic surface, although this was better developed on some flowers than others. We would be interested to hear of any other instances of similar floral mutations in the genus.

DR F.J. RUMSEY & DR S.M. RUMSEY

***OROBANCHE LUCORUM* A. BR. EX KOCH NATURALISED IN LEICESTERSHIRE**

An unusual Broomrape was found growing in an ornamental border at Brooksby Agricultural College, Leicestershire (SK6716) in the first week of July 2001 by AJG. He revisited the site in July of this year to collect specimens for naming. These did not appear to match the descriptions of any native British species and were forwarded, on the advice of Clive Stace, to FJR, who has identified them as the central-European *O. lucorum*. Its origin and status in this new Leicestershire site are unclear.

The species has previously been reported as a believed deliberate introduction to Oxford Botanic Garden. At Brooksby Melton it is parasitising a novel host, *Mahonia* not *Berberis* as in its native range (and at Oxford). If this species is to spread in the UK then it is only likely to do so in urban, or horticultural environments, given the scarcity of suitable hosts in natural or semi-natural habitats.

In corolla shape *O. lucorum* is closest to *O. caryophyllacea* and *O. rapum-genistae* (Bedstraw & Greater Broomrapes) although less campanulate than the latter. The entire plant when mature is intermediate in stature to these. The flowers are not conspicuously sweetly scented and have a yellow stigma which darkens to a brownish colour with age, unlike *O. caryophyllacea*. The stamens are inserted higher in the corolla (>2 mm) than in *O. rapum-genistae*. *O. elatior* (Knapweed Broomrape) can be easily told apart by its calyx lobes connate below and its higher stamen insertion (4-6 mm). Forms of *O. minor* and *O. hederas* (Common and Ivy Broomrapes) lacking anthocyanins are distinguished by their narrower corollas and non-glandular filaments.

DR F.J. RUMSEY & MR A.J. GOULDWELL

## DISTRIBUTION MAPS AND IUCN THREAT CATEGORIES FOR *HIERACIUM* SECTION *ALPINA* IN BRITAIN

Distribution maps and IUCN threat categories for the 30 named species of *Hieracium* section *Alpina* in Britain are given, based on taxonomic and distribution studies by D.J. Tennant and others over the last 30 years. Twenty seven taxa are endemic to Scotland, one to England, one to Britain and one also occurs in mainland Europe and the Arctic. There are three main centres of diversity in Scotland, the Eastern Highlands (especially the Cairngorm Mountains), the Western Highlands and the Northern Highlands. Under the IUCN threat categories, seven taxa are Critically Endangered, seven are Endangered, two are Vulnerable, ten are Near Threatened and seven are Nationally Scarce. The main threats are collecting, natural events such as rock falls and avalanches, global warming, acid rain, overgrazing and tourism. There is particular concern for the long-term survival of four taxa. Full details are given in *Edinburgh Journal of Botany* 59:351-372 (2002) (reprints available from T. Rich).

MR D.J. TENNANT & DR T.C.G. RICH

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### NEWS FROM SARK

Specimens and/or photographs of the following were exhibited:

*Selaginella kraussiana* (Kunze) A. Braun (Krauss's Clubmoss). Established in lawn. First for Sark.

*Osmunda regalis* L. (Royal Fern). First native plant in Sark since 1910.

*Tamarix gallica* L. (Tamarisk). Present in same site since at least 1896. Now truly naturalised.

*Rosa canina* L. Group Transitoriae (Dog-rose). Shows that at least two of the four Groups of Dog-rose grow in Sark.

*Crataegus orientalis* Pallas ex M. Bieb. (Oriental Hawthorn). Planted in commemoration in corner of meadow. First for Sark.

*Euphorbia cyparissias* L. (Cypress Spurge). Spreading from neglected flower-bed. First for Sark.

*Geranium* cf. *maderense* Yeo (Giant Herb-Robert). Planted on roadside verge. Suggestion that it can be distinguished from *G. palmatum* by leaves alone. First for Sark.

*Euryops pectinatus* (L.) Cass. Planted on roadside bank. Surviving despite neglect for several years. First for Sark.

*Asparagus officinalis* subsp. *officinalis* L. (Garden Asparagus). A pavement weed. First for Sark.

DR R.M. VEALL

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## A CYTOTAXONOMIC INVESTIGATION OF *RHODODENDRON* L. SUBSECTIONS *HELIOLEPIDA* (HUTCHINSON) SLEUMAR AND *TRIFLORA* (HUTCHINSON) SLEUMAR

A partial cytotaxonomic revision of *Rhododendron* subsections *Heliolepidia* and *Triflora* has been carried out using the available, living, wild-source collections. This is the first time chromosome counts have been attempted on these species since the late 1940s and the first time such data have been correlated with morphology to arrive at taxonomic conclusions. Extensive polyploidy has been confirmed in the subsections, with ploidy levels varying from diploid ( $2n=26$ ) to decaploid ( $2n=130$ ). *R. brevistylum* and *R. heliolepis* have been found to be hexaploid and decaploid respectively and have been redefined morphologically. *R. augustinii* has been found to contain both tetraploids and a hexaploid. Chromosome counts are confirmed or reported for the first time for several other species within the two subsections.

MS S. WHYMAN

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**The following also exhibited:**

- Mr P. Andrews — Some photographs of British Hieracium species  
Ms P. Beard & Ms L. Evans — ARKive  
Mr I. Bennallick — 1. *Romulea columnae* & *Juncus capitatus* in Cornwall (see *BSBI News* 91: 34)  
2. Botanical Cornwall Group  
Ms R. Berry — Art in nature  
Mr M. Cragg-Barber — 2002 Aberrations  
Dr T. Dines — Plantlife in Wales  
Mr P. Green — *Polypodium cambricum* in Co. Waterford.  
Dr H. Ireland — The Welsh Ragwort (*Senecio cambrensis*): Evolution in action.  
Ms E. McDonnell — Earthwatch expedition to Kenya  
Mr W.L. Meagher — Portrait of a river  
Mr P. Smith & Dr T. Rich — *Drosera* and *Utricularia* in the Outer Hebrides (v.c. 110)  
Mr & Mrs S. Karley set up and supervised the Help! section  
Broadleaf Books; Summerfield Books; BSBI Field Meetings 2003; BSBI Local Change  
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