



# ADMINISTRATION AND IMPORTANT ADDRESSES

**PRESIDENT**

**Dr Geoffrey Halliday**  
26 Mowbray Drive, Burton-in-Kendal, Carnforth, Lancashire, LA6 1NF  
Tel.: 01524 781550

**PRESIDENT-ELECT**

**Mr Richard Pryce**  
Trevethin, School Road, Pwll, Llanelli, Carmarthenshire, SA15 4AL  
Tel. & Fax: 01554 775847; E-mail: PryceEco@aol.com

**Acting HON. GENERAL SECRETARY (General Enquiries)**

**Miss Ailsa Burns**  
3 Rosliston Road, Stapenhill, Burton-upon-Trent, Staffordshire DE15 9RJ  
Tel.: 01283-568136; E-mail: ailsaburns@cwcom.net

**HON. TREASURER (All financial matters except Subscriptions)**

**Mr Michael Braithwaite**  
19 Buccleuch Street, Hawick, Roxburghshire, TD9 0HL  
Tel.: 01450-372267; Fax: 01450-373591

**HON. EDITOR (BSBI NEWS)**

**Mr Gwynn Ellis**  
41 Marlborough Road, Roath, Cardiff CF23 5BU  
Tel. & Fax: 029-2049-6042; E-mail: bsbihgs@aol.com

**MEMBERSHIP SECRETARY (Payment of Subs and changes of address)**

**Mr Michael Walpole**  
68 Outwoods Road, Loughborough, Leics. LE11 3LY  
Tel.: 01509-215598; E-mail: mike.walpole@dial.pipex.com

(Please quote membership number on all correspondence; it is on the address label on your mailings, and in the List of Members in *Year Book 2001*).

**HON. FIELD SECRETARY (Enquiries on Field Meetings)**

**Mrs Jane Croft**  
12 Spaldwick Road, Stow Longa, Huntingdon, Cambs. PE28 0TL  
E-mail: jane@stowlonga.fsnet.co.uk

**BSBI PROJECT MANAGER (Atlas 2000. Co-ordinators and Threatened Plants Database)**

**Mr David Pearman**  
The Old Rectory, Frome St Quintin, Dorchester, Dorset DT2 0HF  
Tel.: 01935-83702; E-mail: DPearman4@aol.com

**WATSONIA RECEIVING EDITOR**

**Mr M.N. Sanford**  
c/o The Museum, High Street, Ipswich, Suffolk IP1 3QH  
E-mail: sbrc@globalnet.co.uk

**RESEARCH FUND APPLICATIONS**

**Mrs S. Whild**  
66 North Street, Shrewsbury, Shropshire, SY1 2JL  
Tel. & Fax: 01743 343789; Mobile: 0585 700368; E-mail: s.j.whild@whild.icom-web.com

**BSBI CO-ORDINATOR**

**Mr Alex Lockton**  
66 North Street, Shrewsbury, Shropshire, SY1 2JL  
Tel. & Fax: 01743 343789; Mobile: 0585 700368; E-mail: alex@whild.icom-web.com

**BSBI PUBLICATIONS**

**Mr Jon Atkins**  
c/o Summerfield Books, Main Street, Brough, Cumbria CA17 4AX  
Tel.: 017683 41577; Fax: 017683 41687; E-mail: bsbiipubs@beeb.net

**BSBI WEB SITE ADDRESS**

[www.rbge.org.uk/BSBI](http://www.rbge.org.uk/BSBI)

## CONTRIBUTIONS INTENDED FOR

***BSBI NEWS 89***

**should reach the Editor before**

**NOVEMBER 5<sup>th</sup> 2001**

## IMPORTANT NOTICES

### BSBI STRATEGY 2000

In 1999 a Working Party was established to consider the future development of the Society, particularly in the light of the completion of fieldwork for the Atlas. It produced a draft paper which was considered by the Working Party and chairmen of committees in July 2000. An amended version was subsequently circulated to all members of committees and regional secretaries for comment. Numerous individual and committee responses were received and considered by the Executive Committee at its October and February meetings and the final Strategy was approved by Council at the Annual general meeting in May (copy enclosed with this issue of *BSBI News*).

In formulating this five-year Strategy the Society had to face two options:

It continues as before as a well-run voluntary society with a good cash reserve and a niche that nobody else has *yet* shown themselves capable of filling. A supply of willing individuals capable of carrying the often heavy and responsible burdens of office is of course essential.

However, the Society is living in a rapidly changing environment in which other organisations, mostly with paid officers, are increasingly able to compete as they gain expertise and, in the near future, find themselves with ready access to the present BRC Monks Wood database. The Strategy envisages a range of exciting post-Atlas studies. The crucial question is who is going to oversee such projects? *Scarce Plants* and Atlas 2000 have been achieved with a paid employee and David Pearman, working voluntarily almost full-time as a manager. We cannot expect him to continue this level of commitment. Even with all his energy he has been unable to maintain all the links with other organisations which we need and he has found there are inherent difficulties in a volunteer manager working with a paid employee.

Council accepted the inescapable logic of this latter option and approved the appointment of a paid staff member, preferably full-time, working as a manager with a central position within the Society. The manager's role would be to maintain relations with funding organisations and partner organisations, BSBI committees and to supervise the actual recording projects. Ideally one would want an officer who was a member of the Society and conversant with its activities. Such an officer would give the Society much needed permanence and stability in its relations with other bodies, statutory and voluntary.

A Strategy is worthless unless there is sufficient motivation and sense of urgency in carrying it out. Since the AGM the Executive has approved two major initiatives, namely a bid to the National Heritage Lottery Fund for an Executive Secretary, with responsibilities as outlined above, and a joint bid with Plantlife for a three-year full-time officer responsible for promoting county rare plant registers, encouraging the monitoring of scarce species and organising surveys of selected common plants and indicator species.

The Standing Committees meeting this autumn have been asked to prioritise their Strategy commitments and to select those for action during the following year. This will be an annual exercise and it will be for the Executive Committee to review progress.

GEOFFREY HALLIDAY, President

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### FIELD MEETINGS

It was announced at the AGM in May that Mrs Margaret Lindop was retiring from the post of Field Meetings Secretary which she had held since 1995. During her time in office she planned many excellent excursions for members and we are very grateful for the time she spent in the organisation of these meetings.

Jane Croft has now been appointed in her place and has begun to plan future field meetings. Several of those arranged for 2001 did not take place because of Foot-and-Mouth restrictions and alternative arrangements were made. It is hoped that in 2002 there will be a chance for leaders to reorganise the postponed meetings and plans are underway so that a full programme will be available by the end of November.

Jane would like to have any suggestions for future field meetings so that she can plan ahead and provide members with a varied programme of excursions in England.

Please contact her at: 12 Spaldwick Road, Stow Longa, Huntingdon, Cambs. PE28 0TL or by e-mail on [jane@stowlonga.fsnet.co.uk](mailto:jane@stowlonga.fsnet.co.uk)

EDITOR

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## PLANT RECORDS IN WATSONIA

The first tranche of the backlog of Plant Records (mostly for the years 1996–1997) was published in *Watsonia* 23(4), August 2001; further tranches will be published in succeeding issues. If any member has records that might qualify for publication (see below) they should send them to the appropriate v.c. recorder (see *BSBI Year Book 2001*), who, I hope, will forward them to me. Also, if any member has sent records in for the years 1996–97, but they were not published, they are asked to contact me at the address below so that I can try and trace them.

The records must normally be of species, hybrids or subspecies of native or naturalised plants belonging to one or more of the following categories: 1st or 2nd v.c. record: 1st or 2nd post-1930 v.c. record: only extant v.c. locality, or 2nd such locality; a record of an extension of range by more than 100km. Such records will also be accepted for the major islands in v.c.c. 102–104 and 110. Only 1st records can normally be accepted for *Rubus*, *Hieracium*, *Taraxacum* and hybrids. Records for subdivisions of vice-counties will not be treated separately; they must therefore be records for the vice-county as a whole.

When the Vice-comital Census Catalogue is published the above criteria will be altered to conform with that book.

GWYNN ELLIS, 41 Marlborough Road, Roath, Cardiff CF23 5BU

## DIARY

N.B. These dates are supplementary to those in the 2001 Calendar in *BSBI Year Book 2001*.

### 2001

October 20 *Future Flora - New Directions in British Botany*: Conference (see *BSBI News* 87: 5)

### 2002

April 4 Joint BSBI/Linn. Soc. meeting on training field botanists, London (see page 72)

April 11–13 Flora writer's Conference, Liverpool (see page 71)

June 21–28 *Spotlight on Plants*, free course for young persons at Preston Montford (see page 72)

### 2003

May 8–12 Anglo-French meeting in Cornwall (see (see page 71)

EDITOR

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## PROFILES OF NEW HONORARY MEMBERS

### CHRIS D. PRESTON

The immediate occasion for asking you to elect Chris Preston as an Honorary Member of the Society is the completion of *Atlas 2000* on which he has been working on our behalf with David Pearman, Trevor Dines and many others for the last seven or eight years. The full extent of what he has done and written for the *Atlas* will only become apparent to most of us on publication, but his mapping expertise and scientific guidance has been central to the whole project. Most of you will know him best as the Society's interface with the Biological Records Centre at Monks Wood, where he has been since 1980. After graduating at Cambridge in 1976, research on the Lizard and on *Sibthorpia* and the influence especially of David Coombe fired his interest in autecology and distribution, especially in relation to oceanic elements in the flora. An extremely productive ongoing collaboration with John Akeroyd, especially in the East Mediterranean, led to a whole series of Akeroyd and Preston papers on a wide variety of subjects. Then for a time it looked as though Chris was becoming lost to higher plants because of his enthusiasm for bryophytes; he did a lot of work on the mosses of Cambridgeshire with Harold Whitehouse, and this strand of his career culminated in the 3-volume *Atlas of Bryophytes* with Mark Hill and Tony Smith. Fortunately for us though, largely inspired by Nick Stewart his interest moved on to pondweeds and other aquatics, and this resulted in a flood of publications including his *Pondweeds Handbook* for the BSBI, the *Aquatic Plants* atlas with Jane Croft, and a whole series of papers on *Potamogeton*.

Much of Chris's work has become of immense importance in setting baselines for conservation and other work on the British flora. The *Scarce Plants* atlas, the BSBI and BRC project that he did with David Pearman and Alison Stewart, the paper he wrote with Mark Hill on the *Geographical Relationships of British and Irish vascular plants* and the forthcoming but widely leaked paper on archaeophytes have all changed the way we look at our flora. Parallel to these major works Chris has produced a stream of always elegantly readable papers. I think particularly of his regular contributions to *Nature in Cambridgeshire*, including a masterly account of Oxlip distribution. He has also produced a *Flora of Tieve, Gumma and Coll* with David Pearman. The range and productiveness of his collaborations is I think very indicative of his character.

Chris joined the BSBI in 1974 and his formal work for the Society has included editing plant records for *Watsonia*, membership of the Records, Publications, Executive, Database and V.C. Census Catalogue Committees and Council. He succeeded Mike Walpole as chairman of the Publications Committee. Cambridge University awarded him a PhD on the basis of his publications in 1997. As many of you will know, he is a field botanist who is exceptionally rewarding to be out with. He is also one of that interesting band of distinguished botanists who cannot drive and yet who seem to have studied plants in every corner of the British Isles. A recent president once remarked that it would be marvellous if the BSBI could employ Chris full time just to do research and write elegant books and papers for us. Maybe we cannot quite do this, but I am delighted to be able to propose him for honorary membership as a timely token of our appreciation.

ARTHUR CHATER

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## DAVID A. PEARMAN

I am aware that it is not normal for presidents to propose honorary members but exceptional occasions demand exceptional solutions.

Having started to draft the following remarks I turned to Ro Fitzgerald's Pre-Presidential Profile in *BSBI News* 69 (1995) which was so apt and conveyed my feelings so much better than I could myself that I was strongly tempted simply to distribute copies of this. But I persevered.

David first flashed like a comet into my botanical consciousness about eight years ago, fully formed and abounding in energy. Being then a Council member I was too embarrassed to confess my ignorance and enquire whence he came and little could I have guessed where he would be going. Fortunately he didn't trail ice and gas behind him but everyone he came into contact with will testify to his warmth, his ability to melt any doubts, to his humanity, exuberance, dynamism and strength of purpose, accompanied as it was by endearing bouts of self doubt. It was David who overcame my initial reluctance to accept nomination as president. This he did by promising to do virtually everything for me bar giving a second presidential address.

In his previous existence David was an accountant. It does seem a reflection on the aridity of that calling that we have just had a president and successive treasurers, all accountants, who have found solace in the world of botany. The financial expertise which he has brought to the Society has been of incalculable value, preparing the time-consuming applications and tapping funds so rewardingly. To his persistence we owe our funding for the co-ordinator post and Threatened Plant Database, the Scarce Plant and Atlas projects, to name only a few. Lacking a paid Director, who other than David could have shouldered these burdens?

Partly because of his passionate desire for the Society to move with the times, for it to seek due recognition and to be seen as a unique gatherer and provider of data, he was instrumental in encouraging the early development of the Strategy which we shall be discussing today.

He played an active part in the early years of Plantlife, one of its 30% of BSBI members. Now as one of the 30% of BSBI members who are members of Plantlife he is only too aware of the pressing need for closer collaboration between the two societies, something which he is vigorously pursuing in his capacity as chairman of Records Committee.

Time does not allow me to dwell on his many conservation activities in Dorset, or on faraway Coll and Tiree, or on our amicable dispute as to whether Dorset or Westmorland was the supreme vice-county for Cyperaceae.

We remember his sterling work with *Scarce Plants* (1994), how he and Chris Preston coerced us recorders into opening our jealously guarded records and submitting them to BRC for incorporation. The publication was a real landmark, a model of simple, uncluttered, accessible information. And how can one begin to assess his contribution to the new Atlas?, from the prodigious logistical and financial problems in getting the scheme off the ground and endless liaising with the Atlas Organiser, to his painstaking researches into dates of introduction and the organisation, writing and editing of species' accounts. There have been times when he has virtually lived at Monks Wood.

So we thank you David for setting us on the upward path. I've no doubt that we shall still continue to need your guiding hand but I hope that in your post-Atlas existence you will find more time to relax with your tapes of Schubert songs. I conclude therefore by asking you to support this nomination for supremely well-deserved honorary membership.

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 GEOFFREY HALLIDAY, President  
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David Pearman (l) & Chris Preston (r) enjoying a quiet bonding session!  
Photo © R.D. Pryce 2001

## EDITORIAL & NOTES

**Congratulations** to our Royal Patron to whom the Society sent 101<sup>st</sup> birthday greetings — and from whom we received this reply:

'I greatly appreciated your good wishes on my birthday and send my warmest thanks to all who joined in your kind message.

Elizabeth R., Patron'

**Also** to Richard Pryce on his nomination as President-elect of the BSBI. An illustrated profile will appear in the January *News*.

**Also** to our two latest nonagenarians: Lady Anne Brewis achieved her milestone in March, and E.B. Bangerter in May. Sadly, as we go to press, we have just heard of the death of Ted Bangerter; a fuller notice and obituary will appear later.

**And also** to two members who both joined the Society in 1963 and who were both awarded the **MBE** in recent Honours Lists: Dr Rosemary Carpenter, MBE, a genealogist at John Innes, Norfolk, working on the genes of Snapdragon (*Antirrhinum majus*) for Services to Plant Biology, and John Keylock, MBE, a founder member of Somerset Wildlife Trust, for Services to Conservation.

**Apologies** to Jean Wynne Jones for wrongly attributing her photo of *Cuscuta campestris* with insert in *BSBI News* 87: 42, to J.M. Davies, and thanks to Joan Davies for pointing this out.

**Also** to John and Judith Badmin, for completely forgetting to include this note on *New Millennium first plant record?* in the last issue (see *BSBI News* 87: 14).

'Having just flown a kite myself I thought I should respond to Tim Rich's article on the first plant record for the new Millennium (*BSBI News* 86: 40). As older and more seasoned revellers of the New Year, my wife and I carried on partying and then drove down to Dover Cliffs to see-in the new Millennium as dawn first broke on the south-east coast of England just before 8am.. A fair crowd had gathered on the cliffs and we were entertained with a small fireworks display to mark what was an

otherwise, dull, cloudy official dawn! Only the local BBC radio commentator could see blue sky and a hint of sun! Looking around us we marvelled at the advanced growth of Alexanders *Smyrnium olusatrum*, a plant said to be introduced by the Romans (fruit found at a Roman site, Godwin 1975) about two thousand years ago.'

**My thanks** to: Roy Smith for a cutting from the *Daily Telegraph* of Saturday May 5<sup>th</sup> 2001, which, in the 'Peterborough' column, under the title of '*Lichen fever*' recounts the thrills of a lichen-hunter's life (culled from the pages of the bulletin of the British Lichen Society): 'Jeremy Gray . . . spotted a luxuriant growth of *Parmelia* lichens on the back window of a D-reg Lada in Penzance. He immediately pulled a reckless U-turn in his own car and gave chase. The lady Lada driver, terrified, "accelerated, leaving quite a lot of rubber on the Tarmac, and swerving violently into a tiny lane . . . broke every rule of decent driving". When eventually cornered, the Lada yielded 21 different species!

**Thanks also** to Mike Atkinson who queries whether the record of *Allium cyathophorum* var. *farreri* at Sun Lane Tip, Burley-in-Wharfedale (*BSBI News* 86: 48) really is a first for Great Britain. He writes: 'Colleagues here in the *Wharfedale Naturalists' Society* are amused by this record. Sun Lane Tip is "a kind of bring and buy sale". Plants arrive, settle, are dug up and transplanted back into gardens constantly — the "when is a naturalization not a naturalization" problem. One of our most experienced botanists has walked her dogs at the Tip almost daily for many years. She has recorded *Allium cya far* for at least the last three years, its precise location varying year on year. Photos are on file, etc. So, not a first for the British Isles, not this year or last, at any rate.'

It is worth pointing out here, that 'first record' in Plant Records in *Watsonia* or *BSBI News* or elsewhere? means the 'first **published** record' (since it is obviously impossible to know if some other botanist has recorded it previously in their note book) and the record of *Allium cyathophorum* var. *farreri* certainly qualifies on that score.

**And also** to Trevor Harwood, who sent another example of 'bad botany' in a daily paper, this time *The Daily Express*, or at least its colour supplement for Saturday, September 1st 2001. A section on gardening is previewed with the phrase 'A rash of new claims for the humble stinging nettle' and illustrated, in colour, by *Lamium album* (White Dead-nettle). The main article on page 19 was entitled '*Grasp the nettle*' and was quite an interesting piece on the history and uses of *Urtica dioica*. Unfortunately, although the main picture illustrating the article was of *Urtica*, it was labelled *Lamium 'Album'*, and two other accompanying illustrations were of *Lamium album* again and *Lamium orvala*, neither of which were mentioned, or had anything to do with the article at all. See page 24 for another example of 'bad botany'.

**The Weed from Hell** is the title of an interesting article on *Fallopia japonica* (Japanese Knotweed) by Ann Treneman in the July 2001 issue of Reader's Digest magazine (condensed from *The Times*, June 27, 2000). In it she tells of the problems caused in South Wales and the efforts of Dick Shaw, a weed-biocontrol scientist working at CABI Bioscience in Ascot. 'Shaw has recently received funding for the first phase of a project to identify a natural enemy that could be used here to control knotweed.' A visit to Japan 'identified a leaf-feeding beetle and a fungus as potential biocontrol candidates.' But a lot more research is needed before these can be released into the wild.

**Colour Section** (pages 41–44). A bit of an orchid take-over this time — more by accident than design — no other colour photos were offered! My thanks to Richard Pryce for three of the non-orchid photos, provided at very short notice to fill gaps. Although I would not like to have **too** many 'orphan' images without text in each issue, I would like to include some which refer to previously published notes. So come on you photographers, look through your slides, and if you find something interesting that 'fits-the-bill' — send it in.

**Inserts** — a larger than usual number of inserts this time, with the latest issue of *BSBI Abstracts*, *Index to BSBI News* 71–80 and *Index to BSBI News* 31 (somehow missed in *Index to BSBI News Vol. 2* Nos. 17–31), the final version of *BSBI Strategy 2000*, notices for the *Annual Exhibition Meeting* and the *Scottish Annual Meeting*, the *Summerfield Books Catalogue 2001–02*, an *Irish Peatland Conservation Council* leaflet; a *Darwin's Mentor* leaflet, and two or three Flora leaflets.

EDITOR



## CO-ORDINATOR'S CORNER

In this issue of *BSBI News* I would like to report on some of the exciting developments on the Internet, which is rapidly becoming a tool that no botanist can do without. Many people who have just dabbled in it may be of the opinion that it is just one enormous advertisement, and indeed many web sites are just that — adverts for their organisations. But there is much more that it can do, and botanical databases seem to have arrived in force this year.

Before I describe some of these, I must issue a warning. It is as easy as anything to plagiarise a database, and many people are not even aware that they are doing so. On some web sites you can click on the 'download' button and instantly receive information worth many lifetimes' study. Use this information in the same way as you would any other source, and always acknowledge in full anything and everything that you received from anywhere else. You can reference a database or a web site in the same way as you would a book. Three particular things may not occur to everybody when using a database on the Internet. Firstly, if it tells you where to obtain information — for example, that there is a botanical record in a particular book — you must still acknowledge the database for helping you, even if you eventually look up the book in person. Secondly, if your finished paper, report or essay contains more than a small proportion of data from elsewhere, then think very carefully before using it. Is it really primarily your own work? Or has your original idea already effectively been fulfilled by the database? You may not put your name to something that is essentially downloaded from the Internet any more than you can photocopy the pages of a book and replace the author's name with your own! If in any doubt at all that you are using a database appropriately, bear in mind that you can always contact the owner and ask their permission for the use you have in mind. One of the interesting things about computers is that while they make copying very easy, they also make detecting copies very easy. Students need to be particularly aware that anything injudiciously inserted into a thesis now may well fool their tutors now but come back to haunt them in ten or twenty years' time . . .

Finally, if you find any of these web sites to be a useful source of information, please don't forget that you can also contribute. Spot a mistake? Found some other information that would be useful? Tell the web site owner — they'll be waiting for your e-mail.

### Cambridgeshire Web Site

We computer people are always agonising about the optimal level of detail to store. It is a delicate balance between accuracy and functionality. In the past computer programs tended to go for the minimal necessary to accomplish the task, because of the limitations of hard disk space. But Gigi Crompton has gone to the other extreme with her amazing web site on the Flora of Cambridgeshire, [www.MNL.G.com/gc](http://www.MNL.G.com/gc) (see page 74).

This is quite the most extraordinary database I have ever seen. If the Victorians had had web sites, this is what they would have looked like. Publications are not referenced in the standard way ('Babington, 1860') but in the traditional cryptic way ('Bab., MS'). And there is no high tech wizardry, helpfully linking a reference to the actual document. This web site is like one of those marvellous old Floras, packed with symbols and codes that tell you all sorts of amazing things, but only if you have a few spare years to decipher it all!

At first I thought it was rubbish, rendering pointless the whole purpose of a database. And in a sense it is — it could be made a lot more powerful. But it has its virtues, and I rather think these outweigh all the drawbacks. For a start, you have to work to make sense of this information. No lazy student can simply download the data from here and stick it in their report. They'll need to understand more than a little bit of the botany and the botanists of Cambridgeshire before they can make any sense of it all. However, for those willing to give it a try, they will soon come to realise what a truly

phenomenal job has been done. Gigi and her co-workers have scoured the land for information on Cambridgeshire, and secured an astonishing amount of information. Those of us who live in far less recorded counties do not appreciate the problems of having 500 years of avid recording, re-recording and mis-recording to cope with. Where we in Shropshire might have two or three records of a particular rarity over the last 200 years, in Cambridgeshire there could easily be a hundred or even a thousand.

This problem has been dealt with by simply presenting the user with the exact original data — no messing around, no interpretation. If there are three editions of Relhan's *Flora*, and the same record is given in each edition, you'll get three records, each with an exact quote. A mere mortal like me would probably assume that they were all the same record, but there are no assumptions here. I find this very interesting. The launch of the Threatened Plants Database three years ago started a huge debate about exactly what we need to record, and what we don't need to record. Gigi has trumped us all by simply recording everything. I'm not sure it will be to everyone's liking, but I love it. Dial up and see, because you'll never get a printed *Flora* that could possibly compare with this.

### **Hull Herbarium Database**

This is another experiment of earth-shattering importance. For the last 20 years our museums have been in a state of inactivity, as they ponder how to database their collections. With one or two short-lived exceptions, none of our museums has made any real effort to rise to the challenge of the computer age, but instead prefer to complain about being neglected and under-funded.

Richard Middleton, a geographer at the University of Hull, has — I hope — changed all that. He just got on and did the job. He paid someone a pittance to database all the information from his 17,000 sheet collection, and then stuck the whole lot on the Internet, for anyone to use as they like, at [www.hull.ac.uk/geog/html/herbarium.html](http://www.hull.ac.uk/geog/html/herbarium.html). The result is amazing. First county records, first British records, interesting new sites for Red Data Book species, all sorts of wonderful things. The database itself was terrible. I looked at the list of sites for Shetland, and it included Ludlow! Another Shetland site was Uist, misspelled Unst. However, these little quirks fooled no-one for even a moment, and of course our v.c. recorders helpfully fed back all the corrections to Richard, who has been duly updating the information.

The dichotomy is stark: on the one hand our man in Hull gets on with the job, doing it quickly, efficiently and effectively, and by so doing makes a significant contribution to ecology. On the other hand, hundreds of curators are sitting around writing proposals for huge expensive projects, because they are terrified of making a mistake. This project shows that you don't need to be perfect to be good.

### **Other good web sites**

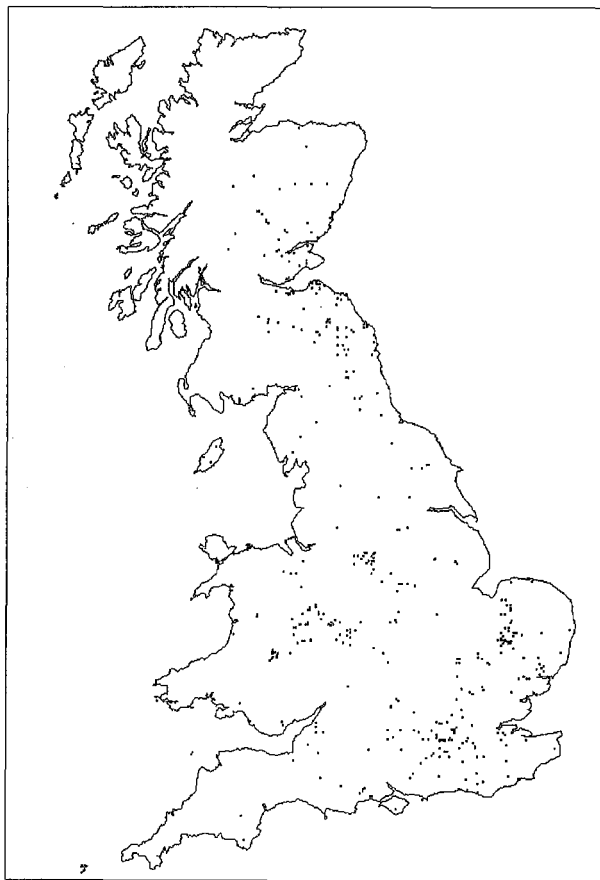
The university of British Columbia has a similar web site, not quite so helpful but still pretty impressive, with several thousand British specimens listed: [herbarium.botany.ubc.ca](http://herbarium.botany.ubc.ca). My thanks to Pete Selby for telling me about that one. Mark Raven kindly directed me towards Alastair Fitter's ecological database, which is only in prototype at the moment, but looks promising. Keep an eye on developments at [www.york.ac.uk/res/ecoflora/cfm/ecofl/index.cfm](http://www.york.ac.uk/res/ecoflora/cfm/ecofl/index.cfm). Finally, I have to mention our own BSBI databases. On our web site (currently [www.rbge.org.uk/data/bsbi](http://www.rbge.org.uk/data/bsbi) but shortly to be [www.bsbi.org.uk](http://www.bsbi.org.uk), we hope) you will find the BSBI database (Leicester), which includes literature references for all British plants and a cytological catalogue. At [www.tpdb.org](http://www.tpdb.org) there is what I unbiasedly consider the best database of them all, the Threatened Plants Database. The site was constructed for me by Alan Hale, with some refinements of the interactive maps by Alan Morton. It contains only Welsh rare plant records at the moment, and is by no means comprehensive, but we set it up to be as helpful and useful as possible — click on the download button and it almost literally writes your Biodiversity Action Plan for you. I regret to say that it is password protected until we can be confident that people won't go and dig the plants up, but I can issue a password to anyone who has a legitimate interest.

## APPEAL FOR INFORMATION — *DIANTHUS DELTOIDES*

One of the species we are covering in the Threatened Plants Database is *Dianthus deltoides* (Maiden Pink). To do this properly, we need to know about its ecology and history, as well as its abundance in its current sites. For example, it is listed in the National Vegetation Classification as a constituent of U1 *Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, which has a very open sward with patches of bare ground between the tussocks of grass. But is this the only community in which it occurs? From what I have seen of the records so far, I suspect not.

If anyone knows of a site for this species, or has any information on file, I would be very grateful for anything you can supply. Ideally, if there is any chance that the site is native, I would like to have standard NVC quadrats — all species present in a 2m × 2m square, with their abundance (most easily visualised as the percent of the ground that would be covered by each species if you ran over the sample with a steamroller!).

For your interest, here is a map showing the distribution of *D. deltoides* in Britain, using tetrads instead of the usual 10km squares. It seems a rather curious pattern.



# RECORDERS AND RECORDING

## PANEL OF REFEREES & VICE-COUNTY RECORDERS

### AMENDMENT NO. 2 TO *BSBI YEAR BOOK 2001*

#### Changes in vice-county recorders

#### Deaths

V.c. 9 Dorset

We regret to announce the sudden death of Dr Humphry Bowen, who had been recorder since 1961 (and also that for Berkshire for 1965–1988). He was one of a handful of botanists to write Floras of two counties and was an extremely enthusiastic and speedy identifier of plants worldwide, as well as of lichens, bryophytes and algae.

#### Resignation

V.c. 100 Clyde Isles

Mr A. Church

The BSBI Committee for Scotland has, so far, failed to find a replacement and the wider membership is now being trawled for a volunteer to replace him. All enquiries to the Secretary, BSBI Committee for Scotland, Miss L. Farrell, SNH, 1 Kilmory Estate, Kilmory, Lochgilphaed, Argyll, PA31 8RR, or the Secretary, Records Committee, Mr D.J. McCosh, Baconsthorpe Old Rectory, Holt, Norfolk, NR25 6LU.

#### Change of address

V.c. 6 N. Somerset

Mr I.P. Green

19 Bogmoor Road, Bogmoor, Spey Bay, Fochabers, Morayshire IV32 7PA.  
Tel.: 07818212835; e-mail: ianpbgreen67@hotmail.com

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

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## DRAWING THE LINE

What constitutes a valid plant record? How wild must the plant be? ‘Where is the line to be drawn?’ asks R.M. Payne (*BSBI News* 86: 51). Replies from Peter Macpherson (*BSBI News* 87: 11) and David Hambler (*BSBI News* 87: 12) added to the discussion.

The present situation is quite illogical. We record in churchyards and we record arable weeds which require regular cultivation of their habitat, we even record habitat creation schemes and reseeded road verges, but we don’t record plants growing effectively wild in neglected corners of our own gardens. Apparently you can record a plant growing in the crack between your garden wall and the pavement, but what if you mow the grass verge yourself and thus extend your garden past it?

Consider why we record plants. Obviously we do it because we enjoy the challenge, the fresh air and the company, but we also like to assume the records and the resulting distribution atlases are useful in some way, preferably for wildlife conservation.

But introduced plants are one of the main threats to species and habitat conservation so why do we only record them when they’ve already got out into the wild? (Stable doors . . .). We don’t know what will be the next Giant Hogweed (*Heracleum mantegazzianum*), New Zealand Pigmyweed (*Crassula helmsii*) or Least Duckweed (*Lemna minuta*). When it emerges, shouldn’t we know how widespread it and its relatives are in gardens? The distribution of both garden weeds and garden plants seem to have fallen into the gap between the BSBI and the RHS (Royal Horticultural Society).

So what’s the way forward? I suggest adding a plant status code to cover plants growing in gardens and other cultivated sites:

G ‘Garden’ Growing in a cultivated site.

With this new code in place, it will be down to the individual recorder to choose whether to record in gardens, but users of the data will be able to extract the records with the line drawn where they choose.

Furthermore, can I suggest the BSBI consider a Garden Weed Survey? This would record the contents of members' own gardens and those of their non-BSBI friends. Following Martin Cragg-Barber's lead (*BSBI News* 87:13) lawns could also be included. The survey would lead to a set of maps of garden weeds and garden lawn plants.

**PS:** While on the subject of the status codes, there is currently no code to indicate that an expected plant was not found. This potentially useful information is often not recorded. We could usefully add:

X 'Extinct?' The plant was searched for but not found.

XX 'Extinct' The plant was *thoroughly* searched for but not found.

'XX' is mainly so people can use 'X' even when they feel that if only they'd searched a bit longer they might still have found it!

MALCOLM STOREY, 43 Berry's Road, Upper Bucklebury, Reading, RG7 6QL

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## WHEN SHOULD ALIENS BE RECORDED?

In the two most recent editions of *BSBI News*, when to record exotic species has been touched upon. In the past I must confess that I have taken the recording of aliens and adventives as a distraction from my interest in what is considered to be the British flora, although there seems to be no objective universal test for what is a British plant. In this I think I was wrong.

Species imported from other part of the world, often by gardeners, aquarists or the major scientific collections, pose a significant threat to British habitats if they escape into the wild. One of our most stalwart defences is to try to keep new species out as far as possible, particularly those which may become a problem. However it is difficult to predict which are the potential problem exotics and some species will doubtless creep under or over the most stringent ring-fencing of Britain. The systematic recording of aliens is therefore critical if we are to identify species which put our biodiversity at risk, and could cost large amounts of money to control if we do not act quickly when they appear.

Plants have great difficulty recognising when they are or are not in the captivity of a garden. The temporary escapee may not cause too much trouble, and most garden escapes die out soon after they establish in the wild. However some have the power to persist and spread. I suggest therefore that we should be more interested in what is happening in gardens, as a major conduit for invasion. Evidence of imported species being able to maintain autonomous populations in gardens is the first sign that a species could become problematic. This will of course be easiest to determine where a species establishes itself from seed. In the case of vegetative spread evidence of independent spread may be more ambiguous.

Armed with this information, the statutory and non-statutory sector might be able to prevent damage to biodiversity, as has been caused by *Rhododendron ponticum* and *Fallopia japonica* (Japanese Knotweed), which originated as ornamental plantings and we now struggle just to keep under control. Where we can we should be recording species reproducing in gardens, before the problem jumps over the wall, not after.

DR JOHN J. HOPKINS, Science Advisor, English Nature, Northminster House, Peterborough, PE1 1UA

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## THE M.H. BIGWOOD HERBARIUM AT LIVERPOOL MUSEUM

In January 2000, Liverpool Museum Herbarium (**LIV**) acquired the herbarium of the late Miss Hildred Bigwood of Kington, Herefordshire. Miss Bigwood was a former technician in the Botany Department at Aberystwyth University, where some of her specimens are to be found. Dr A. E. Caunt, a friend of Miss Bigwood, informed us that the collection comprised over 1,000 specimens mainly collected from throughout the British Isles.

It was apparent from the collection that Miss Bigwood had been a keen botanist. The specimens were, on the whole, mounted, fully labelled and the majority were identified to species level. We actually accessioned over 2,650 specimens in total, a great many of which were non-British. The collection was mainly comprised of flowering plants, 32 of the British specimens are rare or endangered, and there were 76 specimens of non-flowering plants, including ferns, fern allies, clubmosses, horsetails and one alga *Padina pavonia*. In Europe, Miss Bigwood had collected in several countries including France, Greece, Norway and Switzerland.

According to *Flora Europaea*, Turkey and the Greek islands of Kos and Kalymnos, all lie outside of the boundary dividing Europe from the Orient. As Miss Bigwood had collected in these areas we were also able to add just over 100 previously unrepresented species to our Extra-European herbarium.

It was Miss Bigwood's wish that her collection would not be split up between different institutions, and we have now incorporated all of the material into our collections. Unfortunately, she died before her herbarium found its home at **LIV**. Liverpool Museum is undergoing major refurbishment works at the moment and the herbarium and library have been packed up and remain inaccessible at present. We hope to be back in the new Museum building in spring 2002 when we will be open for business as usual.

WENDY ATKINSON, Assistant Curator, Herbarium, Liverpool Museum, William Brown Street, Liverpool,  
L3 8EN

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## DISSECTING GRASS SPIKELETS

Dissecting grass spikelets is one of those jobs that requires three hands. A needle in each hand, you prise the glumes apart, then you need a third needle to separate the lemma and the palea. Here's the solution. There are several brands of sticky tape sold under the name of 'Magic Tape' or 'Exhibition Tape' which are designed to be peeled off again after use, so that the mounted object can be reused.

Fix a piece of such tape sticky side up. (I usually make a loop around a microscope slide, sticky side outwards.) Lay the spikelet down on the tape and it is held in place by the stickiness. Gently lift a glume off the sticky surface, move it to the required position (fine forceps and dissecting microscope recommended) and put it down again where it will be held in position. For all but the stiffest grasses this works well, although I've only tried it with living material.

I find the Sellotape product works better than the Scotch Tape equivalent which is softer so the sticky layer tends to detach when you try to rearrange the floral parts.

MAI.COLM STOREY, 43 Berry's Road, Upper Bucklebury, Reading, RG7 6QL

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## YET ANOTHER NAME CHANGE

Readers will remember the demise of Cruciferae, Graminae, Labiatae, Umbelliferae, etc. This wasn't just because they didn't end in '...aceae', but also because they were not derived from the name of the type genus, thus Compositae was replaced by Asteraceae based on *Aster* as the type genus.

I'm sorry to say that the recently proposed Telecomiaceae (*BSBI News* 87) is another such invalid family name. The type genus, by implication, would be *Telecomicus* but this does not appear to exist. It is proposed therefore that the name be changed to Poleaceae, based on the type genus *Polea*.

It now only remains for Blower to describe the colonial alpine gyratory species, and for the tall form with quadrifid-base that grows in linear colonies like *Polea telegraphica*, but on a much larger scale, to be described by somebody whose name can be abbreviated to 'Dzt-dzt'...

MALCOLM STOREY, 43 Berry's Road, Upper Bucklebury, Reading, RG7 6QL.

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## COCOS LUCIFERA (GLOW PALM) ANOTHER MEMBER OF THE POLEACEAE (TELECOMIACEAE)

With regard to recent notices in *BSBI News* by Mssrs Bowen, Hill-Cottingham, Nelson, and Pratt on Pseudpinus and relatives, it may perhaps be of cladistic and historical biogeographical interest to note the presence of a related genus or outgroup as far away as Malaysia. This wide disjunction suggests either a very ancient origin of the group; it is not unlikely that related forms will be discovered once botanists are made aware of their presence and it is not unusual for species on the very doorstep or back yard to be neglected. Or, considering the colonial influence of the British Empire in Malaysia, an early introduction followed by rapid speciation may have taken place.

In the *Malayan Naturalist* 46(4): 13-15 (1993) Wulf Killmann has given a vivid account (with colour plates) of what he has called *Cocos lucifera* Kill. ex Philips of the Palmae, but which undoubtedly belongs to the alliance of the Telecomiaceae [now renamed Poleaceae, see above]. He has recorded two varieties, a tall and a short one. As the readers of *BSBI News* may not have access to this paper, allow me to briefly summarise its contents.

The first variety ('Sultan Ismail Tall') is exactly 10m ± 0m tall (n=40), the bole is octagonal, reminiscent of some cultivated bamboos, and 19cm dbh (diameter at breast height). It's internal structure could not be examined as the local population attributes magic powers to this 'kelapa api' (glow palm) and resists destructive sampling. The specimen described had a tuft of 22 leaves starting at a height of 9.5m. Their diagnostic feature is that they glow at night from small protrusions on the leaf surface, while some leaves end in a larger 'glow button'.

Some specimens have a yellow green luminescence, others flicker in all colours of the rainbow and further research may prove the existence of two species, *Cocos unicolor* and *Cocos versicolor*. Simultaneous starting and stopping of the luminescence indicates a possible connection through rhizomes as has been described for *Eugeissona tristis*. (This suggests that the aerial connective filaments of *Polea telegraphica* may be adventitious roots. JFV). Such subterranean connections are corroborated by the fact that individuals grow in clusters or even rows. The local people have made use of this phenomenon by aligning their foot paths in such a way that crossings are below the trees. Modern city planners are reported to increasingly use the glow palms as wayside trees, thus saving considerably on streetlamps.

The second variety ('Tun Razak Dwarf') has the same glowing properties and differs mainly by being only 4m tall with a terete stem of 8cm dbh.

The species apparently was originally riparian and was very common in the early 20<sup>th</sup> century in certain areas. Due to pollution and ecological destruction of its habitat the species has suffered considerably.

It has been suggested that the plants light up at night to attract pollinators, but no flowering or fruiting was observed during more than a year's observation. Possibly it flowers only once like the sago palm.

DR J.F. VELDKAMP, Nationaal Herbarium Nederland, Universiteit Leiden branch, POB 9514, 2300 RA Leiden, The Netherlands. e-mail: veldkamp@nhn.leidenuniv.nl

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## A DEFENCE OF LAWN WEEDS

In February, during the kind of a frivolous exchange that often arises in Internet news groups, I remarked upon the intentionally unkempt state of my lawn. This was responded to privately by Martin Cragg-Barber with the handsome offer of a copy of his new book, *Appreciating Lawn Weeds*, mentioned in the last issue of *BSBI News*. I felt that the least I could do in return is give it a more thorough mention here, which our noble editor has kindly agreed to.

In his message, Martin described the book thus: '[It] is a 40 page booklet, putting up the flag for the weedy lawn and attempting to celebrate it as both genetic and aesthetic diversity. As a professional gardener I am always saddened when garden owners try to apologise for having weedy lawns instead of taking an intelligent interest in them — and felt that if there was some work which says "Appreciate them!" then this might help change the attitude'.

By the time I got round to reading the book, in early April, my own small patch of grass was under its annual threat of invasion. This is not so much a lawn as a graminaceous Belgium, with insecure boundaries and an uncertain identity. At the time, Ground Elder was massing on the eastern border and, to the south, Golden Saxifrage was trying, like the Normans at Senlac, to lure the Saxon grass down the slope to its doom's day. Alongside it dashed the Pilewort cavalry, yellow banners a-flutter. In secretive contrast to this bravado, Dandelion agents, silently parachuted in the previous year, were awaiting reactivation, while Creeping Buttercup's sappers were infiltrating at several points.

Time-lapse mayhem was ready to be unleashed. But, as in every year, the herbaceous border patrol got there first with her favoured weapon of mass destruction, the Dutch hoe, and repelled the encroaching hordes. 'If I left it to you, there'd be no grass at all.'

Would I then, I wonder occasionally, be reminded later in the year that the weeds needed mowing? I have never dared find out. Perhaps, encouraged by Martin's book, I will — one day. Alternatively, I could try the line proposed by Jerry D. Hodo, another member of the news group, who defined his lawn as 'a multi-tiered complex of carefully orchestrated microsystems'. I suspect I would still have to mow it.

Despite the wifely campaigns, the resulting sward is full of interesting and varied species. If it were up to some of the gardening pundits, even this would be forbidden. Take, for example, the otherwise amiable Monty Don. In the magazine section of *The Observer* for 22 April 2001, he wrote an article entitled 'Invasion of the Soil Snatchers'. I thought at first that the headline was meant to be humorously ironic, but it became clear that Don meant it. After some interesting material about weed species as indicators of soil type and fecundity, he soon started talking eradication. At the end, he presented a table of weeds in order of 'difficulty'. I suspect that few people would disagree with his first two choices — Japanese Knotweed and Horsetail — but he went on to advocate the complete extirpation of such beauties as Celandine (Greater and Lesser), Daisy, Feverfew, Chickweed, Teasel, Dead-nettles, Common Mallow and Self-heal. Why? Because 'they compete with your chosen plants for water and nutrition'.

This sort of talk is symptomatic of many gardeners' attitudes. It is also, I suspect, the rationalisation of a simple, instinctual hatred of weeds. They are unbidden and 'untidy', an affront to the conceit that a garden can be under complete human control, a reminder that nature can and will have the last word.

The book explores this attitude and points out the inconsistency of it. As John Carter, one of its contributors, says: 'one of the more amusing aspects of gardening is to see the frantic behaviour of people as they cossett [sic] grass in one place and murder it only a foot away'. The same applies in reverse, of course, with flowers. Fortunately, not everyone shares this schizophrenic view. Nettlecombe Court, one of the Field Studies Council's centres, allows Autumn Lady's-tresses to grow all over its croquet lawn. But then, what person of sensibility would want to mow them?

*Appreciating Lawn Weeds* begins with a look at the history and prehistory of lawns and their relationship to medieval launds. *Laund* or *launde*, as Martin points out, is an earlier version of *lawn*. Originally it meant, variously, a plain, a clearing between woods and a glade, attaining its present



meaning as recently as the 18th century. The older meaning was used by poets as early as Chaucer and as late as Dryden and beyond. The *Oxford English Dictionary* links the word to the French *lande* and the Old Celtic *landa*. In turn, the latter links to the Irish, Gaelic, Manx and Breton *lann* and the Welsh *llan*, all with their sense of an inclosure or habited land.

Manx also offers us *faaie*, for a flat field, paddock, lawn or court, leading to a useful expression, lacking in English, *faaselagh*, meaning the weakest or poorest part of a lawn. How nice for the lexically fastidious to be able to say such things as: 'Most of lawn's doing fine, but the *faaselagh*'s full of moss'.

Although unsupported by the *OED*, there is a suggestion that the fabric called lawn, a cambric-like linen favoured, perhaps through coincidence, for handkerchiefs and bishops' sleeves, was so called because it was bleached upon grass.

The book moves on to discuss individual species of weeds. Readers of *BSBI News* are likely to know already of Martin Cragg-Barber's interest in 'teratology' (floral freaks, to us common folk). These get dealt with extensively and, for a while, one thinks that the book might more aptly be titled *Appreciating Misshapen Lawn Weeds*. Fortunately, normality reasserts itself with a case study from Canada of the creation of a new lawn and how letting clover grow has helped. This is followed by a short report from Ireland; a 'think piece' on whether lawn weeds are genetically modified to suit them to their environment and a note on blue lawns.

There are then several pages on the poetry of lawns and lawn weeds. A mention of lawns that, once, every schoolchild knew is this triplet, replete with winsome assonance and wilful alliteration:

Myriads of rivulets hurrying through the lawn,  
The moan of doves in immemorial elms,  
And murmuring of innumerable bees.

And I thought I had a damp garden. The lines were, of course, by the man James Joyce described in *Ulysses* as 'Lawn Tennyson, gentleman poet'.

Tennyson was, consciously or otherwise, following a much earlier example. In his *Vision of Piers Plowman* (c. 1370), William Langland has his narrator trying to recover his poise:

By a wilde wilderness, and by a wodes side;  
Blisse of the briddes abide me made,  
And under a lynde upon a launde lened I a stounde  
To lythe the layes tho lovely foweles made.

In *The Cuckoo and the Nightingale*, also written in the 14th century, Sir John Clanvowe gets down to species. This ode to courtly love, also known as *The Book of Cupid, God of Love*, was formerly ascribed to Clanvowe's (and Langland's) contemporary, Geoffrey Chaucer.

And than, anon as I the day espyde,  
No lenger wolde I in my bedde abyde,  
But unto a wode, that was faste by,  
I wente forth alone, boldely,  
And held my way down by a broke-syde,  
Til I com to a launde of whyte and grene;  
So fair oon had I never in[ne] been;  
The ground was grene, y-poudred with daisye,  
The floures and the gras y-lyke hye,  
Al grene and whyte; was nothing elles sene.

Monty Don would not have approved.

Susanna Blamire, 'The muse of Cumberland', would in turn not have approved of Don's activities or those of his televisual colleagues. In her lament, *When Home We Return* (c. 1790), she describes her feelings at unwonted change:

If the yew-seat's away, or the ivy's awanting,  
We hate the fine lawn and the new-fashion'd planting,  
Each thing call'd improvement seems blacken'd with crimes  
If it tears up one record of blissful old times.

Definitely no decking required. One feels she would have got on better with the French philosopher, Montaigne. In 1580 he said: 'I want death to find me planting my cabbages, but caring little for it, and even less about the imperfections of my garden.'<sup>1</sup>

Although not known as gardener, W.H. Auden liked lawns. While a master at The Downs School, Malvern, he insisted on sleeping outside in summer, to the delight of his pupils. He wrote about it in a 1933 poem entitled *A Summer Night*, dedicated to his headmaster, Geoffrey Hoyland. It begins:

Out on the lawn I lie in bed,  
Vega conspicuous overhead  
In the windless nights of June,  
As congregated leaves complete  
Their day's activity; my feet  
Point to the rising moon.

Auden's rhyming scheme is clearly more complex than Langland's, six centuries before, but he uses assonance to the same good effect. Separated by time these poets might have been but not by distance, with Piers Plowman walking 'on a May morwenyng on Malverne hilles'. Auden and Langland shared more than pleasure in lawns.

This same pleasure clearly motivates Martin Cragg-Barber and his colleagues in this book. It is, as he describes it in his preface, 'a ragged flag, hastily and pragmatically constructed, hoisted above the trench'. (The hastiness shows, alas, in the number of distracting typos that litter the work.) Elsewhere, he describes it as a 'proto-manifesto'. Viewed as such, these particular congregated leaves are worth purchasing and reading. The pictures in it, including the cover photograph of the Dobcross Daisy, add to the interest.

More is to come from Martin and his colleague, Rosemary Castle, including information about inspecting and appreciating lawn mosses. To stay up to date, and join the nascent campaign, contact him at That Plant's Odd, 1 Station Cottages, Hullavington, Chippenham, Wilts SN14 6ET. Tel 01666 837369 (best before 3.30 p.m.); e-mail: martin@worldmutation.demon.co.uk. The book retails for £3.75 (£4.00 including UK postage).

<sup>1</sup> What Michel Eyguem de Montaigne actually said, since he spoke no English, was 'Je veux . . . que la mort me trouve plantant mes choux. mais nonchalant d'elle, et encore plus de mon jardin imparfait'. (*Essays*, book 1, chapter 20.)

ROGER WHITEHEAD, 14 Amy Road, Oxted, Surrey, RH8 0PX.

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## EVENING PRIMROSE

'When once the sun sinks in the west,  
And dew-drops pearl the Evening's breast  
Almost as pale as moon beams are,  
Or its companionable star,  
The Evening Primrose opes anew  
Its delicate blossoms to the dew;  
And shunning, hermit-like, the light,  
Wastes its fair bloom upon the Night;  
Who, blindfold to its fond caresses,  
Knows not the beauty he possesses.  
Thus it blooms on till Night is by;  
When Day looks out with open eye,  
'Bashed at the gaze it cannot shun,  
It faints, and withers, and is done.

John Clare 1835

## NOTES AND ARTICLES

### DEFOLIATION OF THE SCARCE SPECIES *BETULA NANA* (DWARF BIRCH) BY CATERPILLARS OF THE NORTHERN EGGAR MOTH (*LASIOCAMPA QUERCUS CALLUNAE*)

Dwarf Birch (*Betula nana*) is nationally scarce in Britain, occurring only locally in the Scottish Highlands and with two outlying populations in northern England (de Groot *et al.* 1997). These populations tend to be relatively small in numbers and widely dispersed (Aston 1984). The species is associated with M19c *Calluna vulgaris* — *Eriophorum vaginatum* blanket mire, *Vaccinium vitis-idaea* — *Hylocomium splendens* subcommunity, *Betula nana* variant (Rodwell 1991) and although populations extend into the montane zone it can be found down to 120m in Sutherland. While *Betula nana* usually remains inconspicuous amongst the heather (*Calluna vulgaris*) it can reach up to a metre if protected from grazing. Two approaches to reducing grazing pressure can be adopted, large scale reduction in sheep and/or deer numbers, or fencing them out, with the latter approach the more common one. An enclosure of approximately 250 hectares on Beinn Liath Mhor a Ghiubhais Li was visited in July 1999. In the south-western part of this enclosure, between 300 and 400m, there are localised stands of *Betula nana* growing among *Calluna vulgaris*, *Deschampsia flexuosa* (Wavy Hair-grass), *Eriophorum vaginatum* (Hare's-tail Cottongrass) and *Molinia caerulea* (Purple Moor-grass). It was observed that one of these stands, though protected from sheep and deer, had been heavily defoliated by caterpillars of the northern egggr moth (*Lasiocampa quercus callunae*).

#### Methods

A brief assessment of the extent of this defoliation was made by randomly selecting 39 plants. Following the practice of Whittaker (1993) an individual plant was defined by the point where it entered the substrate and the stem diameter at this point was recorded. For each individual the maximum vertical height was measured and the total number of shoots per individual was recorded as well as whether or not that shoot had been defoliated.

#### Results

Stem diameter ranged from 2.2 to 12.7mm with a mean of 6mm (SE mean = 0.5) while the maximum vertical height ranged from 105–520mm with a mean of 254mm (SE mean =16). Five of these 39 individuals had shoots defoliated (i.e. loss of all the green leaves) and this ranged from 37% to 88% of the current growth.

#### Discussion

In Scotland *Lasiocampa quercus callunae* feeds mainly on *Calluna vulgaris*, *Erica tetralix* (Cross-leaved Heath) and *Erica cinerea* (Bell Heather) and there are no previous records of it feeding on any birch species. Although only 5 of the 39 plants sampled had suffered defoliation by the caterpillars the amount of photosynthetic material removed was very high and could have major consequences for the growth and reproduction of these individuals of a scarce species. The affected individuals were not necessarily taller than the rest of the stand. At other sites where browsing by sheep and deer is high, additional defoliation by invertebrates may reduce *Betula nana*'s ability to survive grazing. A study of *Calluna vulgaris* dieback by Kirkpatrick and MacDonald (1997) showed that after defoliation by caterpillars of *Operophtera brumata*, recovery was often poor especially if the heather was old or there was high grazing pressure from sheep.

#### Acknowledgements

The assistance of Mr P. Wortham, Scottish Natural Heritage and Mr J. Logie of Lochluichart estates in locating the site is gratefully acknowledged. Dr Mark Young, University of Aberdeen, provided information on the feeding habits of the Northern Egggr.

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E. BURFORD & A.H. KIRKPATRICK, Dept of Environmental Science, University of Stirling FK9 4LA

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### **OPHIOGLOSSUM AZORICUM: IS IT AN OVERLOOKED SPECIES?**

My brother Ian found a large population of *Ophioglossum* on Exmoor and kept wondering whether it could it be *O. azoricum* (Small Adder's-tongue), although he named it as *O. vulgatum* (Adder's-tongue). The following year, 1995, he took me to inspect it. Since neither of us had seen *O. azoricum* before, we still couldn't make up our minds; Gill Read came to our rescue and offered to show us the fern at a New Forest site in 1998. Ian knew at once that the Exmoor site had to be visited again so the correction could be put right for the Atlas 2000 project.

The Exmoor site (South Somerset v.c. 5) was thus found in 1994 and renamed in 1999 by the Somerset Rare Plants Group. It grows on the west-facing slope of Land Combe, (SS74) opposite Deepark Plantation on the east side of Badgworthy Water, the border with Devon, 4km inland from the sea. Here it grows with *Botrychium lunaria* (Moonwort) in the grassy clearings between the patches of Bracken as well as amongst it. The population is thought to be 10,000 plus strong.

Although my brother and I commented on how small the *Ophioglossum* blades were at a site in Co. Waterford (H6) when we were there in 1997, neither of us considered the possibility that it could be *O. azoricum*. However, when I returned in May 2001 to the shores of the small Lough (S31) below Coumshingaun Lough on the east side of Comeragh Mountains, as with the Somerset site, it was renamed, but too late to be corrected for the Atlas 2000. This site is 22km inland from the nearest point of the coast, at an altitude of c.380m. Here two patches grow in the bare gravel around the Lough, relying on the water level to drop each spring as when found in 1997 much of it was under water.

It just goes to show that you need to look at your Adder's-tongue carefully as both of these sites were new for their counties.

PAUL R. GREEN, Coombegate Cottage, St Ive Cross, Liskeard, Cornwall, PL14 3LZ

E-mail: pgreencoombegate@tinyworld.co.uk

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### **GLYCERIA NOTATA AS A CORNFIELD WEED**

On 31<sup>st</sup> May 2001 at Capel St Andrews, TM367487 (v.c. 25, East Suffolk), I found a single stalk of *Glyceria notata* (previously *Glyceria plicata* (Plicate Sweet-grass)) growing in the middle of a field of wheat. During this wet Spring we have had lakes standing for weeks in many of our local fields, and deep gullies in others where the sandy soil had been washed away. This particular site was on slightly sloping ground, with a small copse between it and a stream. From the road I had limited vision of the stream, but saw no *Glyceria*. I don't think this grass is traditionally considered to be an arable weed!

RICHARD ADDINGTON, 20 Riverview, Melton, Woodbridge, Suffolk IP12 1QU

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## NOTES ON AQUATIC GARDEN CENTRE PLANTS

There has been a recent upsurge of interest by gardeners in aquatic features, and a corresponding increase in the number of suppliers of aquatic plants. In visiting Dorset gardens, I am surprised by the frequent presence of artificial ponds, often with solar-powered fountains and sometimes with streams with their flow maintained by pumps. Most gardeners appear to buy their plants in from suppliers rather than collecting them from the wild. Many admit to problems in disposing of aquatic plants which have outgrown the space provided for them.

Garden aquatic plants can be divided arbitrarily into four groups:

- I Native species with numerous suppliers
- II Native species with few suppliers
- III Alien species with numerous suppliers
- IV Alien species with few suppliers

**Group I** (13 species; *Alisma plantago-aquatica* (Water-plantain), *Butomus umbellatus* (Flowering-rush), *Ceratophyllum demersum* (Rigid Hornwort), *Cyperus longus* (Galingale), *Hippuris vulgaris* (Mare's-tail), *Hottonia palustris* (Water-violet), *Hydrocharis morsus-ranae* (Frogbit), *Iris pseudacorus* (Yellow Iris), *Nymphaea alba* (White Water-lily), *Nymphoides peltata* (Fringed Water-lily), *Osmunda regalis* (Royal Fern), *Ranunculus lingua* (Greater Spearwort), *Stratiotes aloides* (Water-soldier)).

Many of these have increased in frequency in 'wild' habitats recently, probably from garden throw-outs. It would be worth looking for characters which distinguish garden forms from native ones. Examples are:

*Alisma plantago-aquatica* — often sold as 'var. parviflora'

*Butomus umbellatus* — 'Rosenrot' & 'Schneeweischen'

*Iris pseudacorus* — many cultivars including a distinctive cream form

*Nymphaea alba* — many cultivars, some pink

*Nymphoides peltata* — 'Bennettii'

*Osmunda regalis* — 'Crispata', 'Purpurascens' & 'Undulata'

*Ranunculus lingua* — 'Grandiflorus' is usually supplied

**Group II** (6 species; *Alisma lanceolatum* (Narrow-leaved Water-plantain), *Alopecurus aequalis* (Orange Foxtail), *Isolepis cernua* (Slender Club-rush), *Ludwigia palustris* (Hampshire-purslane), *Potamogeton crispus* (Curled Pondweed), *P. pectinatus* (Fennel Pondweed)).

These have very few suppliers listed in the RHS Plant Finder. The form of *Alopecurus aequalis* seen in garden ponds is much more erect than wild plants, while the garden form of *Isolepis cernua* is taller and lusher than wild populations.

**Group III** (31 species; *Acorus gramineus* (Slender Sweet-flag), *Aponogeton distachyos* (Cape-pondweed), *Azolla filiculoides* (Water Fern), *Calla palustris* (Bog Arum), *Cotula coronopifolia* (Buttonweed), *Crassula helmsii* (New Zealand Pigmyweed), *Cyperus involucratus*, *Darmera peltata* (Indian-rhubarb), *Eichhornia crassipes* (Water-hyacinth), *Elodea canadensis* (Canadian Waterweed), *Iris sibirica* (Siberian Iris), *I. versicolor* (Purple Iris), *Lagarosiphon major* (Curly Waterweed), *Lysichiton americanus* (American Skunk-cabbage), *L. camtschatcensis* (Asian Skunk-cabbage), *Matteuccia struthiopteris* (Ostrich Fern), *Myriophyllum aquaticum* (Parrot's-feathers), *Nymphaea marliacea* (a waterlily), *Nymphaea odorata* (Fragrant Waterlily), *Onoclea sensibilis* (Sensitive Fern), *Pontederia cordata* (Pickerelweed), *Typha laxmannii* (a bulrush), *Zantedeschia aethiopica* (Altar-lily), see also below).

The above have all escaped, and *Crassula*, *Elodea*, *Lagarosiphon* and *Myriophyllum* have caused more or less serious problems. *Cyperus involucratus*, *Eichhornia*, *Pontederia* & *Zantedeschia* are too tender to survive for long in the wild. Eight species in this group, though widely available, do not appear to have escaped yet. These (*Houttuynia cordata*, *Juncus decipiens* 'spiralis', *J. effusus* 'spiralis', *Lobelia cardinalis*, *Oenanthe javanica*, *Orontium aquaticum*, *Saururus cernuus* and *Typha minima*) should be looked for. It would be useful to have brief descriptions of these eight in *BSBI News*.

**Group IV** (7 species; *Egeria densa* (Large-flowered Waterweed), *Elodea nuttallii* (Nuttall's Waterweed), *Lemna minuta* (Least Duckweed), *Nuphar advena* (Spatter-dock), *Pistia stratiotes* (Waterlettuce), *Sagittaria latifolia* (Duck-potato), *S. rigida* (Canadian Arrowhead)).

Despite having few suppliers, all have escaped. *Elodea* and *Lemna* have rapidly become widespread in the wild; *Pistia* is tender.

There is a fifth group of aquatics which, like most Potamogetons, are not listed in the Plant Finder, but which are assumed to have escaped from garden ponds or aquaria in some of their localities. These are *Cabomba caroliniana* (Carolina Water-shield), *Elodea callitrichoides* (South American Waterweed), *Luronium natans* (Floating Water-plantain), *Sagittaria rigida* (Canadian Arrowhead) and *Vallisneria spiralis* (Tapegrass); only *Luronium* has claims to being a native plant.

I therefore ask aquatic garden suppliers to list the characters of the cultivars that they sell, for botanists to look more closely at aquatic plants which they suspect to be escapes, and for taxonomists to instruct us as to the characters of the alien species which, I predict, are likely to escape in the twenty-first century.

HUMPHRY BOWEN, West Down, West Street, Winterborne Kingston, Blandford, Dorset DT11 9AT

## THE EDEN PROJECT

This project, set in a disused quarry north of St Austell, is well worth a visit. Although active planting is still in progress, over a million visitors have been there.

Relatively few weeds were seen in June, 2001; they included *Brassica rapa* (Wild Turnip), *Cynosurus cristatus* (Crested Dog's-tail), *Epilobium brunnescens* (New Zealand Willowherb)(rare), *E. tetragonum* (Square-stalked Willowherb), *Juncus bufonius* (Toad Rush), *Phleum pratense* (Timothy) and *Tussilago farfara* (Colt's-foot), as well as the alien *Lotus corniculatus* var. *sativus* (Common Bird's-foot-trefoil). Inside the humid tropical biome, which is kept at 28°C, I saw *Epilobium ciliatum* (American Willowherb), *Oxalis corniculata* (Procumbent Yellow-sorrel), *Senecio sylvaticus* (Heath Groundsel) and a *Digitaria* which might have been *D. ischaemum* (Smooth Fingergrass); all were rare, but it will be interesting to record what else will survive or flourish here,

A varied and imaginative selection of plants are already being used for ground cover, but the only native species are horticulturally grown ferns such as *Asplenium trichomanes* (Maidenhair Spleenwort), *Blechnum spicant* (Hard Fern), *Dryopteris affinis* (Scaly Male-fern), *D. dilatata* (Broad Buckler-fern), *D. filix-mas* (Male-fern), *Osmunda regalis* (Royal Fern), *Phyllitis scolopendrium* (Hart's-tongue), *Polypodium vulgare* s.l. (Polypody). The owner should be encouraged to use more colourful native plants from the rich Cornish Flora as massed ground cover in this splendid site.

HUMPHRY BOWEN, West Down, West Street, Winterborne Kingston, Blandford, Dorset DT11 9AT

## SOME DRIFTLINE SPECIES — A HOME TRUTH?

While doing my tax return recently, the TV was on at the same time; showing a holiday programme to which I was paying limited attention.

One item featured a happy coach-load of our worthy citizens of eastern origin on a day trip to the seaside. Later I noticed them all at the edge of the sea on some deserted long beach throwing various exotic fruits (including coconuts) into the water as part of some joyous religious festival.

These fruits would bob about in the water for some time before making landfall again in various places, and therefore could appear to have drifted much further, from abroad.

JOHN R. PALMER, 19 Water Mill Way, S. Darenth, Kent DA4 9BB

## LOCALISED RECORDS FROM THE FOURTEENTH CENTURY!

British field botany has traditionally been thought of as starting with William Turner, in the middle years of the sixteenth century. And certainly we owe to him the earliest localised records of wild species to appear in print. Though it has long been known that Henry Daniel, a medically-inclined Dominican friar, was an active student of plants in this country two centuries before (by 1379, when Richard II was on the throne, and as he was an old man by then probably a good deal earlier), it has been overlooked till recently that one of Daniel's manuscripts includes a few 'scraps of topographical botany' — in the words of their discoverer, the late John Harvey, the distinguished medievalist who latterly brought his expertise to bear on the history of horticulture. As the handful of records in question were published by Harvey in a work nominally concerned with medieval gardens, they may escape the notice of future compilers of the relevant local Floras, who will surely want to take account of them (even though, if the strict criterion of some connoisseurs of 'first records' is adhered to, their manuscript nature means that they cannot be accorded priority over Turner's).

The records are to be found on pages 119 and 162 of Harvey (1981) :—

*Colchicum autumnale* (Meadow Saffron): 'in the West country of England in a mead a little from Bruton' (N. Somerset, v.c. 6). Turner's 1551 record of this was also from the West Country (as he at least understood that term), 'besyde Bathe'.

*Juniperus communis* (Common Juniper): 'in many places in Kent under wood sides and bushes and namly in east Kent near a town they call Chatham by south-east, there thou myst go a mile and more by used cartway, and there right nought groweth but that and grass' (W. Kent; v.c. 16). Turner first reported this in 1548 from 'many places in Englande' and later, in 1562, 'most plentifullye in Kent'.

*Malvaceae*: a mallow which 'nowhere groweth but in woods . . . and about the midst of England in the forest of Rockingham between Stamford and Cleve [King's Cliffe] in the right hand of the high way under bushes . . .' (Northants., v.c. 32). Oddly, Harvey thought this probably *Malva neglecta* (Dwarf Mallow), but the habitat surely rules that out. *Althaea hirsuta* (Rough Marsh-mallow), long known on certain woodland rides in Somerset and Kent, seems a likelier candidate; though traditionally suspected of being introduced, it is rated a possible native in the *Atlas flora of Somerset* (Green, Green & Crouch 1997).

*Apiaceae*: '*Daucus azinimus*', an umbellifer 'more fair and wonderful to the sight' than the wild or cultivated Carrot, with a stiffer root and taller, 'nearhand as wheat', with pale red flowers like those of a Corncockle and canedelabra-like branching from about the middle of the stem, whence 'some call it *Candelabrum Moisy*, the Moses' Candlestick'. (No such vernacular name is listed by Grigson 1955). Daniel knew this 'only in Lincolnshire within a mile from Stamford town on the left hand toward Lincoln on the right hand is Water Mead'. Harvey thought this apparently *Turgenia latifolia* (Greater Bur-parsley), the only British umbellifer which has flowers of the colour described and known to have been once more plentiful as a casual of arable fields and waste places.

*Calluna vulgaris* (Heather) and *Vaccinium myrtillus* (Bilberry) — for which Daniel's names were respectively 'Lynk' (i.e. Ling) and 'Pety Juniper': in plenty on a heath on the borders of Dorset and Wiltshire near Shaftesbury. (This seems more probably in v.c. 9 than v.c. 8.)

But as to where *Eryngium maritimum* (Sea-holly) occurs Daniel is unfortunately no more precise than the 'est half of Britlond on the see sandys'.

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## GERANIUM ROBERTIANUM VAR. MARITIMUM: TYPE LOCALITY CONFUSED

David Allen has corrected the authorship of *Geranium robertianum* var. *maritimum* (*Watsonia* 23: 451), citing Cooper's prior publication; though I'm afraid the locality cited is still confused.

The location Cockbush Common was on the extreme SW tip of West Wittering (v.c. 13), since much eroded and now known as East Head. Wolley-Dod (1937) states that there was a Coastguard Station there 'long since washed away, though Cockbush Common still exists'; however, it was not figured on the contemporary O.S. map. His note is under the heading of an obviously mistaken record for *Hymenophyllum* (p. 535). He cites Cooper's record (p. 97) without a date, though presumably 1834.

Baker (*Watsonia* 3: 270 *et seq.*) quotes the Shoreham specimen as the type, presumably attributable to Babington. Unfortunately he gives Smith's 1833 record as Cockburn Common (sic).

Arnold (1887) names a var. *purpureum* Jord. for Cockbush, 1879. This presumably refers to a plant now known as *G. purpureum* Villars (Stace, 1991).

The confusion starts with the manner in which Cooper published it in Horsfield (1835), as follows:

<i>G. robertianum</i> var. <i>maritimum</i> .	Shoreham, Cockbush.
<i>G. purpureum</i>	Middleton, Cockbush.

Three different stations are here involved.

Cockbush Common is figured on Davies' 1834 map in Horsfield (1835). It is about 30 miles (48km) west of Shoreham; Middleton is in between.

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FRANK PENFOLD, Morels, Burpham, Arundel, BN18 9RR.

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## GARDENERS' FAVOURITE THREATENS WOODLANDS

This was the title of an article in *The Times* of May 22<sup>nd</sup> 2001. The article outlined the threat posed by *Lamiastrum galeobdolon* subsp. *argentatum* and included a contribution from our member Dr Ian Rotherham who has made a special study of the subspecies. He reported that the species presented a severe danger to traditional woodlands and has launched an appeal to find out more about the origin of the subspecies in Britain and the progress being made in ways of controlling it. He also commented:

'It is a very invasive and aggressive species and will eliminate almost everything else. When it appears in the wild it can spread over 100 square metres in two years, which is incredible in ecological terms. The important thing from our point of view is first of all to find out where it is in gardens and in the wild so we can map it out. We don't know when it was introduced to gardens and when it spread to the wild and we are trying to establish that before we can decide if we can control it.'

This interesting and illuminating article unfortunately also included the following comment, which has nothing to do with Ian, I hasten to add:

'Botanists believe that the plant is a natural mutation from a related species, *possibly wood sage or wall germander*,' [my emphasis].

What a shame that such potentially useful articles so often include such ridiculous statements. Don't journalists ever get their copy checked?

I am grateful to the member who sent in the cutting from *The Times*, but am ashamed to admit that I have lost the covering note and have no idea as to who it was.

EDITOR



## WILLOW WOES

Recently I had occasion to send two willow specimens to Desmond Meikle which I thought might be hybrids. With commendable courtesy and speed they were returned with his expert determinations that both were 'forms of the tiresomely variable *Salix cinerea* subsp. *oleifolia*'.

This experience reminded me of the following verse by an unknown poet in the visitors book of the Lawers Hotel (presumably with apologies to W.S. Gilbert) :—

'By the side of a river a botanist sits  
Near a Willow, a Willow, a Willow.  
He puzzles his brain till he nearly has fits  
O'er that Willow, that Willow, that Willow.  
He glares o'er his Flora with wild rolling eyes  
And thinks that at last he has captured a prize.  
Alas! It is but a CAPREA disguise,  
That Willow, that Willow, that Willow.'

I suspect that this lament will strike a familiar note with many members!

ALLAN STIRLING 17 Austen Road, Jordanhill, Glasgow, G13 1SJ

## GITH AND GITHAGO — EARLY NAMES GIVEN TO THE CORNCOCKLE

The Corncockle (*Agrostemma githago*) may first have arrived in Britain with the Iron Age farmers and was widespread as a pernicious weed of cornfields throughout North-west Europe from Roman times until the middle of the 20<sup>th</sup> century. Having spent much of this time trying to eradicate this weed that contaminated the corn with its poisonous seeds, and having by our efforts brought the weed to extinction, or near extinction, we are now trying to conserve it as a rare wild plant.

In late Anglo-Saxon times (11<sup>th</sup> cent.) the weed was called 'coccel,' but in the 15<sup>th</sup> century the herbalists often applied the names 'gith' and 'Nigella' to the weed *Agrostemma githago*. The reason for this is explained, though not as clear as it might be, in the Oxford English Dictionary under 'cockle'. It seems that the corncockle became confused with the very useful, non-poisonous, herb *Nigella sativa* (Black-cumin), which is the original and real 'gith'. *Nigella sativa* the black-seeded corn weed of central Europe was unknown in Britain, but due to references in literature the names 'gith' and 'Nigella' were transferred to the British, black-seeded corn-weed, the corncockle.

The application of the names 'gith' and 'Nigella' to both plants can make it difficult to decide which plant is being referred to by some early authors. For example, William Turner says 'Githago' sive Nigellastrum . . . vulgus appellat Coccle . . .' (Turner '*Libellus*' 1538). This refers to the corn cockle, whereas: 'Git as named . . . in English herbe Git or Nigella romana' (Turner, '*Names of Herbs*' 1548) refers to *Nigella sativa*.

It is in Turner (1538) that the name form 'githago' first appears, meaning gith-like. (See H. Gilbert-Carter '*Glossary of the British Flora*' 1950). Gerard in his Herbal (1597) put the two plants side by side, but made certain that they should not be confused by name. He states 'Cockle . . . is called Gith . . . yet not properly.'

The miss-applications of the names 'gith' and 'Nigella' to the corncockle seem to apply, as far as I can ascertain, only from the 14<sup>th</sup> century. Therefore in the Old English Herbals there should be no confusion between the corncockle and the plant called 'gith' or 'githrife'. In these herbals the word 'sutherne' is often used in reference to plants coming to England from the south of Europe. Gith is called a southern herb (Gitte hatte sutherne wurt). Therefore it seems highly probable that the plant called 'Gith' or 'Githrife' in these Old English herbals is the well-known medicinal herb *Nigella sativa*, and not, as is generally believed, the Corncockle.

PETER C. HORN, 22 Jowitt Avenue Kempston Bedford MK42 8NW

## PLANT COLONISATION ON GREAT DUNN FELL, CUMBRIA

I was interested and, at the same time, disappointed to read the article describing the colonisation of plant communities on Great Dun Fell, Cumbria (*BSBI News* 86: 20–24, January 2001). Interested because I know the site well, and disappointed in that Corner and Robinson's enquiries did not reveal that it was my consultancy that was responsible for the restoration work on the summit which had been damaged by the establishment of new radar installations for the Civil Aviation Authority. To put the record straight, we had no involvement in the construction works, but were asked to restore vegetation to the summit so that it fitted in with its location within a World Biosphere Reserve, and SSSI which is crossed by the Pennine Way. The exigencies of the local climate and availability of seed resulted in the hydroseeding option being taken in 1986 for the first phase and in 1988 for the western half of the site in the second phase. We also collected local material, grew it on and inserted 2800 plants of *Vaccinium myrtillus* (Bilberry), *Galium saxatile* (Heath Bedstraw) and *Carex bigelowii* (Stiff Sedge) as species we did not expect (from our investigations) to be likely to colonise naturally. We also divided local clumps of rushes and planted these in wet areas.

We have subsequently monitored the progressive colonisation of the different areas using both quadrats and species listing from 1988 to 1991 and, again, in 1998.

I would suggest that the key factors involved in the development of the flora have been the extent of bare ground which provided ample colonisation sites for species over a prolonged period, and the high pH and low nutrient status of the soil (the pH was much higher on the disturbed subsoils mixed with topsoils than the surrounding intact soils). These will both have slowed down growth rates and kept gaps open.

We intend to publish our results showing the changes over time in more detail at a later date.

PENNY ANDERSON, Penny Anderson Associates Ltd, Park Lea, 60 Park Road, Buxton, Derbyshire, SK17 6SN. Tel: 01298 27086. Fax: 01298 23776. E-mail: paa@paa-ecol.demon.co.uk

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## CHAUCERIAN BOTANY

In *BSBI News* 87: 4, the Editor (curtesy of A. Marshall) quotes Geoffrey Chaucer (c.1340-1400) with a line from *Anelida and Arcite*:

*'First folow I Stace, and after him Corinne'*

then asks the question: 'But who is this Corinne?'

Corinne is, of course, the Chaucerian spelling of CORINE (*CO-ordination of Information on the Environment*) which ran from 1985 to 1990 to provide environmental data across the European Community as a prerequisite to the development of Community environmental policy. Its main focus was the CORINE Biotopes project which aimed to identify the sites of major importance for nature conservation across Europe.

More details at the web site: <http://www.daba.lu.lv/ldf/CORINE/History.html>

That's Corinne explained. Obviously Chaucer was not just forward looking in his taxonomy but European in his conservation thinking.

He was evidently a zoologist too. Annelida (Chaucerian spelling again) is the phylum containing segmented worms (e.g. earthworms, leeches, not to mention various intestinal parasites which were much more familiar in Chaucer's day) so I hesitate to ask: what is this Arcite?

MALCOLM STOREY, 43 Berry's Road, Upper Bucklebury, Reading, RG7 6QL

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## BOTANY IN LITERATURE — 25

George Eliot wrote her first novel *Adam Bede* in 1857, and following publication of her three short stories under the title of *Scenes of Clerical Life*, in 1858, it was published in 1859.

The following extract from *Adam Bede* occurs just after pretty Hetty Sorrel, arms 'white and plump, and dimpled to match her cheeks', but coarsened (she fancied) towards the wrist by butter-making, has been pacing about her room, stately as a pigeon, an old black lace scarf around her shoulders, and coloured glass and gilded earrings in her ears, all the while thinking of how it would be when she married the local squire, silver-tongued Captain Arthur Donnithorne who 'must love her very much — no one else had ever put his arms around her and kissed her in that way', and who would 'make a lady of her'. Not only is the extract (pp. 151–152, Penguin Classics) a commentary on her aspirations but also on Adam Bede's thoughts on how it would be if he himself were to marry Hetty.

'. . . Every man under such circumstances is conscious of being a great physiognomist. Nature, he knows, has a language of her own, which she uses with strict veracity, and he considers himself adept in the language. Nature has written out his bride's character for him in those exquisite lines of cheek and lip and chin, in those eyelids as delicate as petals, in those long lashes curled like the stamen of a flower, in the dark liquid depths of those wonderful eyes. How she will dote on her children! She is almost a child herself, and the pink things will hang about her like florets round the central flower; and the husband will look on, smiling benignly, able, whenever he chooses, to withdraw into the sanctuary of his wisdom, towards which his sweet wife will look reverently and never lift the curtain. It is a marriage such as they made in the golden age, when the men were all wise and majestic, and the women all lovely and loving.'

### Note

In this passage about the imagined relationship between husband and wife (Hetty — Captain Donnithorne, Adam Bede — Hetty), human beauty, sexuality, and fecundity intermingle via flower imagery. It brings to mind eleven lines from George Crabbe's (1754–1832) poem *The Preceptor Husband* (Whitehead, *BSBI News* 78: 43, 1998) where stigmas are called wives, and anthers ('the things with yellow heads') and filaments ('threads') are called husbands:

'Which is the stigma, show me with the pin,  
Come, I have told you dearest, let me see,  
Times very many, — tell it now to me.'  
'Stigma! I know, — the things with yellow heads,  
That shed the dust, and grow upon the threads;  
You call them wives and husbands, but you know  
That is a joke — here, look, and I will show  
All I remember.' Doleful was the look  
Of the preceptor, when he shut his book,  
(The system brought to aid them in their view,  
And now with sighs returned — 'it will not do.'

Although the wife calls the stamens the stigma, the patronising husband does not appreciate that she regards his childish teaching as 'a joke'. The book with 'the system' is of course none other than Linnaeus's sexual system, the *Systema Naturae*. Which edition the husband has is not apparent although it may readily be supposed that it is at least the twelfth edition (it ran to eighteen editions, the last published in 1835) of 1767 (published 1783), where the Latin is supplemented by an English translation (provided by a 'Botanical Society at Lichfield'). The relevant parts of the system, which I have telescoped by putting the translation directly after the Latin (for the complete exposition the reader is referred to pp. 26–27 of the late W.T. Stearn's introduction to *Species Plantarum* (see references).

*Regnum Vegetabile* (Vegetable Kingdom) : *Clavis Systematis Sexualis* (Key of the Sexual System) : *Nuptiae plantarum* (Marriages of plants) . . . : *Florescentia* (Florescence) : *Publicae* (Public Marriages) : *Nuptiae, omnibus manifestae, aperte celebrantur* (Flowers visible to everyone)

**MONOCLINIA (IN ONE BED)**

*Mariti & uxores uno eodemque thalamo gaudent* (Husband and wife have same bed)  
: *Flores omnes hermaphroditi: stamina cum pistillis in eodem flore* (All the flowers  
hermaphrodite: stamens and pistils in the same flower) . . .

**DICLINIA (IN TWO BEDS)**

*Mariti & Feminae distinctis thalamis gaudent* (Husband and wife have separate beds) :  
*Flores masculi & feminei in eadem specie* (Male flowers and female flowers in the same  
species) . . .

It is not clear if the preceptor and his wife had the same bed although by all accounts the reference is to a conventional marriage. (Although maybe, if the wife is to be believed, that is 'a joke' too). What is clear is that the marriage fits the description of the first class *Monandria* (One male) / *Maritus unicus in matrimonio* (One husband in marriage) / *Stamen unicum in flore hermaphrodito* (One stamen in a hermaphrodite flower). But one wonders, apropos of the wife's reference to 'the things' and 'the threads' and only one stigma, if she would prefer Class XIII, *Polyandria* (Many males) / *Maritis virginti & ultra in eodem cum femina thalamo* (Twenty males or more in the same marriage); ('Such loathsome harlotry' or *scortationes quasi detestabiles*' wrote St. Petersburg academician Johann G. Seigesbeck in 1737). However, no doubt I have been reading too much Freud.

But returning to the two would-be marriages in *Adam Bede*, the situation there at least, as far as Hetty's upper-class aspirations are concerned, is clear, for the chapter (Ch. 15) is entitled 'The Two Bed-chambers' (the fact that the bedroom of the devout Methodist, Dinah Morris, who is thinking very different thoughts, is adjacent to Hetty's, may, from the point of view of salvation, be also taken into account).

The penultimate word on Linnaeus's sexual system must go to Croizat (Léon Camille Marius; 1894–1982) who, in 1945, wrote (as quoted by Professor Stearn, *ibid.*, p. 25) 'by a bold stroke of the pen the nebulous world of plants was made to act like husbands and wives in unconcerned freedom and everybody prepared to grasp the meaning of Monoecia and Dioecia, Syngenesia and Polygamia'.

In conclusion, not only Crabbe, it appears, was a keen reader of Linnaeus but so was George Eliot (as I hope to reiterate in a future issue), her passage being no more than an extension in prose of the *Systema Naturae* which was, in terms of *Monoclinia* (lower-class marriages) and *Diclinia* (upper-class marriages), a preoccupation of her time.

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MARGARET E. SOUCHIER, 26A Dryden Avenue, London W7 1ES

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**TRIFOLIUM MICRANTHUM (SLENDER TREFOIL) AS A LAWN PLANT**

I was interested to read Eric Greenwood's remarks (*BSBI News* 86: 12–15) about *Trifolium micranthum* (Slender Trefoil) 'becoming frequent in Wirral lawns' (Newton, 1990) and by 1998 being 'a constituent of the roadside grass verge' in his study area on the A540 Chester–Hoylake road at Gayton, Wirral, and 'abundant in nearby garden lawns'. He also commented that Newton (1971) had 'suggested *T. micranthum* was extinct in Cheshire (v.c. 58)'. (See photo p. 43).

Nowadays, Vice-county Recorders and Flora writers wisely take records of plants occurring spontaneously in gardens more seriously, but in 1962 or 1963 Alan Newton refused to accept my record of *T. micranthum* in my newly-sown lawn at Rostherne, Cheshire (SJ743834). This was despite my relating to him one of my favourite botanical stories from my undergraduate days at Cambridge a decade earlier, when John Raven gleefully told me that staff of the Botany School used to show their students *T. micranthum* as a rarity in Breckland without realising that it was abundant in almost every

College lawn in Cambridge! Soon after my rebuff in Cheshire the authors of the new Cambridgeshire Flora (Perring, Sell & Walters, 1964) set the record straight there, and, by the time I returned to live in Cambridge in 1976, Dr Max Walters, then Director of the University Botanic Garden, used to show visitors this little clover carpeting closely-cut parts of the lawns there.

It will, as Eric Greenwood suggests, be interesting to see if *Atlas 2000* shows the occurrence of this species to be much more widespread than in the period recorded in the previous *Atlas* (Perring & Walters, 1962). However, recent personal experience suggests that it will be under-recorded: there must still be some botanists who do not recognise this small clover and others who do not look for it in well-maintained lawns. Last year I pointed it out to Dr Franklyn Perring (who certainly knows the plant) in a lawn in West Street. Oundle, Northants (TL039881), when he declared that it was new to 'his' square. Dr Chris Preston tells me that there is a record at BRC for *T. micranthum* in a 'well established lawn (probably 70 years old), between Great Hall and road, Oundle School' by J.S. Rees on 5 July 1977, but none in TL08 for the most recent *Atlas 2000* date-class (1987–1999). On 9 July this year I saw it in the rose garden lawn at Longstowe Hall, Cambs (TL308557), and TL35 proves to be a new 10-km square for it.

Eric Greenwood (*loc. cit.*) suggests that 'the local application of Glyphosate enhances species diversity and seems to be favouring the spread of some formerly rare and localised species', but he also says that *T. micranthum* — as opposed, for example, to *Cardamine hirsuta* (Hairy Bitter-cress) and perhaps now *Valerianella carinata* (Keel-fruited Cornsalad) — 'is probably an atypical member of the open habitats associated with street furniture'. (Certainly it was not one of the 272 taxa recorded by Chater, Oswald & Preston (2000) in Cambridge and Aberystwyth streets in 1998 and 1999.) I wonder if it is known how resistant *T. micranthum* is to Glyphosate and other herbicides. Max Walters told me in the 1970s that the use of herbicides was permitted on the main lawn of the Botanic Garden (TL454572) only around the edges; I *thought* he went on to say that the distribution of *T. micranthum* there reflected this policy, since it was restricted to the middle, but he now has no recollection of this. The evidence at Oundle goes the other way: the owner of that particularly well-maintained lawn (in which I could find no other dicot) said he had tried his utmost to eliminate it with herbicides but without success!

Just as a postscript (relevant both to Eric Greenwood's article and to those by Mike Rowe and Stan Woodell in *BSBI News* 86: 35–36 and 87: 29–30), I can record that Chris Preston and I have known *Valerianella carinata* in Albert Street, Cambridge (TL450594), annually since May 1995. At the beginning of February this year there were hundreds of plants and little else growing with them, but soon afterwards many of them were removed and in April the remainder were all killed by the City Council's newly introduced 'residual weedkiller (a combination of Glyphosate and Diuron)', claimed not to 'risk damaging wildlife' (White, 2000). Currently the area is still weedless: it will be interesting to see how resistant *V. carinata* proves to be in the longer term.

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## FIVE DISTINCT METHODS OF SPREAD BY *URTICA DIOICA* (COMMON NETTLE)

The first year of Plantlife's Common Plants Survey for Britain put *Anthriscus sylvestris* (Cow Parsley) 6<sup>th</sup>, *Plantago major* (Greater Plantain) 5<sup>th</sup>, *Plantago lanceolata* (Ribwort Plantain) 4<sup>th</sup>, *Galium aparine* (Cleavers) 3<sup>rd</sup>, *Crataegus monogyna* (Hawthorn) 2<sup>nd</sup>. *Urtica dioica* (Common Nettle) came 1<sup>st</sup>, recorded at 93% of locations (Harper 2001). Five of these six species are known to flourish in enriched soils; the remaining one, *Plantago lanceolata* likewise in Europe (Hanf 1983) and Wiltshire, but is happy with reduced fertility in the Sheffield area (Grime *et al.* 1989). I have some reservations about the meaning of frequency rankings of the interrupted Plantlife survey, and would not have thought nettles were very common in Welsh or Scottish uplands. Even in nettle-rich agricultural counties such as Oxfordshire, Wiltshire and Dorset, other species such as *Poa trivialis* (Rough Meadow-grass), *Lolium perenne* (Perennial Rye-grass) and *L. × boucheanum* (*L. perenne* × *L. multiflorum*) (a hybrid rye-grass), and *Ranunculus repens* (Creeping Buttercup) often seem to be more abundant, also all flourishing in phosphate and nitrate enriched soils. Nettles are not common on the thin chalk soil of the Salisbury Plain Army Training Areas, but in 50 years have increased in abundance over much of the rest of Wiltshire (Gillam 1993, Oliver 1996) from the 7<sup>th</sup> to probably the 2<sup>nd</sup> most commonly found Wiltshire flowering plant. Nettles since the 1970s have flourished in all seven of Grime's primary habitats; occur or are frequent in all eight of the intermediate habitats, and in 26 of the 32 terminal habitats (Grime *et al.* 1988). There have been suggestions that *Urtica dioica* may comprise more than one subspecies (Ball 1964, Stace 1997). My experience of examining and grubbing up nettles over the past nine years has led me to suspect that Wiltshire nettles are not only bigger but spread in more complex ways, with more vigour, and within more habitats (not all phosphate and nitrate enriched) than most Floras and other books imply.

1. **Seeding.** Huge quantities of seed are produced from June onwards, which can either germinate within six days or remain viable in seed banks for many years. The seeds survive ingestion by a variety of birds and animals, explaining the appearance of new nettle colonies in distant areas, on rotting logs, or as epiphytes on oaks or other veteran trees (Oliver 2001)

2–5. **Vegetative Spread.** There is remarkable diversity in Flora and textbook descriptions: 'perennial underground network of tough yellow roots' (Podhajska 1985); 'tough creeping branched rhizome' (Stodola & Volak 1984); 'rhizomes' (Grime *et al.* 1988); 'yellow fleshy far-creeping rhizomes' (Rose 1981); 'stems creeping and rooting at the nodes' (Clapham, Tutin & Moore, 1987); 'stems creeping and rooting' (Fitter 1987); 'much-branched yellow roots and creeping stems' (but the picture shows a creeping root and a stem-base stolon) (Hickey & King 1988); 'extensive creeping rooting stolons' (Hanf 1983); 'stout stolons' (Blamey & Grey-Wilson 1989). The capacity of nettles to spread seems to be extraordinarily adaptable, more interesting than a matter of obsessive botanical definitions. Only the recent edition of Stace (1997) touches on this adaptability — 'Strongly rhizomatous and/or stoloniferous'.

2. **Rhizomes.** On 16<sup>th</sup> June, I pulled up a 3m rhizome deriving from a fairly modest tuft of vertical stems for the benefit of a TV crew. Sore back and broken finger nails limited dissection-out of the extensive network of underground branchings. This rhizome network formed in 2000 and 2001, despite two mowings and a Weedol (Diquat and Paraquat) spray. The rhizome was mostly between 3cm and 30cm deep, yellow (like the roots), from 5–10mm in diameter, tough, *not* fleshy but with an irregular (sometimes almost square) furrowed cross-section. Numerous vertical new summer stems were growing from this rhizome, and a small number of short horizontal stolons had started from the bases of some of these vertical stems. Rhizome growth is only given as 'up to 45 cm per year' (Grime *et al.* 1988), but Wiltshire nettles can spread faster than this (see below).

3. **Stolons.** These horizontal stems mostly start from the green bases of the vertical stems, or from the yellow rhizomes, but can arise also from trampled or layered green stems, or from middles of the green stems in dense vegetation in damp surroundings. In piles of wood chippings, where dissection is not too difficult, they start as *semitransparent* and very fragile fleshy shoots, some of which ascend to

become vertical green stems, others continuing as horizontal stems. More characteristically, the stolons start as tender *creamy pink* or *pink* horizontal fleshy stems running between leaf litter and debris on the soil surface. They can go *red* or *pale green* when more exposed, less liable to break than in the pale-pink stage. Grime *et al.* (1989) state that nettle shoots 'die back completely in winter'. This is not so in Wiltshire. *Vertical* shoots usually die back to below grass level. Stoloniferous shoots can continue to grow during frost-free spells if sheltered, presumably using root and rhizome stored nutrients. One such stolon grew 1.22m in the four winter months (Oliver 1994), and was one of nine (originating from a tuft of three vertical 1993 nettle stems). Most of the nine stolons had green terminal shoots by the end of February 1994. If all the nodes produced vertical stems (most stolons were much-branched), there was, at two per node, the potential for 1000+ to be produced, albeit too close for all but a few to have space to survive. However two winter stolons, both 1.25m long in opposite directions already give a 2.5m spread. When completely buried by leaf litter or grown over by grasses and *Ranunculus repens* stolons in winter, the creamy pink stolons slowly turn into the tough yellow rhizomes! It is not therefore adequate to measure the spread of nettlebeds by the underground yellow rhizome growth alone, as stolons are the most rapid colonizers at the surface, infiltrating between the grass shoots.

There is therefore an interplay between the sugar-producing leaves of the dense, monopolistic masses of vertical summer and autumn stems, the nutrient-storing yellow underground root and rhizome network, and the colonizing creamy-pink stolons near the surface. If frost, trampling, water-logging or drought (Oliver 1997) affects one part of this complex network, other parts cut in to keep the network viable and spreading.

**4. Layering.** Green nettle stems root readily. Tall stems knee at the base, or if trampled can lie along the grass or ground. This alignment of stem and ground can also occur on steep slopes or in cattle-poached holes. In all these instances, white rootlets can emerge from the stems eventually to form new yellow roots.

**5. Spread by Cattle, Badgers and Rabbits.** Vegetative spread by any of the three preceding ways (nos 2–4) depends on continuity with the parent plant. However, fragments of rhizome, stem, stolon or root can be spread by mammals. Cows in particular tread deeply, sometimes 30cm or more, into the ground, clipping off rhizome segments with their hooves and carrying these various distances, often to be transplanted to another part of the field. Rhizome fragments readily form new colonies. Stolon, stem and root fragments may occasionally do so, although root fragments probably require a stump of stem or stolon or rhizome to remain viable.

If not checked, the summer stems become monopolistic, firstly shading out other plants above ground, then depriving them of water by the dense rhizome networks below ground. The familiar 70–120cm roadside or hedge nettles are dwarfed by 150–200cm+ ditch, riverbank or phosphate-rich field nettles which soon eliminate all tree seedlings, all grasses and most herbaceous plants. In the expanding nettlebeds which I've struggled through this year, large brown dead tussocks of *Dactylis glomerata* (Cock's-foot), *Deschampsia cespitosa* (Tufted Hair-grass), *Arrhenatherum elatius* (Tall/False Oat-grass) are evidence that these tough species succumb. *Anthriscus sylvestris* competes because its stems grow six weeks ahead of nettles: *Heracleum sphondylium* (Hogweed) and *Rumex obtusifolius* (Broad-leaved Dock) also like phosphates and nitrates, store food reserves, and grow very big too; *Agrostis stolonifera* (Creeping Bent) can keep ahead of the nettlebeds because its stolons grow even faster than the nettle stolons: but not much else resists the nettle colonization.

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## HYPERFERTILITY AND VIGOROUS PROGENY IN THREE ANOMALOUS TYPES OF FLOWERING PLANT

In the context of Darwinian evolution, most mutations are said to be harmful. A wild guess for mammals would be in the order of 90% potentially damaging, 9.99% neutral and 0.01% beneficial: but plant mutations may stand a better chance.

Here are presented three aberrant plant types from N. Wiltshire, two in the vicinity of my home, observed for 31, 20 and 9 years respectively. All three fare better than the ancestral normal species-type, and more importantly, the same goes for their descendants.

### 1. Large Daisies (See drawing B, page 35 and Oliver 1994, 1996 a & b).

These big daisies began as concentric rings radiating away on lawns from three *Bellis perennis* 'Monstrosa' plants (Hay *et al.* 1978), or possibly *B. perennis* 'Giant Doubles' (Nicholson 1963). By 1970 the garden plants had gone. By 1974 all the obvious first generation hybrids with the lawn daisies had gone too. By 1975 most of the adjacent 'wild-type' lawn daisies had given way to self-perpetuating and spreading colonies of robust and attractive plants. There was increasing evidence of introgression and gene flow further afield (literally), with large showy daisies spreading also to roadsides and woodland edges and other gardens. Although highly variable, these colonies had many plants with the characters of *B. hybrida* (Webb 1976) and *B. sylvestris* (Webb 1976, Halliday & Lushington 1988, Viney 1994), but usually also with some extra rows of ray florets derived from the three ancestral garden plants. The *Bellis* genus is described as having the ray florets 'in one row' (Clapham, Tutin & Moore 1987), but Stace (1997) alludes to the 'Flore pleno' tendency of the genus. Stace also gives the wild daisy capitula as 12–25mm across, but the cultivars as up to 80mm across (compare below). Webb (1976), and Warwick & Briggs (1979) all emphasise the phenotypic plasticity and genetic variability within the *Bellis* genus in general, and *Bellis perennis* in particular. Many apparently wild daisies have 1½–2 rows of ray florets, *not one* (Oliver 1994, 1996 a & b), including daisies in Anglesey and on Snowdon (Cragg-Barber 1994). *Bellis hybrida* and *B. sylvestris* occur from France to Cyprus, so presumably could have contributed to the ancient (15<sup>th</sup> century) giant daisy cultivars (Everard *et al.* 1970). The hyperfertility of the *Bellis perennis* × *B. perennis* 'Monstrosa' cross is known to three of the main national dealers. *Bellis perennis* 'Monstrosa' is seldom stocked now 'because the public don't like it spreading on their lawns and borders'. (Actually it is *not* the cultivar *nor* the 1<sup>st</sup> generation hybrids that spread and persist, but the subsequent introgressed generations, with the toughness of the wild daisies, combined with the vigour and seeding of the 3<sup>rd</sup>–31<sup>st</sup> generations with the infused genes; see below).

After 31 years the introgressed populations of big daisies continue to spread at the expense of wild-type daisies, with many intermediates and variants. They are robust, mostly *flore pleno*, with



capitula 22–31mm across. Ray florets can be pure white, tinged pink, or red. Receptacles in cross section are hemispherical rather than conical (see drawings A & B). There are many more fertile florets, with bigger ovaries than in the wild type. Unlike *Bellis perennis* 'Pomponette', these *flore pleno* heads are also 'fructo pleno', seeding early and profusely. Leaves are big and fleshy. Occasionally the scapes reach 25cm or more; alternatively there can sometimes be one or two leaves above the basal rosettes, turning scapes into stems. Vegetative spread is also vigorous, with improved survival in long grass and in trampled semi-shaded areas. Some (larger) plants appear to be biennial rather than perennial, with earlier flowering (April and May) in profusion, (rather than the *main* flowering of the wild type in high summer). A final point relevant to the next two types is seasonal plasticity. Plants which look like double or *flore pleno* forms of *B. hybrida* or *B. sylvestris* in spring, tend to revert to more *Bellis perennis*-like appearance at other times of the year. Even after only 31 years, this is gradual Darwinian evolution in action.

## 2. Multibracteolate Linden (see drawing D, page 35)

A local *Tilia americana* (American Lime), planted in 1981 (1.5m high) produced a crop of extraordinary inflorescences in 1993, and in abundance in 1994. Drawing C (page 35) shows the normal *T. americana* inflorescence, and D (page 35) the multibracteolate one, both in bud. The latter also produced more numerous and larger fruits than the former up to 12×10mm compared with 9×8mm (or usually smaller) fruits from normal inflorescences occasionally formed on the same tree. Prof. Donald Pigott has confirmed the leaves as typical *T. americana* but had only come across persistent bracteoles as a rare feature in *T. platyphyllos* (Broad-leaved Lime), which trees had been given varietal status; there is one such tree in Cambridge. Prof. Pigott considers the phenomenon to be genetic rather than attributable to virus or other infecting or infesting agent. This is supported by the finding of *increased* viability of fruits from the multi-bracteolate inflorescences. The parent tree has at least three other unusual features. These include vigour at least as great as our native *Tilia* species, with (at 23 years old) a girth (at 1.5m) of 93cm. Several authors claim that *T. americana* fares poorly in Britain (Bean 1989, Mitchell & Wilkinson 1982): this tree is on thin chalk soil on a north-facing hill prone to severe frosts in a harsh weather zone, where other trees have failed. Secondly, many of the larger branches spiral close to the trunk. Thirdly, vegetative vigour is shown by the early indications of stem sprouts and the start of root-suckering similar to that found in *T. × europaea*, the common or hybrid Lime. Puzzlingly, there has been no recurrence of the multi-bracteolate fruiting since 1994, with few flowers or fruits since then. This capacity to produce either fairly normal or more vigorous and successful productions of seed (from usual, or the more complex infructescences respectively) is shared by all three plant-types in this paper.

American Limes are said to be incapable of producing viable seed from a single tree (Lawrence 1992), but there were no other American Limes within a 5km radius, or other limes in flower within a 1.5km radius at the time. Sixteen of the 17 planted-out progeny are like the parent, showing the same vigour (one already with suckers) and rapid growth. Most derive from the multi-bracteolate, large-fruited inflorescence seeds, these having produced the biggest seedlings. This tree's capacity to produce pendent panicles (see drawing D, page 35) which give rise to many large fruits with good seed, rather than the usual *Tilia* cymes of inferior fruits (only a few of which germinate successfully) hints at evolutionary potential. It remains to be seen whether any of the 17 descendants will produce any similar rather catkin-like inflorescences, which will in turn produce the healthy seed, and a third generation of exceptional trees.

## 3. Multi-spikelet *Brachypodium* (see drawings E, F, G & H, page 36)

*Brachypodium pinnatum* (Tor-grass), the predominantly woodland-edge plant (Chapman & Stace 2001) is quite often found forming unusually large tussocks. In S. Gloucestershire and N. Wiltshire, such plants can also develop complex inflorescences. Details are given in two recent papers (Oliver 1998, 2001). Drawings E, F, G & H, show one series of several possible inflorescence types. 'E' is the more normal type, albeit rather denser than usual. 'F' shows the two spikelets per node, not typical of the *Brachypodium* genus, with progression through 'G' & 'H' towards the semi-paniculate branch from the main axis. In the context of this paper, these aberrant plants showed most or all of the ensuing characteristics:

- Vegetative vigour. Longer broader leaves and larger denser tussocks than the normal plant dimensions described in Floras, crowding out other plants.
- Many more fully fertile florets per inflorescence than the normal. Even within the simpler (more normal) parts of the inflorescences, the single spikelets often contain more fertile florets than the *Flora maximae*.
- Profuse seedling. At least three members of the Wiltshire Botanical Society were not keen on persisting experimentally with these plants in their gardens, because of their seeding and vegetative invasiveness.
- Variability. Some plants produced simple inflorescences in June but more complex ones in August, or reverted to nearer normality with age.
- The progeny showed some of the parental characters, but with a tendency to reversion to the norm, albeit with erratic recurrences of the anomalous characteristics.

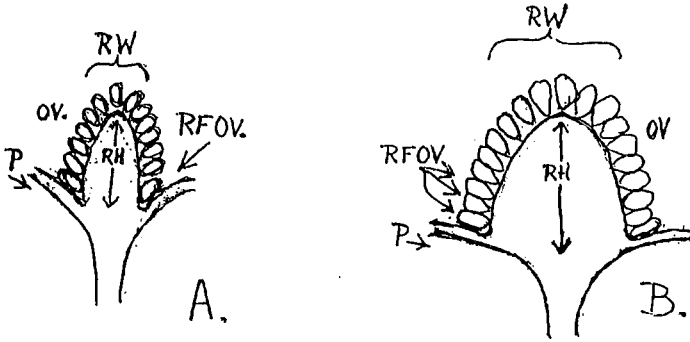
### Summary

All three plant types had anomalous features not characteristic of their respective genera. All three had increased vegetative vigour, improved seeding, and better survival of their progeny over many years and under various conditions, than the three normal species types from which they derived and deviated. The progeny of two were themselves also vigorous and hyper-fertile; the *Tilia* progeny are vigorous, but not yet old enough to flower. All three types (and the *Bellis* and *Brachypodium* progeny) show the aberrant features to be influenced by age, season, the year, and unknown environmental factors. I suggest that these anomalies have more botanical significance than the many horticultural mutations and monstrosities which limit fertility.

For each of the three types portrayed, there seem to be three factors operating — genetic propensity — circumstances permitting the extra vigour — environmental triggers.

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Figs A & B

Longitudinal sections of Daisy receptacle: normal on the left (A), and aberrant type on the right (B).

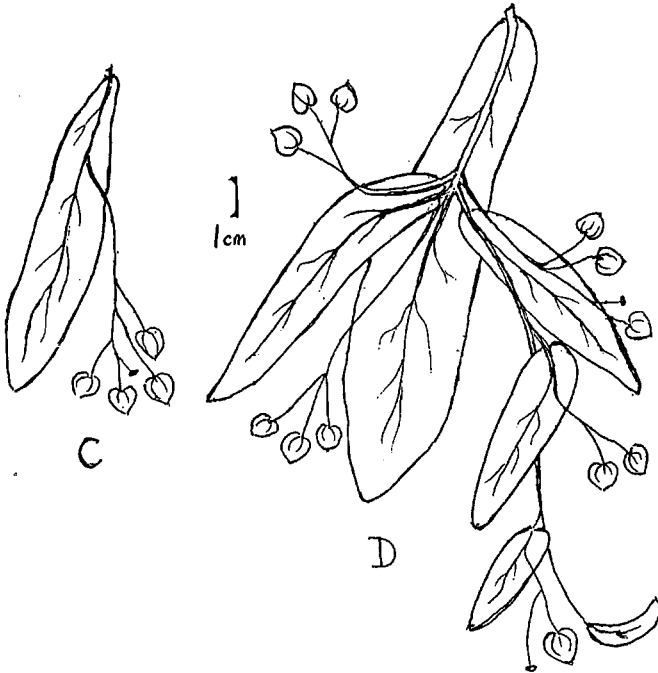
P = Phyllaries (receptacular bracts); RH = receptacular heights (A, 2.5mm; B, 5mm).

RW = receptacular widths (A, 2mm; B, 5mm). A has a conical, B a hemispherical receptacle.

OV. = ovaries; RFOV = ray floret ovaries (A, 1-1½ rows; B, 2½-3 or more rows).

Ovary lengths; A, ray 1.1mm, disc 0.7mm; B, ray 1.1mm, disc 1mm, at same stages of development.

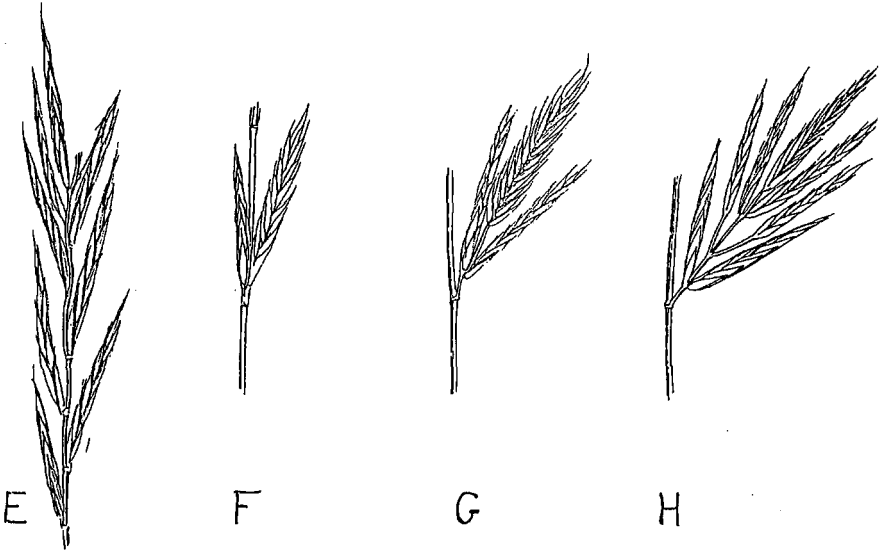
All drawings del. J.E. Oliver © 2001



Figs C & D: *Tilia americana* (American Lime). Inflorescences in bud.

C = normal cymose, from mid-bract. D = inflorescence from aberrant tree, inclining towards a pendent, multi-bracteolate panicle (evolving a catkin?!)

All drawings del. J.E. Oliver © 2001



Figs E–H. *Brachypodium pinnatum*.

E = main part of normal inflorescence. F–H = variants at nodes in the large aberrant plants. The tendency to increasingly semi-paniculate inflorescences usually only seen in large, vigorous, dense, big-leaved tussocks. H is splayed here, although usually formed in a contracted denser compacted form. All drawings del. Katy J. Oliver © 2001

## A BOTANICAL CROSSWORD

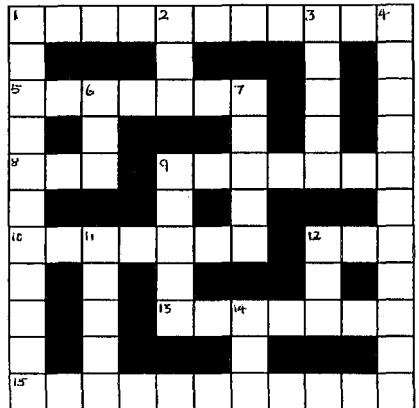
by *Cruciada*

### ACROSS

1. Frenchwoman follows bagpipe melody-maker to offer delicious fungus (11)
5. Losing green in early fall (7)
8. Not even *Cuscuta* is topped and tailed (3)
9. Unit of compound foliage — or of junk mail (7)
10. More than one cranesbill? (7)
12. Small farmer, unmanned, becomes *Aster buff* (3)
13. Obligated to walk? These seeds might flavour your picnic lunch (7)
15. Mass celebrated actor of old, a Rowan relative (7-4)

### DOWN

1. Fabric, material for exotic skirt, made up into silky sedge (11)
2. Hear attempt to precede *entalis*, *folium* and *glochis*, for example (3)
3. Short little lip describes exhibit (5)
4. 'Ionizes in solution' — sounds fairly illuminating (11)
6. Half empty *Phragmites ruber* (5)
7. South American fruit initially gets us all very animated (5)
9. Honeysuckle on the record card (7)
11. Gear or plant hibernation (5)
12. Fortingall's is very old, you heard (3)
14. We may call it herb of grace o' Sundays (3)



## KNOW YOUR CARROTS

At 6 p.m. on 22 April 2001 I was phoned at home by Lochgilhead Police Station. They asked if someone could call up to see me! They quickly explained that I was being asked to identify a plant — the botanical equivalent of an identification parade, I guess.

Apparently some visiting lads camping out near Achnamara had gathered a plant, which they thought resembled wild parsnip from a local burn and put it in a Saturday night curry — both leaves and roots.

On Sunday morning they were not feeling well at all, and had gone to Lochgilhead hospital. One person had been hallucinating. It was not until later in the day that the possible cause of the problem was thought to be something they had eaten.

Up came the policeman, out came the books, and Rosemary Campbell went to look up her veterinary text book. I confirmed that it was Hemlock Water-dropwort, (*Oenanthe crocata*), which is poisonous to animals and humans. I phoned Gordon Rothero official Argyll plant recorder, to ask if he had 'Poisonous plants' book to hand. He did not, but suggested the BSBI Handbook on Umbellifers (carrot family). This gives the following information —

'The tubers are sweetish-tasting, but very poisonous, due to a series of polyacetylenes. The active principle is oenanthotoxin, a convulsant poison, which can cause rapid death with few symptoms. Fatal causes of human poisoning have occurred when the leaves were mistaken for those of celery, or the tubers for parsnips; cattle poisoning is not uncommon!'

The police contacted the doctor, who tapped into the poisons computer database to check up on the chemicals involved and the treatment. I advised that the offensive plant remains needed to be got out of the human system as soon as possible. Emetics had already been ordered.

Rosemary phoned back with the veterinary information —

'Cattle become very depressed in general appearance and their respiration is fast and laboured. The mucous membranes become congested, the eye rolls, the pulse is weak and fast and there is a certain amount of foaming at the mouth. Later there is colic and spasmodic contractions of the limbs and jaws. The animal may bellow, fall to the ground where it still moves its limbs and soon becomes unconscious and expires in violent convulsions. In some cases that are not fatal one or more of the limbs remain paralysed. In the horse the appearance of the symptoms and the course of the illness are much more rapid and the nervous symptoms are exaggerated. In the pig the poison is quickly eliminated by vomiting if the quantity swallowed has been small, but where large amounts have been eaten, death occurs very rapidly.'

The treatment for animals is to secure them and endeavour to remove the portions eaten by use of the stomach-tube or by immediate rumenotomy. Where time allows, they should be given a dose of gruel containing strong coffee and opium or laudanum, but medicinal drenches are often out of the question. I'd like to see a pig drinking extra strong coffee! Perhaps if it was given opium, it really might fly!

I am happy to report that the lads all recovered after a few days and are now safely back home.

Also, Dr Downes at Lochgilhead Surgery and I are working on developing a CD-Rom for Poisonous plants and fungi, which will include pictures for identification purposes, and list the poisonous substances that each species contains together with notes on antidotes and treatments. They also have my phone number for future occasions!

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## A NEW VARIANT OF *OPHRYS APIFERA* IN BRITAIN

On 24 June 2001 I was shown two plants of abnormal *Ophrys apifera* (Bee Orchid) growing with six normal plants in rough ground on the edge of woodland at Warnham in West Sussex, v.c. 13.

The abnormal plants were both of normal stature, about 250mm tall, with flowering spikes bearing six and seven flowers respectively, half of which were fully expanded. Floral structure was normal in all respects. The outer perianth segments were of the normal pink colour, and the upper inner perianth segments were green tinged. The labellum lacked any of the normal pattern of markings and was uniformly dark, mahogany brown, a shade paler at the base of the labellum (see drawings, p. 39). The lateral lobes were also dark coloured, bearing light tan coloured hairs, and there were similar hairs at the tip of the labellum where it reflexed. Self-pollination had occurred in the usual fashion in most of the mature flowers.

The site overlays an area of paludina limestone, and adjacent woodland contains *Platanthera chlorantha* (Greater Butterfly-orchid) and *Dactylorhiza fuchsii* (Common Spotted-orchid). There had been extensive introduction of material such as chalk rubble, and plants including *Lotus corniculatus* (Common Bird's-foot-trefoil), to create a butterfly conservation area, but the colony of Bee Orchids had been flourishing for many years prior to this, with about ten spikes present in most years.

There does not appear to be any description of this variety in published literature, but in 1983 P.Revell (pers. comm.) described a Bee Orchid found at Pitstone Hill near Tring in Hertfordshire (v.c. 20) as having 'an entire labellum unmarked, deep burnt sienna colour'. This corresponds closely to the plants seen at Warnham.

Seven abnormal forms of *Ophrys apifera* have now been described in Britain, five of which also occur elsewhere in Europe. All, plus the type, are illustrated in colour on pp. 41–43. An eighth form has been described solely in Cyprus. Photos 2 and 8 appeared in Lang (1989) and photos 1, 2, 4-6 and 8 appeared in Lang (2001).

Var. *friburgensis* Freh. (Syns var. *botteronii* Chodat, subsp. *jurana* Ruppert). The two lateral petals resemble pink sepals, with finely hairy margins. Labellar speculum bears two confluent yellow areas. First described in Britain in 1984 in Wiltshire (Laurence 1986) and more recently in Somerset. Illustrated by Duperrex (1981), Baumann & Kunkele (1982), Davies *et al.* (1983), Buttler (1986), Lang (1989 and 2001) and Delforge (1994). See plate 2, p. 41.

Var. *bicolor* (Naegli) Nelson. The base of the labellum is greenish, lacking any pattern, the rest of the labellum dark brown. Recorded from Anglesey by Roberts (1985) and since recorded in Dorset (1993), N. Essex (1997) and Warwickshire (1999). Illustrated by Baumann & Kunkele (1982), Davies *et al.* (1983), Buttler (1986), Delforge (1994) and Christofides (2001). See plate 3, p. 41.

Var. *chlorantha* (Hegetschw.) Richter. (Syns var. *flavescens* Rosbach, var. *immaculata* Breb.) Sepals white, labellum lacking basal red-brown pigmentation, appearing yellow-green. Widespread in E. Suffolk, E. Sussex, S. Yorkshire and Essex. Illustrated by Lang (1980 and 2001), Baumann & Kunkele (1982), Davies *et al.* (1983), Buttler (1986) and Christofides (2001). See plate 4, p. 41.

Var. *trollii* (Hegetschw.) Reichenbach fil. Labellum long and pointed, often barred brown and yellow. Long known from Gloucestershire. Also recorded in Dorset (1979), Sussex (recently discovered records for 1913 and 1924), Surrey (1984), Suffolk (1990) and Warwickshire (1997). Illustrated by Summerhayes (1957), Lang (1980 and 2001), Baumann & Kunkele (1982), Buttler (1986) and Delforge (1994). See plate 5, p. 42.

Var. *belgarum* Ettliger. Labellum well rounded, lacking side lobes. Ground colour dark chestnut with a yellow band across the middle, and subsidiary bands extending from the sides of the middle band up to the shoulders. First described near Winchester, Hants (1993). It has been recorded from Hertfordshire and N. Somerset. Illustrated by Lang (2001). See plate 6, p. 42.

Var. *melena* (no attribution found). Outer perianth segments pale, labellum with pale base and dark lower half, but still patterned unlike var. *bicolor*. Recorded in Cyprus. Illustrated by Christofides (2001).

**Peloric form** (Horsman's Type C peloria). All perianth segments entire, pink, resembling outer perianth segments, giving a spurious appearance of radial symmetry. Recorded at Oxwich Burrows, Glamorgan (1990). See plate 7, p. 42.



*Ophrys apifera* var. 'atro-fusca' del. D.C. Lang © 2001

**Pseudopeloric form** (Horsman's Type B peloria). Labellum replaced by a pink sepaloid segment.

First recorded in Sussex (1919) and rediscovered there flowering 1976–71. Illustrated by Tahourdin (1924), Wolley-Dod (1937) and Lang (1980 and 2001). See plate 8, p. 42.

The variety found this year in Warnham differs from the normal form in the lack of markings on the labellum, which is entirely dark mahogany brown in colour. The varietal name *Ophrys apifera* var. *atro-fuscus* is suggested. See plate 9, p. 43.

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## NEOTINEA MACULATA AN OUTSTANDING OCCURRENCE IN BRITTANY

While exploring a section of the Finistère coastal sand dunes, a well timed excursion (early May) brought us to a tiny flowering population of *Neotinea maculata* (Dense-flowered Orchid), a slender faintly coloured orchid not known before in Brittany nor so far north in France (it is not mentioned in the 1971 *Flora of Brittany* by Des Abbaye). Three days later, one of us was able to go back to the site, and discovered three other populations, bringing the overall flowering population size to about 60 individuals.

The populations seem to favour short moderately grazed sand-dune grassland, at the junction of taller swards of *Festuca rubra* agg. (Red Fescue), interspersed with *Rosa pimpinellifolia* (Burnet Rose), and shorter more trampled and more heavily grazed grassland, rich in *Scilla verna* (Spring Squill) and *Ranunculus bulbosus* (Bulbous Buttercup); the vegetation type in the continental 'Zürich-Montpellier' classification system would match with a 'Thymo-Helichrysetum' community, here characterised by the presence of *Thymus polytrichus* (Wild Thyme) but lacking *Helichrysum stoechas* the other 'characteristic' species). It seems that trampling by man and grazing by rabbits are crucial to maintain these open habitats that occur between the eroded marram grass fore-dune and the shrubby gorse and sloe bushes extending from behind.





1. *Ophrys apifera* type, Sussex, June 1983  
(see p. 38)



2. *O. apifera* var. *friburgensis*, Wiltshire, July 1985  
(see p. 38)



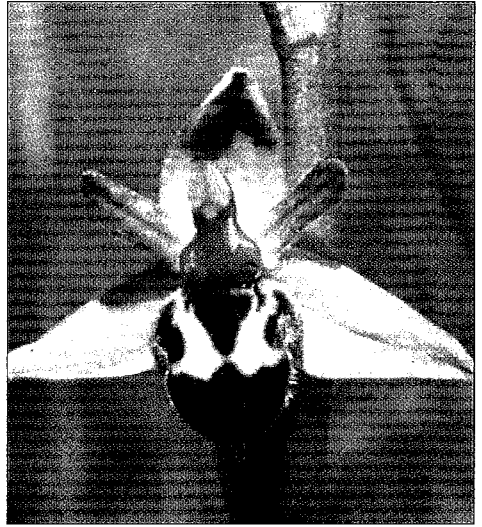
3. *O. apifera* var. *bicolor*, Essex, June 1997  
(see p. 38)



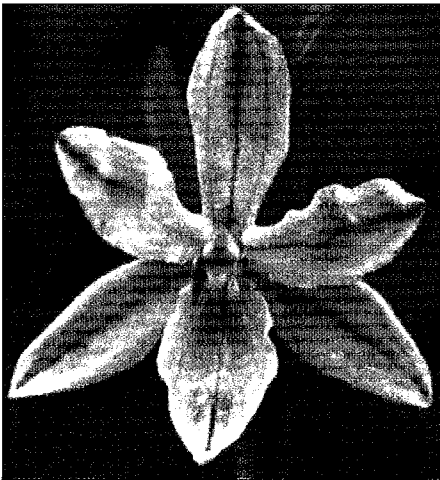
4. *O. apifera* var. *chlorantha*, Essex, June 1997  
(see p. 38)



5. *O. apifera* var. *trollii*, Warwickshire, June 1999 (see p. 38)



6. *O. apifera* var. *belgarum*, Hampshire, June 1991 (see p. 38)



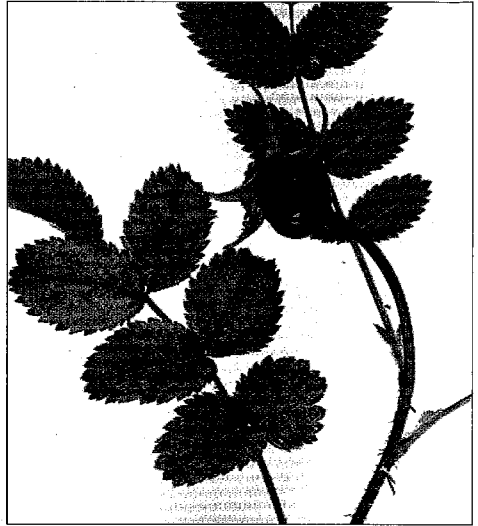
7. *O. apifera* Horsman's Type C peloria, Glamorgan, June 1990 (see p. 38)



8. *O. apifera* Horsman's Type B peloria, Sussex 1967 (see p. 39)



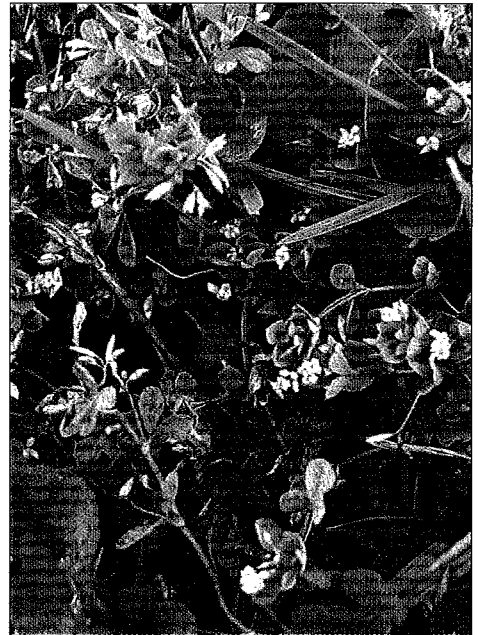
9. *O. apifera* var. *atro-fuscus*, Sussex, June 2001  
(see p. 38) Photo © D.C. Lang 2001



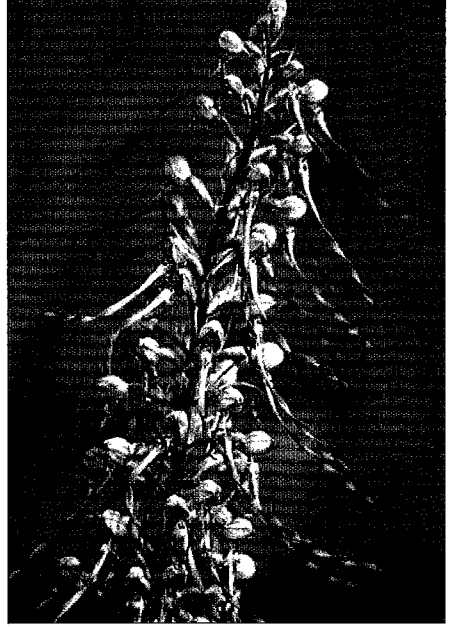
*Rosa pimpinellifolia* × *R. canina*, Ty'n Lôn, Lleyn  
(see p. 49) Photo © A.P. Conolly 2001



*Thalictrum minus*, Gower, v.c. 41, 1978  
(see p. 73)



*Trifolium micranthum*, Pembrey, v.c. 44  
(see p. 28)



*Himantoglossum hircinum* (Lizard Orchid) on Merrow Downs, Guildford (v.c. 17) (see p. 48)  
Photos © Roy Sherlock, 2001



*Neotinea maculata* (Dense-flowered Orchid) in  
Brittany (see p. 40)  
Photo © Frantz Hopkins 2001



*Limonium binervosum* agg., strand line, Towyn  
point, v.c. 44, 1976 (see p. 49)  
Photo © R.D. Pryce 2001

The species is never very abundant but is rather widespread in the Mediterranean region, and has been recorded since the 1980s in the Gironde and the Landes (Jacquet 1995). But more interestingly it is also found in Western Ireland as an apparent outlier (Perring & Walters 1976). In France, many Mediterraneo–Atlantic species climb up north along the warmer, drier, Atlantic coastline, often reaching their northern limit somewhere along the coast (which in Brittany is also a more calcareous environment than inland). For example: in France, *Medicago littoralis* (Shore Medick), *Linaria arenaria* (Sand Toadflax) and *Helichrysum stoechas* reach their northern limit in Brittany (Corillion 1971); some species like *Serapias parviflora* (Small-flowered Tongue-orchid) or *Bartsia latifolia* seem to be extending their range northwards along the coast, whilst other species from the south-west seem to have recently appeared here, such as *Linaria thymifolia*.

It is rather striking to find such an isolated population of *Neotinea maculata* (more than 500km from the nearest French population known southwards) and to realise how little there is of suitable habitats for that species along a coast which is dominated by a rocky shoreline with a few comparatively narrow sandy bays or perched sand dunes.

The (apparently) isolated occurrence of *Neotinea maculata* in Brittany would corroborate the scenario of that species being a pre-glacial relict (Summerhayes 1951): isolated pockets remained along what was then the coastline during the last Ice Age; as the climate grew colder, the ice cap advanced and the vegetation changed. Or could it be that the tiny and very light seeds landed there at some point in the recent past after a high altitude journey in the air currents?

Although a day of cold and grey weather, this leisurely evening stroll, peacefully along the carpets of *Scilla verna* and short buttercups, only later on brought astonishment and doubt as we keyed out the species from the 3 flower samples we had picked off a few stems. The leaves, stems and ovaries of the individuals were spotted with violet, and the white petals were also violet spotted and slightly pink tinged. The very short spur, the hood like tepals, and three-lobed labellum with short slender arms were also characteristic features (see photos, p. 44). Recent studies suggest that the genus is close to *Aceras anthropophorum* (Man Orchid) and *Orchis ustulata* (Burnt Orchid) (Bateman *et al.* 1997). This spotted form is probably subsp. *maculata* (as described by Landwehr (1982)).

Whether the population is stable, on the increase or on the decline is a question requiring a better understanding of the site history, and the species biology and ecology (e.g. regeneration niche). But like most sand-dune beaches in Brittany, the site attracts crowds of sunbathers and swimmers and the habitat is clearly fragile. It could be that other populations occur elsewhere in Brittany: the plants can remain easily concealed until they are in flower, and then only remain noticeable for about two weeks. Perhaps other finds of the species may occur in the next season, along other parts of the Brittany coast, tracing the silhouette of the ‘ghost of past geography’.

We are grateful to Jeffrey Wood (Kew Orchid Herbarium) for kindly confirming the identification of the *Neotinea*, and to Fred Bioret (Université de Bretagne Occidentale) for help with the habitat classification. We are also grateful to Michael Proctor who has recently kindly supplied more ‘schools of thought’ about *Neotinea* distribution.

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GILLIAN BARLOW, 33a Moreton Terrace, London SW1V 2NS

FRANTZ HOPKINS, 3 rue Caffarelli, 29200 Brest, France

## THE BIRD'S-EYE, THE BIRDS AND THE BEES

Having, perhaps rashly, and with a colleague, undertaken to produce a *Biological Flora of Primula farinosa* L., I have been surprised how much of the natural history of the species is based on surmise, rather than on incontrovertible field observations. The published natural history of the species is no doubt as reliable as that of most other plants. But we should be aware of the hidden gaps in knowledge, and of the propensity of erroneous information in relation to any species to be passed on in the literature.

Several examples will be given here. The first concerns one of our own observations (Hamblen & Dixon 2000). Scapes with ripe capsules of *P. farinosa* growing on limestone quarry spoil, from which rabbits had been excluded, were found to have been felled and their capsules shredded. Small formless heaps of weathered and desiccated 'dung', comprising plant debris, were found next to the damaged plants. We reported this, and although we carefully avoided directly implicating field voles, we thought they might be responsible. Subsequently a local naturalist (Monika Butler) provided the key: Grey Partridge (*Perdix perdix*) were nesting in nearby fields; the heaps were single large bird droppings, rather than weathered groups of small mammal droppings. We have no direct observations, and partridges (now declining) may never have been important in the ecology of the (also declining) Bird's-eye Primrose.

A second example concerns the uprooting of *P. farinosa* plants which is commonly observed in the Yorkshire Dales. F.J. Roberts (1994) commented that these were 'apparently plucked by sheep and then discarded', and indeed this may be what happens. But has anyone actually observed this? Could it be ecologically important: a crude 'back of envelope' calculation suggests that a large number (perhaps thousands) of seeds are lost to the population for every plant destroyed. Uprooted plants are found where cattle and sheep graze together, and where sheep only graze; rabbits are always about. *P. farinosa* produces an irritant substance which can cause contact dermatitis in man, and one could hardly blame a mammal for spitting it out! However it has been suggested by Mrs J. Wilson (pers. com.) that birds might play a part in the scattering around of the plants. Corvids (crows, magpies and jackdaws) are present in the habitats of Bird's-eye Primrose; they all have a tendency to investigate silvery objects, and even to 'steal' them. The silvery undersides of *P. farinosa* leaves are exposed as they emerge from the centre of a rosette (Fig. 1). Maybe the birds are responsible for uprooting the plants, or for scattering them around once they have been damaged.

The third example of incomplete natural history concerns the pollination of *P. farinosa*. Being heterostylous it requires cross pollination. Knuth (1906-09) stated that 'in the Alps, where Lepidoptera abound it is adapted to butterflies, while in North Pomerania, where Lepidoptera are relatively few and bees abundant it is adapted to the latter': the adaptations are in colour and floral morphology. Visitors observed by other workers are quoted by Knuth as including '42 Lepidoptera, 3 Bombyliids, 2 Syrphids, a humble-bee and a wasp in the Alps' and '2 Lepidoptera and a Bombyliid in the Pyrenees. Here it is doubtful whether the figures refer to the number of species (42 Lepidoptera?!), or to the number of visits observed over a period of time; from the 19<sup>th</sup> century works of H. Müller one might possibly find out, but such investigation of old literature is endlessly time-consuming. F.J. Roberts (1994) attributes pollination (in Britain?) to 'syrphids, bee-flies and day-flying moths'. Questions remain: Do bees and butterflies not visit British *P. farinosa* flowers? Has anyone ever

checked whether there are any night-time visitors? To answer the last question could involve sitting around on a lonely hillside, or in a mire in the dark! A more fundamental question is whether a particular insect visitor does in fact transfer pollen.

Although the scientific study of plants in the laboratory, glasshouse growth cabinet and herbarium reveals a great deal about a given species, and mapping allows its distribution to be revealed with a known degree of accuracy, much of its field 'natural history' may be based on unverified assumptions. We reject the once common assumption that swallows hibernate in mud at the bottom of ponds; but it seems only too easy to accept as true, comments in the literature which are merely hypotheses too difficult or too time-consuming to verify.

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Uprooted *Primula farinosa* plant, del. D.J. Hambler © 2001

One of many still alive when found on 6.8.1999 on a Yorkshire Dales hillside. The exposed silvery undersides of leaves are shown unshaded. The broad distal portions of the youngest leaves are central, and their tips are missing. The thick white adventitious roots which would have provided deep anchorage have been pulled from the soil. The largest leaf here has a maximum width of 1cm.

## ***HIMANTOGLOSSUM HIRCINUM* (LIZARD ORCHID) ON MERROW DOWNS, GUILDFORD (V.C. 17)**

On Wednesday 20<sup>th</sup> June one fully grown plant of *Himantoglossum hircinum* (Lizard Orchid) was found on Merrow Downs (see photos, page 44). This is the first record for Surrey (v.c. 17) since 1927 and on Merrow Downs since 1924. It was in a typical chalk down habitat as described by Summerhayes (1968) with fairly tall grass, together with *Dactylorhiza fuchsii* (Common Spotted-orchid), *Ophrys apifera* (Bee Orchid) and *Anacamptis pyramidalis* (Pyramidal Orchid). The density of the grass is reduced by much *Rhinanthus minor* (Yellow-rattle) and by that area having been a prisoner-of-war camp up to c.1950.

The history in this country of the Lizard Orchid given in Good (1936) is summarised by Summerhayes (1968). Salmon (1931) gives the first record for Surrey as Boxhill (Graves 1821), 'for which there are numerous old records', and gives other records including 'Merrow Downs, 1924, W.L. Pearce (Exhibited at Guildford Museum)'. Lousley (1976) gives 'Boxhill 1927 (G.H. Spare, Hb. Kew)' and remarks that 'most of the Surrey records belong to the period 1921-7, which was a peak for Britain as a whole (Good 1936), and fall into three groups: (1) the Hog's Back, nr. Guildford, probably the vicinity of Monk's Hatch, (2) Merrow Downs, 1924, and (3) Denbies, Dorking.'

A single plant in Headley Warren N.R. as noted by Burton (1983) and Leslie (1987) grew each year for a few years up to 1983 but was close to the place where J.H.P. Sankey scattered Lizard Orchid seed.

Several plants were found in Lullingstone Park in 1993, Eynsford, and have reappeared annually. There are no other modern Lizard Orchid records in Surrey or West Kent (Burton 2001; Philp 2001).

Since the above note was written, an article in *The Guardian* on 25<sup>th</sup> July (Simons 2001) sheds some light on the discovery and offers a possible explanation:

'But in Kent, the fabulous and rare lizard orchid bloomed in record numbers at its main refuge at the Royal St George's Golf Club. It is now popping up at other golf courses, possibly because its tiny seeds stick to golfers' clothes; players from the [club] regularly play at a club in East Sussex where lizard orchids have sprouted up. The orchid has even reached Somerset and is doing so well that it may soon come off the endangered plant list.'

The article reports that research at the Centre for Ecology and Hydrology, Monks Wood, has suggested, indirectly, that global warming may be a possible cause for this revival of the Lizard and other orchids in Southern Britain.

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## ROSA PIMPINELLIFOLIA HYBRIDS IN WEST LLEYN, CAERNS, v.c. 49

A revisit was made recently to an inland, that is, non coastal, 'Burnet Rose' near Ty'n Lôn Neigwl, behind Hell's Mouth, in western Lleyn [SH22]. First seen in late August 1994, with bright red fruit, it had been determined by the Revd. A.L. Primavesi as the hybrid *Rosa pimpinellifolia* × *R. canina*, but without directional indication. This specimen was some six foot tall, supported in a dense roadside hedge, but it was only this June [2001] that flowers were observed — they were white and rather small, c.2-3cm diam. A cutting taken in 1994 from this plant produced white flowers this year and is developing reddish fruit. It is likely, especially in view of the nearby specimens seen later on, that *R. pimpinellifolia* is the female parent, although a reassessment has not yet been made. These nearby plants, on a roadside in the same Rhôs — Porth Neigwl area, had been reported in July, in fruit, by Jeanette Roberts, a local botanist. They were examined late July — August by A.P.C. and were found to have conspicuous **red globose** fruits (i.e. not black as in *R. pimpinellifolia* proper), and they were subsequently determined (by A.L.P.) as *Rosa pimpinellifolia* female × *R. canina* male. A further search and re-examination of other, inland, plants, previously assumed to be *R. pimpinellifolia* was undertaken to see which might also be hybrids!

On this further survey, in westernmost Lleyn, (late July / early August) we found another example of the hybrid *R. pimpinellifolia* female × *R. canina* male south of Aberdaron [track from Cwrt to Porth Meudwy SH1525]. Specially interesting was a cluster of stands, originally recorded as *R. pimpinellifolia*, north of Aberdaron in the Capel Carmel area [SH1528-1628]. These plants also had prominent red fruits, but additionally bore numerous shining red acicles on the pedicels. The plant from SH1528 has been determined by A.L.P. as yet another hybrid: *R. pimpinellifolia* female × *R. sherardii* male — thought not to be an F1 hybrid but likely to be some sort of back-cross with *R. pimpinellifolia*; this hybrid is new for the area. There remain further inland localities in Lleyn for which there are earlier [pre c.1990] records which at the time had been thought to be normal 'Burnet Rose'; these have yet to be re-examined in case they too are found to be hybrids.

The question now arises: how many other inland examples of Burnet Rose in western Britain could likewise turn out to be similar hybrids? With their conspicuous red fruits as opposed to the normal black fruits of Burnet Rose proper, now is the season for checking (see photo page 43).

ANN CONOLLY, 25 Brocks Hill Drive, Oadby, Leicester, LE2 5RE

AILSA BURNS, 3 Rosliston Road, Stapenhill, Burton-upon-Trent, Staffordshire, DE15 9RJ

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## PUTTING ROCK SEA-LAVENDERS ON THE MAP

Almost all our Rock Sea-lavenders (*Limonium binervosum* agg.) are listed in the 3<sup>rd</sup> edition of the Red Data Book (Wigginton 1999); most are also Priority Species in the UK Biodiversity Action Plan (UKBAP) (Anon 1998), and all but one are British-and-Irish endemics — that is to say, they are found nowhere else in the world. Yet, despite these accolades, few of us are inclined to give them much attention. We dismiss them as 'too difficult'. We've all done it . . . perched on a crumbling rock-face we see this delicate, wiry-stemmed plant with beautiful bluish-lilac flowers and — what do we do? — we just *groan*, and say something along the lines of 'oh dear, it's one of *those* — let's just call it "agg.".' (See photo page 44).

Our reluctance to get to grips with rock sea-lavenders is understandable enough. Back in the seventies, when the whole of life seemed so much *simpler*, the *Limonium binervosum* group comprised just four species in Britain: *L. binervosum* (*sensu stricto*) plus three rare endemics — *L. paradoxum*, *L. recurvum* and *L. transwallianum*. Then, in the 1980s, research by Martin Ingrouille led to a thorough re-working of the group: he named a further five endemics (*L. britannicum*, *L. dodartiforme*, *L. loganicum*, *L. parvum* and *L. procerum*), redefined *L. recurvum* and *L. binervosum* s.s. and conjured up a formidable array of subspecies and varieties (Ingrouille & Stace 1986). All a bit daunting and — just like with the brambles and the dandelions — most of us have been content to 'leave them to the experts'.

Even so, clinging to that crumbling sea-cliff, face-to-face with that blasted 'agg.', let's suppose you decide that 'agg.' is no longer good enough. You get this irresistible urge to want to know it by its *real name*! In which case, get hold of Stace — either the doorstop edition or the *Field Flora* will do nicely — and you'll find a useful summary of the key morphological characters. In the big Stace there is a rather complicated *multi-access* key to the species and subspecies, plus some helpful illustrations, whereas the *Field Flora* has a *dichotomous* key to the species only, and no drawings. Either way, you'll need to examine the branching (and roughness) of the flowering stems; measure the length of the flower spikes; decide whether the spikelets are 'dense' or 'lax'; measure the length of the inner and outer bracts and the width of the petals . . . And, having spent an hour or two grappling with these morphological niceties, you might find yourself wishing you'd never started!

But (*please*) don't give up — things are never *quite* as bad as they seem. As you become more familiar with the group you'll find that the species (and most of the subspecies) have their own distinctive 'jizz', although — just like dandelions — it helps, at least at first, to be *shown* the taxa and have the jizz pointed out to you in the field. Moreover, most species, and all the difficult subspecies, have well-defined (and often very restricted) distributions, enabling you to draw up a short-list of the likely candidates in your area. The downside of this distributional predictability is that it invites complacency, tempting you to assume that, when faced with a new (unnamed) rock sea-lavender population, you can name it on the basis of its grid reference rather than on any particular combination of morphological characters. Thus, in S.E. Cornwall (v.c. 2) — where only *L. britannicum* subsp. *coombense* has been recorded — you might think that all the rock sea-lavenders there are *bound* to be referable to this taxon. But just along the coast in S. Devon (v.c. 3) there's not only 'coombense', as in Cornwall, but also *L. procerum* subsp. *procerum* and *L. binervosum* subsp. *mutatum*! Maybe these other taxa are 'hiding' in S.E. Cornwall too, just waiting to be discovered, and — who knows? — the plant that you're about to dismiss as 'coombense' could represent just such a discovery!

And, yes, there certainly *are* discoveries to be made. For example, in Pembrokeshire (v.c. 45) in the early nineties new populations of *L. parvum* were found on several sea-cliffs well away from the supposed 'sole locality' at Saddle Point. In v.c. 3 in 1999 a small colony of (what appears to be) *L. binervosum* subsp. *mutatum* was discovered by one of us (SJL) growing on a low cliff at the mouth of the Salcombe Estuary, about 7kms west of its only previously known site at Lannacombe. More exciting still, there's always the possibility that your mystery *Limonium* might even be a new, as yet undescribed, taxon. On limestone cliffs in Dorset (v.c. 9), for example, DAP and Chris Preston were recently confronted by a rock sea-lavender that didn't appear to 'fit' any of Ingrouille's taxa — it looks set to become a new species which, on account of its large leaves, is currently known by the working name of *L. 'obesifolium'*.

The BSBI and National Trust are jointly responsible for co-ordinating implementation of the UKBAP Action Plan for the 'endemic *Limonium* taxa', and, with 19 *Limonium* taxa — *Limonium binervosum* sensu stricto [5 subspecies], *L. britannicum* [4 subspecies], *L. dodartiforme*, *L. loganicum*, *L. paradoxum*, *L. parvum*, *L. procerum* [3 subspecies], *L. recurvum* [3 subspecies] and *L. transwallianum* — included in the BSBI's Threatened Plants Database (TPDB) project, there's every reason for BSBI members to start taking a closer interest in them. There are *hundreds* of 'agg.' colonies still needing a name, as shown by a project being done by Alex Lockton and the TPDB. In the last few months Alex has, quite literally, been attempting to 'put rock sea-lavenders on the map', pulling together all GB records of the 'agg.' and incorporating them into the Threatened Plants Database (rock sea-lavender records on the TPDB had hitherto been restricted to the RDB endemics). With funding from English Nature, he is producing a draft report for each vice-county — detailing records of the 'agg.' as well as confirmed records of the segregates — with 1:50,000 scale annotated maps showing the whereabouts of all the known *Limonium* colonies. After circulating these drafts to v.c. recorders and to all those with a particular interest in the group, he will be producing a revised report incorporating the comments, corrections and additional records received.

Alex's work will be enormously helpful to the 'endemic *Limonium*' UKBAP steering group, allowing us to identify gaps in our knowledge of the distribution of the endemic taxa, to prioritise areas requiring further survey, and to instigate a monitoring programme for some of the more important

*Limonium* populations that we already know about. And, of course, there is plenty of scope for BSBI members to get involved in all this work. We hope that keen botanists visiting areas likely to support colonies of *L. binervosum* agg. will request a map from Alex and update the records of the sites and species there. A good head for heights is not essential! — rock sea-lavenders are just as much at home on shingle banks, dune-slacks and seawalls as they are on vertiginous cliffs and rock-ledges. Next year it is planned to hold a *Limonium* field meeting, probably in Dorset, one of the aims of which will be to make the species-complex more accessible to those of us who'd like to get involved but haven't (yet) had much experience of sorting out the taxonomic complexities.

Any members wishing to register an interest in the BSBI's contribution to the UKBAP on rock sea-lavenders should, in the first instance, contact DAP at the address below. There is much work to be done, and it certainly *won't* get done if we leave it to the experts!

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SIMON LEACH, English Nature, Roughmoor, Bishops Hull, Taunton, Somerset, TA1 5AA.

E-mail: [simon.leach@english-nature.org.uk](mailto:simon.leach@english-nature.org.uk)

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

E-mail: [DPearman4@aol.com](mailto:DPearman4@aol.com)

LUCY CORDREY, National Trust, 33 Sheep Street, Cirencester, Gloucestershire, GL7 1RQ.

E-mail: [xealcc@smtp.ntrust.org.uk](mailto:xealcc@smtp.ntrust.org.uk)

ANDY JONES, Countryside Council for Wales, Plas Gogerddan, Aberystwyth, Dyfed, SY23 3EE.

E-mail: [a.jones@ccw.gov.uk](mailto:a.jones@ccw.gov.uk)

# CONSERVATION NEWS AND VIEWS

## NEW LAWS, RELEASES, GARDENS, 'SITES' AND THE WILD

Clare Coleman (2001) draws attention to welcome protection for wild plants. However, I am not at all sure what 'plant crime' is all about, and fear that the law may prove itself an ass (the long-established *Equus asinus* rather than the non-native *Botomus americanus*) when attempts are made to apply it, and could make criminals of the most unlikely people. Mabey and Evans (1980) mention 'many colonies' of the Fairy Foxglove (*Erimus alpinus*) originating from the activities of a 'married couple who carry a stock of seeds with them on their travels round Britain, planting them out on any suitable limestone site'. It appears that, if they persist in releasing this species anywhere in the UK, they could be liable to receive 'a prison sentence of up to two years'. Quite right too! And what of the landowner who erected a large enclosure for game birds on ancient limestone grassland in the Yorkshire Dales National Park, and planted it up with shrubs including an alien *Cotoneaster* species? Almost as heinous an offence as 'planting' is the 'uprooting' of 'any wild plant without permission from the landowner or occupier' (see Palmer & Hearn 1999). It is obvious that many botanical research publications, both ecological and taxonomic, would never have been produced if such laws had been followed to the letter.

So much seems to depend on definitions, especially definitions of commonly used terms which have been modified (Humpty-Dumptyfied) in biological and conservation literature in ways that render them at variance with ordinary usage. 'Plant crime' Clare Coleman tells us, involves the 'deliberate release

of non-native and certain other species . . . ' (my italics). Non-native species 'are those where all of the evidence points to the fact that they have been brought to Britain by people . . .' (Usher 2000). If this definition is applied we are probably all criminals by now. Non-native is the converse of native which according to Bullock *et al.* (1997), quoting NCC, is usually construed as 'a species or race that is thought to have occurred in an area since prehistoric times, subsequent colonisation is thought to have occurred through an human agency'. Plenty of scope for legal argument here?

The word 'release' also seems liable to cause confusion especially when used in conjunction with 'the wild' which, according to the above authority, 'can include natural conditions and semi-natural and agricultural land, gardens, ponds and open glasshouses . . .' So gardening, horticulture, and the restoration of damaged land all involve such release. As I mentioned in a previous note (Hamblen 2001) the *ability* of an organism to disperse to other sites is a criterion used by Bullock *et al.* (1997) to locate it in 'the wild'. This ability is naturally conjectural, but for any species capable of producing propagules dispersal — movement of propagules away from their source is extremely likely; and the problem then is to define site. A garden with well defined boundaries might be regarded as a 'site' for recording expediency (see for example Peter Macpherson's comments in the reference given below), but whilst a movement of a few metres might represent dispersal to other 'sites' where a small domestic garden is the unit, movement of several km might be required for a propagule to leave the garden of a stately home. Some sites are more equal than others.

Further, complications arise when defunct gardens may be involved, when boundaries have been lost, or where boundaries exist around 'wild' plots unattached to dwellings. This was illustrated by my own investigations of a much-quarried hill ('The Haw') east of Skipton in Yorkshire in which I reported (Hamblen 1996) the presence of several species presumed to be relicts from the garden of a cottage inhabited from the 19th century until about the 1940s, subsequently used as a workshop, and then demolished at a date unknown (Hamblen 1995). An archaeologist *might* be able to decide where the boundary of a garden could have been, or there may have been no formal boundary; meanwhile the origins of *Anchusa officinalis* (Alkanet), *Hypericum calycinum* (Rose-of-Sharon), *Centaurea montana* (Perennial Cornflower), and several other foreign species in the vicinity can only be subjects for speculation. A little over a kilometre to the east *Rosa setigera* (Prairie Rose) is present in a walled-off corner of a field which, although it has a boundary, appears never to have been a 'garden'.

Dispersal of some non-native species within the UK may be verified by comparing the Seed List 2000 for Harlow Carr Botanical Gardens, Yorkshire with the Species Accounts in *Alien Plants of Yorkshire* (Wilmore, 2000): at least 173 of the 799 species and cultivars in the former are represented in the latter, which excluding twenty 'wild flowers' suggests that around 25% of the seeds available to members of the Northern Horticultural Society (of which I am one), belong to non-native taxa that have demonstrated their ability to 'disperse to other sites' from gardens somewhere — gardens where they have previously been 'released'.

This may, of course, seem like 'fidgeting about with the use of words', to quote James Iliff (*BSBI News* 87), which in a sense it is. However where the liberty of citizens may be at stake lawyers often do just this. 'I put it to you that you deliberately released non-native species X into your garden in the full knowledge of its recorded ability to disperse to other sites in the wild'. 'My client emphatically denies the offence: the plant in question was undoubtedly derived from a seed transported in mud beneath the wings of his 4X4 which had been driven off-road in another country. He denies even having noticed the plant until it was pointed out by the police'.

Any plant producing spores or seeds is likely to be able to disperse without human assistance from the place (in its narrowest sense) where it is cultivated, but it is the presence of an ecological niche that will allow a non-native plant to survive rather than the rain of propagules that it is important — no niche, no survival. Ingress of foreign plant material ('. . . seeds, spores . . . and gametes') through translocation (see Bullock *et al.* 1997 for full definitions) will be continuous in the UK, and will usually be beyond the law which could become largely symbolic.

It is, in any case, difficult to predict invasions and 'only a detailed study of the ecology of a species and its potential habitats can allow one to make any sort of prediction as to its potential success or failure' (see Bullock *et al.* 1997), i.e. just a modicum of guesswork may be involved!

Further, on the same page of the JNCC report, it is pointed out that, a community's susceptibility to colonisation by exotic species is increased by disturbance. Measures to reduce disturbance to a 'natural' or 'semi-natural' community, or to the regime (which may, paradoxically, involve a specific type of disturbance) that maintains that community are likely therefore to be more effective for preservation of its biodiversity than the threat of prison for a deliberate action that has not been precisely defined. This especially as the translocation of exotics to uncultivated sites is usually accidental, even if incidental to deliberate deposition of garden rubbish, or to the disposal of organic wastes.

'It is an offence, without a licence, to plant or cause to grow in the wild any plant listed on Schedule 9 of the Wildlife and Countryside Act, 1981 or on Schedule 9 of the Wildlife (Northern Ireland) Order 1985. These schedules include alien plants which may pose a threat to our native flora. The lists are revised from time to time and the current ones for Great Britain and Northern Ireland are given in this leaflet.' (Palmer & Hearne 1999). Consideration of one antipodean genus, *Acaena*, listed in the leaflet illustrates several problems. The propagules of *Acaena* spp. (Pirri-pirri-burs) are available from reputable horticultural sources in England. Several species are already growing in the wild (*sensu* Bullock *et al.* 1997) in botanical and private gardens, as well as on 'barish ground' (Stace 1997) — that is, in the wild (*sensu* common usage). Is there some property of important Irish plant communities that makes them particularly vulnerable to invasion by *Acaena* spp.? Has the invasion of plant communities in England, Scotland and Wales gone so far as to render legal control futile? Or has the law for 'Great Britain' changed ('schedule under review in 1999') since the *Code of Conduct for the conservation and enjoyment of wild plants* (Palmer & Hearn 1999) was produced? Does *Acaena* really merit special attention anyway? And if the origin of an individual clone of an *Acaena* species discovered growing on barish ground in Northern Ireland could be traced to fruits carried from England on someone's socks, would the owner of those socks who 'cause[d it] to grow in the wild' (Palmer & Hearn 1999) be prosecuted?

I suppose lawyers can clarify all this so that botanists will not be confused. By the way, is it all right to uproot *Anthriscus sylvestris*? Over to you Clare Coleman!

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DAVID J. HAMBLER, 14 Yew Tree Avenue, Bradford, West Yorkshire, BD8 0AD.

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# ALIENS

## ALIEN RECORDS

No authority is given if the taxon is mentioned in Stace's *New Flora of the British Isles* (1997), Clement & Foster's *Alien Plants of the British Isles* (1994) or Ryves, Clement & Foster's *Alien Grasses of the British Isles* (1996). Arrangement is in Kent order of families and/or genera with extra entries interpolated as appropriate; an \* before the Latin name indicates a taxon new to Clement & Foster or Ryves, Clement & Foster. I would be delighted to receive any alien records for inclusion in future issues. In general all taxa not included in Kent's *List of Vascular Plants of the British Isles* (1992) or its Supplement are eligible for inclusion but other more widespread aliens listed in that work may be included at the discretion of the v.c. recorder and the editor. Please ensure that all records include the details as set out below, especially a map reference, even if only to a hectad (10km square).

My thanks to John Palmer for sending in the records for W. Kent (v.c. 16). Members are reminded that 1<sup>st</sup> records of all taxa included in Kent's *List* are eligible for publication in Plant Records in *Watsonia*.

- 53/1.4. *Malva nicaeensis* (French Mallow). 16, W. Kent: By gravel track, Crayford Marshes, TQ57, J.R. Palmer, 2000, conf. E.J. Clement.
- \*73/AIC.lax. *Aichryson laxum* (Haw.) Bramwell (Flaccid House-leek). 16, W. Kent: Waste ground, escape from nurseries, (may also occur in wall/hanging baskets), Bexley, TQ57, J.R. Palmer, 2000, det. E.J. Clement. [See also page 57].
- 75/32.43. *Cotoneaster zabelii* (Pear-fruit [Cherryred] Cotoneaster). 16, W. Kent: Still occurs, bird-sown, on grassy roadside banks, but owing to development does not appear so wild as 20 years ago, near Hextable, TQ57, J.R. Palmer, 2001. [I question the English name given in Stace (1997) as a large number of *Cotoneaster* spp. have 'cherryred' fruits.]
- \*101A/ZAN.sim. *Zanthoxylum simulans* Hance (a Japanese ash). 16, W. Kent: Seedlings (one 3m high) in a garden and to some extent outside on waste ground, Sutton-at-Hone, TQ56, J.R. Palmer, 1994+, conf. E.J. Clement.
- [109]NOL/NOL.hum. *Nolana humifusa* (Trailing Chilean-bellflower). 16, W. Kent: Pavement weed, Barnes Cray, TQ57, J.R. Palmer, 1997, det. E.J. Clement.
- 118/MON.cit. *Monarda citriodora* (Lemon Beebalm). 16, W. Kent: Roadside verge between Dartford and Crayford, TQ57, J.R. Palmer, 2000, det. E.J. Clement.
- 131/6.mor. *Lonicera morrowii* (Morrow's Honeysuckle). 16, W. Kent: Still occurs by a footpath near Five Wents, where first seen in 1990, TQ56, J.R. Palmer, 2001.

EDITOR

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### STATUS OF *RANUNCULUS MARGINATUS*

BSBI members may be interested to know that *Ranunculus marginatus* (St Martin's Buttercup) is far from extinct (*Flora of Cornwall*, 1999) on St Martin, Isles of Scilly. Still restricted to cultivated fields 'below the Post Office,' it was there in abundance when visited by a London Natural History Society botany group on 16<sup>th</sup> May 2001. The fields are strictly private, but after seeking permission we were readily shown the plants by the landowner. He knows what he has and says there is not the least threat to its existence. Ploughing does not take place until seed is dropped and even then some specimens are left on the headlands. Finding this plant was prominent among many highlights of an excellent week's botanising on the Isles.

CAROL HAWKINS, 23 Ferndale Crescent, Cowley, Uxbridge, Middlesex, UB8 2AX

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## NOTES ON *BROMOPSIS INERMIS* (HUNGARIAN BROME) IN S. HANTS.

I have been stimulated by Eric Clement (EJC) to set down some observations about *Bromopsis inermis* (Leyss.) Holub subsp. *inermis* from the point of view of someone newly acquainted with the plant. It is a relatively little known grass. Hubbard (1984) allocates just eight lines to it as *Bromus inermis* and provides no illustration; Stace (1997), gives nine lines and a sketch of the inflorescence.

To fulfil the need for a good diagnostic line-drawing that contrasts this species with the similar *Bromopsis erecta* (Upright Brome), Delf Smith (DPJS) has eagerly conveyed a specimen from his local patch of the grass (a new roadside verge in Portsmouth City, S. Hants, v.c. 11) onto paper before the council cut it down so that no-one else can re-find it! His fine drawing shows:

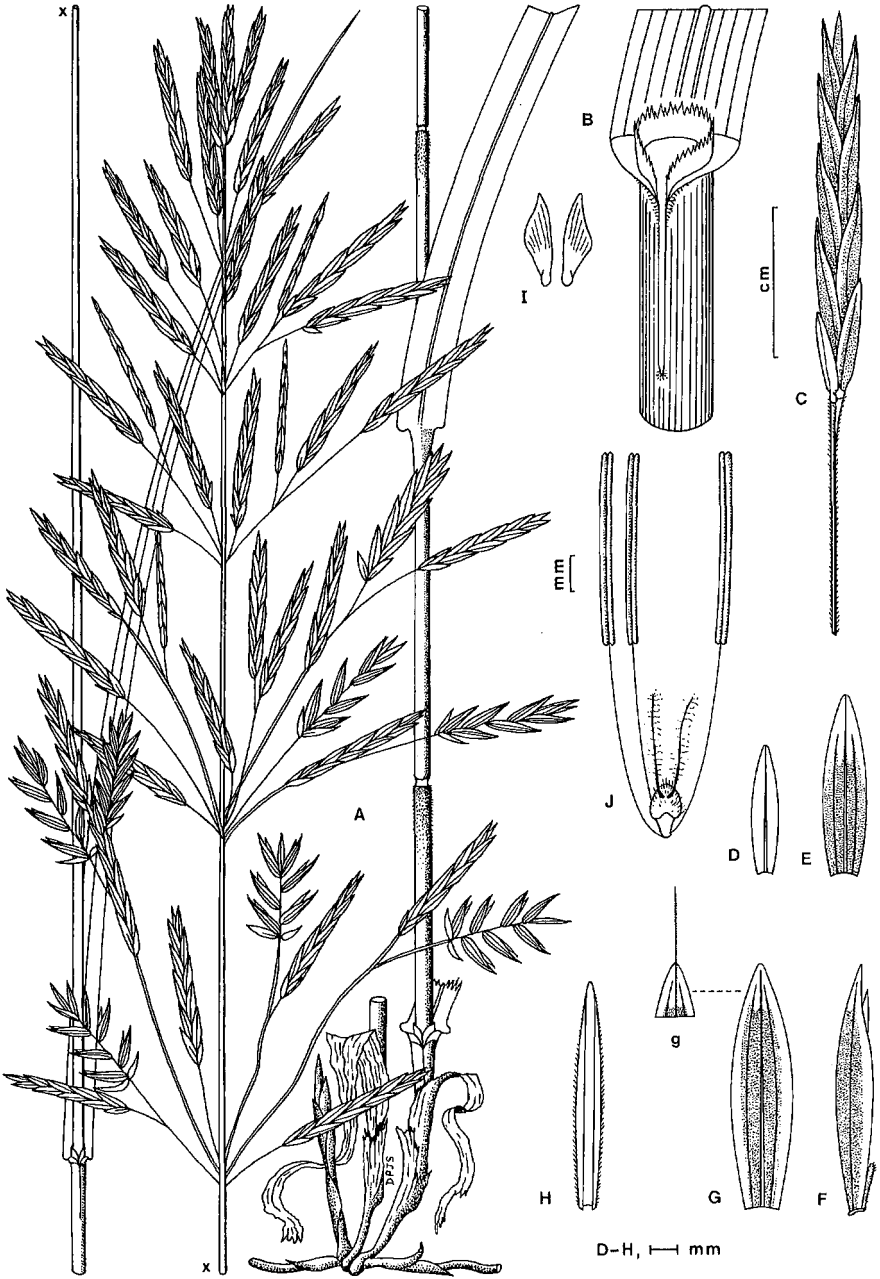
A. habit of plant	G. awnless lemma
B. ligule	g. tip of awned lemma
C. spikelet	H. palea
D. lower glume	I. lodicules
E. upper glume	J. flower
F. floret	

The illustration is drawn solely from the colony in Portsmouth (SU644020). Forms with both awned and awnless lemmas grow together here (see illus. g & G).

The latest *Flora of Hampshire* (Brewis *et al.* 1996) states that *B. inermis* is rare, with the first county record in 1963 (at Browndown, Gosport, v.c. 11). Debbie Allan and others have failed to refine it here, but in June 2001 I went with Eric to another site nearby at Gilkicker Point (SZ604979) in an area of made ground, where the grass has been recorded since 1986. As I had not seen this grass before, it was an exercise for me to see how easily it could be picked out and differentiated from *B. erecta*. It turned out to be not too difficult, particularly as it was in fairly open ground with not much tall competing vegetation. There were three patches which were obvious from many yards away. The plant is strongly rhizomatous, and the largest of the patches was around 3–4m across, very different even at a distance from the tufted habit of *B. erecta* (rarely 40cm across), but with similar inflorescences to this species, and with broader leaves. The patches were relatively uncrowded, the stems 20–30cm apart. Close inspection showed the typical broad, flat leaves to be 5–8mm across, compared with *B. erecta* having basal leaves rarely exceeding 3mm in width, and stem leaves rarely exceeding 5mm. Clapham, Tutin and Moore (1987) gives *B. inermis* as having leaves up to 5mm. This would appear to be incorrect from the specimens I saw, and they are also described as exceptionally to 12mm across in Conert (2000). At least the lower leaves of *B. erecta* are usually inrolled. The anthers of *B. erecta* are (reddish-)orange, 5–7mm long, those of *B. inermis* yellow, 4–5mm long.

The leaf sheath junction, especially on tillers, can sport prominent auricles, as in this Gilkicker locality — but the Portsmouth colony lacked them totally (as per the drawing). Among the Gilkicker plants, some had auricles on the lower junctions but not the upper. Auricles are unknown in *B. erecta*. The otherwise cylindrical sheath is open for about 1cm from the junction, with a membranous border overlapping by <1mm at the base of the opening. This overlap was first noted by DPJS, and appears to be an unusual feature among grasses according to EJC. It is shared by *B. erecta* but not by *B. ramosa* or *B. benekei*, as observed by DPJS. The plant typically has glabrous foliage, but one of the colonies at Gilkicker has the lower leaf sheaths shortly pubescent.

The plants in one of the Gilkicker colonies had not developed any panicles. When EJC and I visited the Portsmouth colony shortly afterwards (28 June), it too was showing no flowering parts, but its characteristic leaves could easily be picked out. It was having to compete with some other vigorous vegetation next to a motorway sliproad and may also have been the victim of untimely verge cutting by the local council some time earlier. Later that day we also visited a site, Farlington Marshes (SU688042), where the grass had been recorded by the side of a wartime pillbox in 1990 by Rev. E. A. Pratt. It was still there, and in flower, despite being much overgrown by brambles, *Rubus fruticosus* agg.



*Bromopsis inermis* subsp. *inermis* del. D.P.J. Smith © 2001



For a full description of *B. inermis* see Sell & Murrell (1996), page 207. The variability of the species may be partly due to the variable chromosome number  $2n=28, 42, 56, 70$  (as given by Stace), although Sell & Murrell quote only  $2n=56$  (for subsp. *inermis*). A chromosome number of  $2n=76$  is quoted in some places, which is probably an error for  $2n=70$ .

I am indebted to Eric J. Clement for his encouragement to write these few words to accompany Delf Smith's beautiful and invaluable artwork.

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IAN R. THIRLWELL, 13, Dunlin Close, Southsea, Hampshire, PO4 8YW

## AEONIUM AND AICHRYSON ON THE ISLES OF SCILLY (v.c. 1b)

The closely related genera *Aeonium* and *Aichryson* (both Crassulaceae) are not well-known except to students of the flora of the Canary Islands. The lack of an established common English name for either genus confirms this. Typically, they look like large, many-petalled *Sedum* spp. (Stonecrops). The characteristic, often aerial, leaf rosettes of *Aeonium* often strongly suggest the genus *Sempervivum* (House-leeks), whilst others more resemble large *Crassula* spp. *Aichryson* spp. are much smaller entities without true rosettes; their nectar glands (see *BSBI News* 87: 50) are 1-2-horned, whereas *Aeonium* spp. possess  $\pm$  4-sided glands.

Thirty-one species of *Aeonium* are currently recognised, three of which have been claimed as 'wild' on the Isles of Scilly. *Aeonium arboreum* (Tree Aeonium) is locally naturalised on old walls in the Mediterranean area and elsewhere. *Aichryson* has fifteen species, of which *A. laxum* is naturalised in Portugal — see *Flora Europaea* 1: 429 (ed. 2, 1993) where it appears under its older and better known synonym of *A. dichotomum* (DC.) Webb & Berth. It is usually single-stemmed at the base and often repeatedly dichotomous above.

The four taxa claimed for Britain may be keyed out as follows (all are succulent and yellow flowered):

- |   |                           |
|---|---------------------------|
| Annual; leaves and stem villose   | <i>Aichryson laxum</i>    |
| Perennial; leaves and stem not villose  |                           |
| Leaf surface of rosettes velvety  | <i>Aeonium canariense</i> |
| Leaf surface of rosettes glabrous   |                           |
| Rosettes borne on tall, $\pm$ erect woody branched stems; younger leaves not glaucous; pedicels 2–8mm | <i>Aeonium arboreum</i>   |
| Rosettes terminating short offsets from rootstock; younger leaves glaucous; pedicels 1–4mm            | <i>Aeonium cuneatum</i>   |

The records for the above four species may be summarised as below:

*Aichryson laxum* (Haw.) Bramwell (Flaccid House-leek, in one book!). Occurs only on the outside of an old moss-coated wall of Tresco Abbey, Tresco. It has been cultivated in the Abbey gardens since 1959, but was first recorded as an escape by the late A. Underhill in Oct. 1993 (see *BSBI News* 73: 38). Since then it has been refound by Julie Clarke in June 1996 and, again, by G. Hounsome *et al.* in May 2001 as 'well naturalised'. J.R. Palmer also collected it (**Herb EJC**, as ?*Crassula arborescens*) from

manure heaps near the River Cray outside plant nurseries at Bexley (W. Kent, v.c. 16) in Aug. 2000, but persistence here is unlikely (see also page 57).

*Aeonium canariense* (L.) Webb & Berth. The records quoted in Clement & Foster (1994) require confirmation by examination of further, fresh material.

*Aeonium arboreum* (L.) Webb & Berth. Possibly always deliberately grown on old garden walls, hence its wild status appears to be dubious. Genuine records are to be expected!

*Aeonium cuneatum* Webb & Berth. Recorded in Lousley (1971) from St Martin's, but only with a provisional determination — 'many plants which must be self sown' (p. 181) on the end of a building between Lower and Middle Town. The genuine article has certainly been found since then. Mrs M.C. Foster collected it (**Herb. EJC**) in June 1978 from sand dunes on Bryher where it was apparently naturalised. Her field notes read: 'rosettes cup-shaped; leaves glaucous; flower stem leafy; inflorescences c. 18 inches long, conical'. R.A. Barrett found it in Oct. 1992 on an old wall at Hugh Town, St Marys. Also, whilst 'birding' in Dec. 1996, A. Underhill (AJU) found it wild on Tresco, but at this date with flowers remaining on only one inflorescence. Clearly, this species deserves greater recognition as part of our established flora.

Although briefly described (pp. 308–309) in Stace (1997), a fuller description of *A. cuneatum* will, doubtless, be welcome here: A succulent herb with decumbent, subwoody stems normally less than 25cm long that terminate in broad cup-shaped aerial rosettes of thick, fleshy leaves (and hence somewhat Mesembryanthemoid). Leaves mostly 10–20×4–8cm, obovate to oblanceolate, stiffly ciliate. After 1–4 years, each rosette produces a huge conical inflorescence that is glandular-hairy, on a thick, monocarpic, bracteate stem. Flowers c.15mm diameter, composed of 8(–10) golden-yellow petals. Carpels free, pale green, 6–7mm long (including long styles). Native of Tenerife. Rare in cultivation, but grown at Tresco Abbey Gardens since at least 1894. It is apparently unknown as naturalised anywhere else in the world.

By good fortune, Gordon Hanson (Ware, Herts.) has been growing on a barren offset of *A. cuneatum* since 1996 that AJU had collected, and it deemed to flower for the first time this year, and a local artist, Ruth Freeman, has generously conveyed its nature onto paper (see front cover) for us all to appreciate.

Ronald King's invaluable book on Tresco flowers (King 1985) tells us that 'since 1982' (p. 103) they have grown in the Abbey Gardens forty taxa (including three hybrids) of *Aeonium* and three of *Aichryson* (all are listed, with dates of introduction on page 138), so it is feasible that others may have jumped the garden wall and continue to live wild and undetected.

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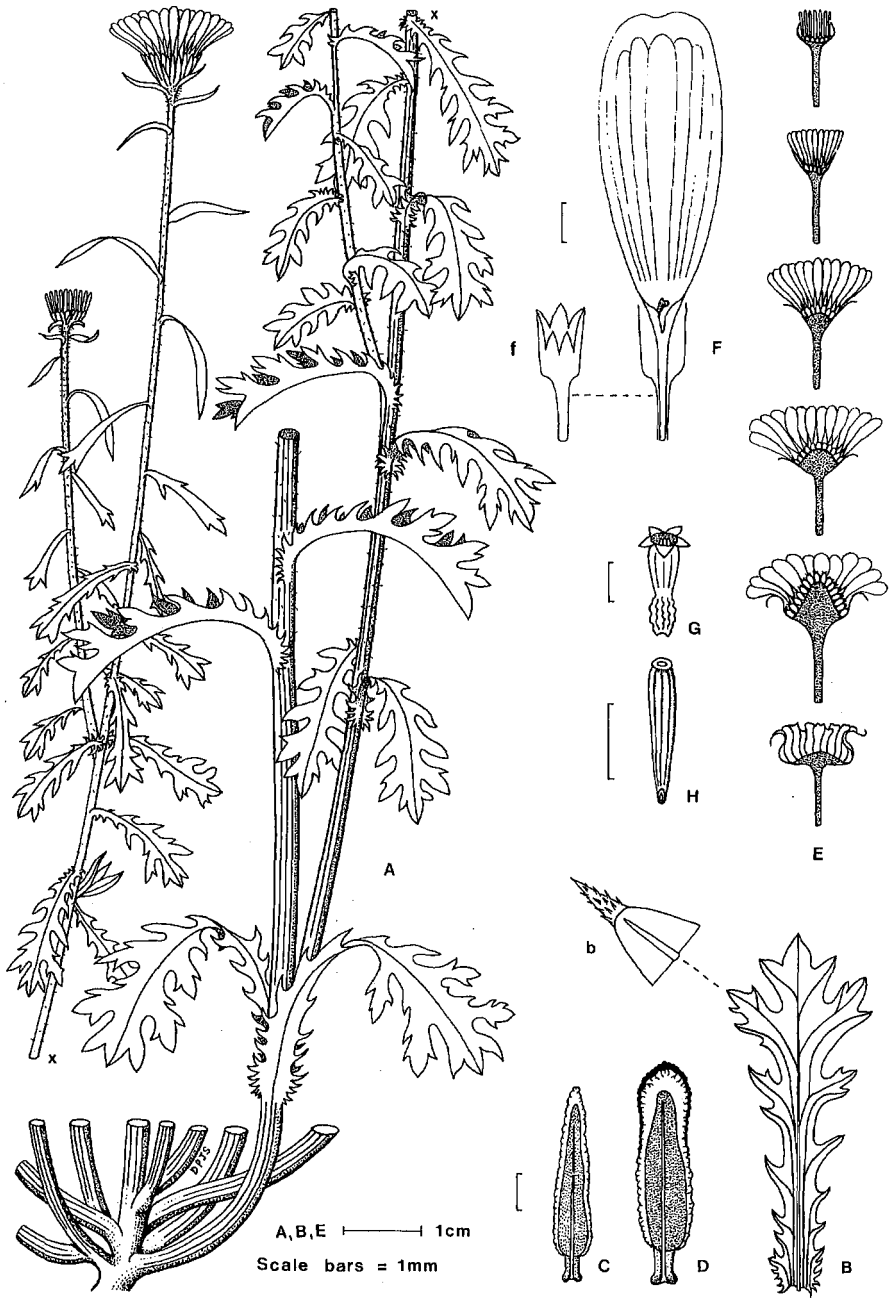
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ERIC J. CLEMENT, 54 Anglesey Road, Gosport, Hants, PO12 2EQ

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## LEUCANTHEMUM PALUDOSUM IN THE BRITISH ISLES AND BEYOND

*Leucanthemum paludosum* (Poiret) Bonnet & Barratte is often cultivated as an ornamental plant and is usually sold somewhat vaguely as 'Marguerite', a name equally applicable to both *Argyranthemum frutescens* and *Leucanthemum vulgare*. 'Annual Marguerite' would be a more suitable name although in New Zealand it is already known as Snowland, whereas A.B. Graf's *Hortica* (1992) calls it 'Miniature Shasta Daisy' and gives a good coloured photograph of it (p. 381). Nurseries and seed catalogues often list it as 'Mini-Marguerite'. Scientific names are even more variable: Clement & Foster's *Alien Plants of the British Isles* (1994) lists on pp. 339–340 a selection of names that have



*Leucanthemum paludosum* del. D.P.J. Smith © 2001

been applied to it. One of these, *Chrysanthemum glabrum* Poiret, appears to be a *nom. inval.* that arose by miscopying in the past, and hence *Leucanthemum glabrum* Boiss & Reut. is a *nom. illeg.* Reference numbers that are quoted hereafter are listed (pp. 401–444) in Clement & Foster (1994).

Alas, synantherologists (= specialists in the family Asteraceae — useful for that obscure pub quiz!) have continued to ‘split’ the *Chrysanthemum* alliance wherein ‘satisfactory lines of demarcation are difficult to draw’ (ref. 16, p. 855) and *Leucoglossum paludosum* (Poiret) Wilcox, Bremer & Humphries (1993) graces a few recent publications. But this generic name is a later homonym of *Leucoglossum* S. Imai (1942), an ascomycete, so must not be used; in *Taxon* 44: 377–378 (1995) *Mauranthemum paludosum* (Poiret) Vogt & Oberprieler was born as a replacement name. Fearful of yet more upheaval, I have conservatively stuck with *Leucanthemum*; I cannot follow the lead of *The European Garden Flora* 6 (2000), since they surprisingly omit this species.

This taxon is remarkably polymorphic (and possibly swollen by inaccurate observations?) and presumably may consist of several microspecies. Characters given in print seem to be alarmingly conflictory, and published line drawings could be more helpful — e.g. the fine artist P.J. Redouté, in ref. 556, gives no dissections at all, just the habit of the plant. Delf Smith (DPJS) has, once again, religiously provided us with a first-class illustration (p. 59) which appears to have no equal! It is drawn, solely, from a bushy plant generously supplied by Alison Rutherford from a local garden centre in Helensburgh. It shows:

- |   |                  |   |  |
|---|------------------|---|--|
| A | Habit of plant   | E | Development of the capitulum from bud to fruit |
| B | Middle stem leaf | F | Neuter ray floret                              |
| b | Top of leaf lobe | f | Pappus (corona) of ray floret                  |
| C | Outer phyllary   | G | Fertile disc floret                            |
| D | Inner phyllary   | H | Achene of disc floret                          |

Wild plants are described as being, typically, tiny glabrous annuals (up to 15cm); our plant had sparsely hairy stems reaching 30cm or more. Higher nutrient levels may be responsible — or possibly horticulturalists have produced polyploid variants. Plants cultivated in Britain can overwinter and flower profusely in the second year (comm. D.J. Nicolle): indeed, *Chiltern Seeds* (Ulverston, Cumbria) sell it as a hardy perennial in their 1999 *Catalogue* (p. 64). Our fig. E shows how the epaleate receptacle (*i.e.* there are no scales at the base of the disc florets, using the terminology favoured by world experts such as Kåre Bremer) varies from being flat in bud, to conical at anthesis, and finally shrinking to convex in fruit. Fig. D shows the unusual ‘waisting’ of the outer phyllaries; fig. G shows the swollen base of the tube of the disc floret.

K. Bremer & C.J. Humphries present a splendid ‘Generic monograph of the Asteraceae — Anthemideae’ in *Bull. Nat. Hist. Mus. Lond. (Bot.)*, 32(2): 71–177 (1993) with a key to all the ‘splits’, descriptions of each genus, and a full list of the species in each (ref. X, hereafter). Their generic description (as *Leucoglossum*) does not exactly match our plant. They state (p. 142) ‘ray florets female, fertile’ (DPJS found that the rudimentary stigmas were non-functional; ref. 737 also claims they are ‘neutras, con limbo de 7–10mm, enteramente blanco’ and Jury 10366 (RNG), collected in the Province of Almeria (Spain) seems to confirm this); disc florets ‘5-lobed, slightly zygomorphic’ or ‘zygomorphic, 2- to 3-lobed’ in ref. 21 (clearly 5-lobed and actinomorphic in our plant; ref. 737 agrees) and achenes ‘c. 1mm long’ (c.2mm in our plant; 2.5–3mm in ref. 737). Ref. 21 says ‘ligules pale yellow or whitish with a yellowish base’ (pure white, with an obscure trace of yellow at their extreme base in all plants I have seen so far). All sources agree that the ray achenes sport a membranous corona (c.2mm long), whereas the disk achenes are bald.

Our plant is a native of S. Spain and N. Africa (from Morocco to Libya); records from Portugal and Balearic Isles (Ibiza only) appear to be of impermanent populations. (Two allied species occur in N. Africa to complete the world inventory of *Mauranthemum*). It was ‘once favoured in Victorian gardens’ and appears to be again in vogue, and not only in Britain. K. Adolphi & R. Nowack in *Flor. Rundbr.* 26(2): 107–109 (1992) tell of it as a neophyte in the inner cities of Cologne (Germany) and Leiden (Netherlands) and give a full description, but they provide no illustration. Adolphi also found seedlings about cemeteries in Austria and Italy. It is known, too, as an ephemeral in Sweden — see *Svensk Bot. Tidskr.* 91: 402 (1997), whereas *New Zealand J. Bot.* 37(4): 635 (1999) reports it as a

casual 'growing in cracks in footpaths and urban waste areas' where their inaccurate author citation suggests that they initially intended to call it *Hymenostemma paludosum* (Poiret) Pomel, as was chosen by S.A. Alavi in *Flora of Libya* 107: 173–174 (1983). No illustrations feature in any of these works.

I have tracked down only six records, as listed below, for the British Isles — more are to be expected. It self-seeds very readily, and in parts of the Province of Alicante (Spain) it is regarded as a common weed (see **BM**). Any 'Oxeye Daisy' looking fresh green, somewhat succulent and (sub)glabrous found near horticultural sources is likely to be this annual species.

v.c. 6 (N. Somerset). Waste ground near railway station, Wells. W. Moyle Rogers, July 1871 (published 130 years late!). **LANC**. Prof. Syme determined it as '*L. murcicum* Gay, which is var.  $\beta$  of *Chrysanthemum setabense*.' *Conf. EJC*, 12/93.

v.c. 9 (Dorset). A self-sown overwintering pavement weed, Wareham. Dr H.J.M. Bowen, 1998–9. *Conf. R.W. Rutherford. RNG*

v.c. 17 (Surrey). Waste ground, Wisley. O.M. Stewart *et al.*, Sept. 1988. **Herb. EJC**. Collected as *L. pluriflorum* Pau (not Paul., as in ref. X); pavement weed outside shop, Chipstead. P. Coxhead, June 1998. **Herb. EJC** (a fragment). Self-sown casual from ? hanging basket with a florist's shop nearby.

v.c. 57 (Derbys.). Pavement weed, an escape from nearby flower-beds, New Mills. Julie Clarke, Aug. 1997. Plant c. 1ft tall, bushy. **Herb. EJC**.

v.c. 99 (Dumbarton). On site of demolished building, Helensburgh. Miss A. Rutherford, 1999–2000. 'Slugs love it which may explain why there were only two plants in 2000.'

I will close with two more riddles. The specific name *paludosum* suggests that it should grow in marshy places. Herbarium labels mostly suggest dry, stoney spots — but possibly sometimes where water laid over the winter? Lest anyone be confused by the coloured photo (p. 519) labelled as *L. paludosum* 'Show Star' in B. Segall's *Botanica* (1997; Mynah, NSW, Australia) with 'bright yellow flowers and wavy edged leaves,' I can confirm that it is some unrelated Composite — possibly *Melampodium montanum* Benth., but herein lies another story. I would much welcome good, fruiting material of this impostor!

I am greatly indebted to Ian Thirwell who very kindly translated the entire German paper by Adolphi & Nowack for me. Their comments on the variability of the species parallel my own observations. They predict that it will probably fast become an established neophyte.

ERIC J. CLEMENT, 54 Anglesey Road, Gosport, Hants, PO12 2EQ

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## SAPINDUS SAPONARIA REFOUND AS A DRIFT SEED IN CARDIGANSHIRE

On 25<sup>th</sup> April 2001, Matt Sutton and I were searching for drift seeds along a driftline that had been washed up onto the seaward edge of the Ynys-las dunes in north Cardiganshire (v.c. 46, SN609927). We found nothing relevant, but we did examine and dismiss as a piece of Bakelite or other plastic a black, almost smooth, perfect sphere 12mm in diameter. A week later, revisiting the same site with Julian Woodman (having nowhere better to botanise because of the foot-and-mouth restrictions), I found I still had the object in my pocket and showed it to him. He said it looked like a seed, so to prove him wrong I broke it open with a stone — and found that it contained endosperm and a conspicuous embryo. Reference to Nelson (2000), and to Gunn & Dennis (1999) which has illustrations including a cross section, suggested that it was a seed of *Sapindus saponaria* (Soap Berry), and Charles Nelson has kindly confirmed this identification. The seeds are known as Black Pearls.

The driftline in question originated from a south-westerly storm on 25<sup>th</sup> November 2000, when a huge quantity of material including nurdles and a great variety of other plastic items were washed much higher than usual onto the Marram-covered slopes of the dunes. Nelson (2000) tells us that *Sapindus saponaria* is native of Tropical America including Florida and that the only British Isles record is of a seed found on Barra in the outer Hebrides by William MacGillivray in 1903. He considers that there

must be some doubt whether this was a true drift seed. Although according to Guppy (1917) the seeds can float for about 14 months, the fact that the fruits have been used as a soap substitute makes it possible that the Barra seed may have been jettisoned. Searching the same Ynys-las drifline on 2<sup>nd</sup> December 2000, a week after the storm, I had found one seed of *Ipomoea alba*, and on 17<sup>th</sup> December one seed of *Entada gigas*, so it did definitely contain drift seeds. This perhaps increases the likelihood that the *Sapindus* was a drift seed too, and if it had been from cargo one might surely have expected more to have been washed up. Nurdle-rich driflines seem to be of rare occurrence in Cardiganshire, and the only other I have seen in recent years was one in exactly the same place from a storm of February 1997 in which I found drift seeds of *Lathyrus japonicus* subsp. *maritimus* (Sea Pea).

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ARTHUR CHATER, Windover, Penyrangor, Aberystwyth, Ceredigion SY23 1BJ

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## THE TRUE CEDARS (*CEDRUS*)

Although a number of trees with fragrant wood or foliage are termed 'cedar', including species of *Juniperus*, *Chamaecyparis*, *Cupressus*, *Calocedrus* and *Cryptomeria*, botanists and foresters reserve the title for the cedars of the genus *Cedrus* (pronounced 'sedruss'). Both the vernacular and the Latin name of these trees are derived from the Greek word *kendrus* meaning 'resinous wood'. The true cedars comprise a small number of species from the Mediterranean and western Himalayan regions. In prehistoric times they were widespread throughout the Old World, but climatic change has isolated them to their present mountain ranges. Here they grow at high altitudes and must withstand extremes in temperature, — depending mainly upon snow meltwater for their moisture and, as an adaptation to intense sunlight, a thick waxy covering protects their leaves.

These magnificent trees, arguably the most majestic & stately of all introduced conifers, grace many of our parks, estates and gardens, where they arrest our senses with their massive form, elegant strength and 'sculptured' tiers of foliage.

This article details their lives and includes a new identification key to the species.

### Identifying the genus *Cedrus*

The true cedars have their needle-like leaves set in two different arrangements. The 'juvenile' leaves, which are present along the tips of the long-shoots and leader (i.e. the current year's growth) are borne singly and are spirally arranged, whilst the more prominent leaves, those emanating from the spur-like short-shoots, occur in dense tufts of between 10–45. The short-shoots develop from buds in the axils of the previous years' juvenile leaves though they are quite able of bearing long-shoots at a future date. The two types of shoots vary considerably in their growth, for whilst the long-shoots may grow 10cm during the course of the year, the short-shoots increase by only 1–3mm. These foliage features are shared only by the cedars' closest relatives, the larches (*Larix*). However, cedar leaves are evergreen and rounded or angled in cross-section, whilst the thin-textured, deciduous leaves of larches are flattened. A further means of identifying the larches is by their much smaller cones — 1.5–4cm as opposed to 5–12cm.

Cedar cones show several similarities to those of the firs (*Abies*), being borne upright, disintegrating whilst still upon the tree and in leaving only their central spike (technically termed a rachis) *in situ*. The only conifer seeds which attain similarly large proportions to those of the cedars are also firs, such as Noble Fir (*Abies procera*). However, whilst the barrel-shaped cones of cedars take at least two years to ripen, those of the firs are cylindrical, ripen in a year and possess long, generally exerted, pointed scales known as bracts.

## Introducing the Cedars

In keeping with tradition, four species of *Cedrus* are recognised in this article. However, it is becoming accepted to consider the three Mediterranean 'species' as geographical races of the Cedar-of-Lebanon (*Cedrus libani*).

**Deodar Cedar (*Cedrus deodara*)** *deodara* meaning 'from Deodar' (an old Indian state name). Introduced to Britain in 1831 by Hon. Leslie Melville, though only planted in quantity since 1856. **Natural Range:** The western foothills of the Himalayas, from eastern Afghanistan to western Nepal, forming extensive forests at altitudes of 1000–2800m with Morinda Spruce (*Picea smithiana*), Bhutan Pine (*Pinus wallichiana*) and oaks. **Size:** The species reaches a height of 45m in Britain (to 80m in the wild), with a bole diameter of 1.5m. **Foliage:** The leaves on the short-shoots are mostly 3–3.5cm whilst those on the long-shoots are 3–5cm. New spring foliage, and that of young trees to 6m, is bluish-grey or yellow tinged, though on older trees it becomes a bright dark green. **Female Cones:** 8–12cm, tapering or rounded to near the apex (Fig. 1.8, p. 66), ripening very dark brown. The cones are frequently absent on British trees. **Habit:** A graceful, slenderly conical tree when young, becoming broader with age (Fig. 1.12, p. 66). The upper branches are  $\pm$  level whilst the lower curve down. Usually single-trunked.

**Cyprus Cedar (*Cedrus brevifolia*)** *brevifolia* meaning 'short-leaved'. First introduced to cultivation by Sir Samuel Baker in 1879 and planted at Kew in 1880, though most specimens in Britain date from the 1950s. This cedar is rare on account of being unspectacular, and is generally restricted to specialist collections. **Natural Range:** Inhabits dry mountain slopes alongside Golden Oak (*Quercus alnifolia*) on Tripylos, a peak in the Troodos Mountains of western Cyprus, at an altitude of 1500m. **Size:** The species has attained a slightly greater height in Britain — 20m with a bole diameter of 80cm, than in its homeland. **Foliage:** 0.5–1.2cm on the short-shoots, with long-shoot foliage to 1.5cm. In colouration the leaves range from a dark, glossy green to bluish-green. **Female Cones:** 5–9.5cm, rather long-tapered from the base though abruptly narrowed at the apex which has a nipple-like projection (Fig. 1.9, p. 66). **Habit:** Young and mature trees are rather narrowly conic, though broadening in trees grown in the open (Fig. 1.13, p. 66). Branches  $\pm$  level, bearing flat plates of foliage. The Cyprus Cedar has a more open crown than other cedars and is usually single-trunked.

**Cedar-of-Lebanon (*Cedrus libani*)** *libani* meaning 'from the Lebanon'. This is the oldest species in cultivation, being introduced to Britain in 1638 by Dr. Edward Pocock. It was not commonly planted, however, until the 1760s. **Natural Range:** The species occurs at altitudes of 1300–2100m on Mount Lebanon in Syria, the Taurus mountains in southeastern Turkey as far west as Elami and occurs in scattered stands almost to the Aegean. The specimens occurring in south-western Anatolia and near the Black Sea were previously referred to subsp. *stenocoma* (meaning narrow) on account of being generally taller and more columnar. This hardy form was introduced to Britain in 1903, though remains a rarity. The Cedar-of-Lebanon prefers dry rocky mountain slopes on calcareous soils, frequenting the subalpine belt where snow cover lasts for several months and winter temperatures regularly drop down to -30°C. **Size:** Attains a height of 40m with a bole diameter of 2.5m. **Foliage:** Mostly 1.5–2.5cm on the short-shoots, long-shoot leaves to 3cm. Colour variable — dark green, blue-green or grey-green. **Female Cones:** very variable — 5–12cm, truncated, truncated with a concave apex, or tapered to a bluntly-pointed apex (Fig. 1.10, p. 66). **Habit:** consult the Identification Key for details (p. 69).

**Atlas Cedar (*Cedrus atlantica*)** *atlantica* meaning 'of the Atlas Mountains'. Introduced to Britain in 1841. The very popular form, 'Glauca', was first planted by Lord Somers of Eastnor Castle, Herefordshire in 1845 from seed collected at Téniet-el-Hâad. **Natural Range:** The species occurs on dry mountain slopes on calcareous soils in mixed or pure forest in the Atlas Mountains of northern Morocco & northeastern Algeria at altitudes of 1200–2500m. **Size:** The Atlas Cedar presently grows to a height of 35m with a bole diameter of 1.5m in Britain, though should exceed these figures when our trees reach full maturity. **Foliage:** The leaves on the short-shoots are mostly 1.5–2cm, some long-shoot leaves achieving a length of 2.5cm. Although green and grey-green foliaged trees occur, the species is almost exclusively represented today by 'Glauca', which has bright blue-grey leaves. **Female Cones:** 5–8cm, more distinctly truncated than in other species and often concave at the apex (Fig. 1.11, p. 66). They are usually abundantly produced. **Habit:** consult the Identification Key for details (p. 69).

### Flowers, cones & seeds

Cedar flowers develop during late summer from within short-shoots aged two years or more. The numerous males then show as erect, 1–3cm elongated cones, appearing in regimented rows along many branches. Initially coloured grey-green, they ripen to pinkish-yellow by autumn, having expanded to between 3.5–9cm and become slightly curved. The flowers consist of densely crowded anthers which release clouds of golden-yellow pollen to the wind from mid September (in the case of the Atlas Cedar) through to November. This flowering period is unique among trees grown in Britain. The spent male flowers, which have the appearance of chubby, brown catkins, fall and litter the ground below the parent tree for several months. The erect, 0.5–1cm female flower cones are globular and bright green in September, though are difficult to locate amongst the short-shoot leaf tufts due to their size, relatively small numbers and in being most concentrated in the crown of the tree. Although male and female flowers occur on mature trees (with the exception of the Deodar, which has a tendency to be dioecious), they generally inhabit different levels, with the males being most abundant on the middle and lower branches. This arrangement undoubtedly helps prevent self-pollination, for pollen released on still days would otherwise drift down to the females. Male flowers are produced on trees of about 20 years of age, though females may not appear for a further 10–30 years.

Although the fertilisation of the female cones takes place in autumn, they show little sign of expansion until the following spring. Initially greyish to pale blue-green, they grow to approximately two-thirds their full size by the autumn and achieve their full height a year later, at which time they slowly ripen to brown. The short-shoots which bear the cones die. The resinous cones are elegant structures formed of tightly-overlapping, spirally-arranged scales. However, their smooth profile is lost as the fan-shaped scales loosen (initially in the mid and upper sections) and are shed irregularly over a period lasting several months. Apparently wet weather hastens the process. Each cone scale falls with its complement of two, wedge-shaped seeds (Fig. 1.1, p. 66), these being equipped with a broad, membranous wing which acts as a propellor to aid dispersal during windy conditions. Average-sized cones of 7–8cm hold between 200–300 seeds. The main period for seed dispersal in British cedars occurs during the spring, though the Atlas Cedar releases them from late winter. Seed viability, however, is very low in Britain, which accounts for the paucity of self-sown records. Only the Deodar and Atlas Cedar have thus been recorded, and these limited to the southern counties of England. One can only speculate the impact that climatic change will have on future seed production.

### Uses

The cedars are renowned for their grandeur and longevity and have been adopted as symbols of fertility, purity and strength in their native homes. The hardness and durability of the scented timber has been sufficiently respected to be reserved solely for the most prestigious buildings. In biblical times the Cedar-of-Lebanon was extensively used in the construction of the Temple of Jerusalem and Solomon's Palace. It is said that such was the demand for its wood that whole forests were cleared and the landscape was reduced to desert. The remaining grove of these magnificent trees on the slopes of Mount Lebanon are now fully protected. This, the most mentioned tree in the bible, presently graces the Lebanon flag. The Deodar, which is still widely used in India for the building of temples and palaces, is known there as the Sacred Indian Fir or Tree of God, even if more prosaically used for railway sleepers and bridges! The essential oil from cedarwood (which provides its durability) was used by the Ancient Egyptians for embalming purposes and today is distilled for use in perfumes. Cedar cones provide both a source of fuel and a natural dye.

Although the yellow-white to red-tinged wood can be worked to a fine finish and is most attractively grained, it is little used in Britain — the wood referred to as 'cedar' by timber merchants undoubtedly being from one of a multitude of unrelated conifers with durable, spice-scented timber. The rarity value alone makes true cedarwood too expensive to use except for specially-commissioned carvings and furniture, and then often as a mere veneer over cheaper timbers. In Victorian times it was used to line drawers and chests due to its odour being resistant to insects such as clothes-moths. Experimental plantations using the Deodar have been maintained by the Forestry Commission in southern England since the mid nineteenth century though have not proved to be particularly successful for our unfavourable climate has resulted in the wood being neither as hard nor as durable as native



timber. The cedars' requirement of space and intolerance of shade are also problematic in intensive forestry plantations. Today's British trees are grown purely for their amenity value.

### Gardens

Their popularity in British gardens, which relates to the Cedar-of-Lebanon, was instigated by John Evelyn in the 1670s but it was not until viable seeds were produced that the species could be planted on a large scale. The distinctive flat top and the horizontal layers of foliage provided a new 'architectural' shape to the English countryside and by the mid 18th Century the tree had become a craze and was the only exotic used by Lancelot 'Capability' Brown in his landscape designs. Although the Cedar-of-Lebanon continued to find favour until the 1830s, it is now infrequently planted due to its space requirements and, until relatively recent times, by being more sensitive to atmospheric pollution. Today it is far outnumbered by the faster-growing Deodar and Atlas Cedars.

Upon viewing a mature cedar, it is not difficult to see why these magnificent trees remain a favourite choice for specimen planting. However, to attain to such dignity, they require full sun and space to allow for lateral development. They are thus hopelessly out of place amidst cramped surroundings and far too overpowering for the average-sized garden. With this in mind, a number of dwarf and medium-sized cultivars are presently available.

Propagation of cedars is by seed, mature cones being collected in the spring and kept in a warm, dry environment until the scales open to release their seeds. These should be sown as soon as possible. Although the best results are from those sown in pots in a cold frame, they can also be planted in an open bed if there is no risk of frosts. Add peat and leaf-mould to the soil and, if the ground is clayey, also some grit. A suitable seeding density is 50 per sq. 30cm. The viability of the seed is often very low in Britain and a sample of the seeds should be cut to check this. The seedlings should be left to establish before transplanting into nursery rows the following spring. At the age of 3–4 years they are ready to be planted in their permanent positions. Their favoured growing conditions are well-drained (though moist) deep loams or sandy clays, though they are capable of adapting to a range of soil types, from clays and chalks to acid sands.

Cedars are not as slow-growing as their stateliness initially suggests, and under optimum conditions they can be expected to attain a height of 15m within 30 years, though admittedly their growth does slow with age. Some native Cedar-of-Lebanon are estimated as being between 2,000–2,500 years old but the life expectancy of most British-grown trees appears to be little more than 500 years.

### Cultivars

Due to the popularity of cedars, a large number of cultivars have been raised over the years. They differ principally from their parent species with regard either to foliage colour — a strong emphasis being placed upon 'blues' and 'yellows', habit (weeping or upright) and smaller size.

#### Deodar Cedar (*Cedrus deodara*)

'Albospica' — This form, in cultivation since 1867, is distinguished by the cream-white young shoots.

'Argentea' — A rare cultivar with long, silvery-blue leaves.

'Aurea' (Golden Deodar Cedar) — An upright, slow-growing tree which bears yellow leaves in spring, these turning greenish-yellow later in the season. A rather popular form that has been in cultivation since 1866.

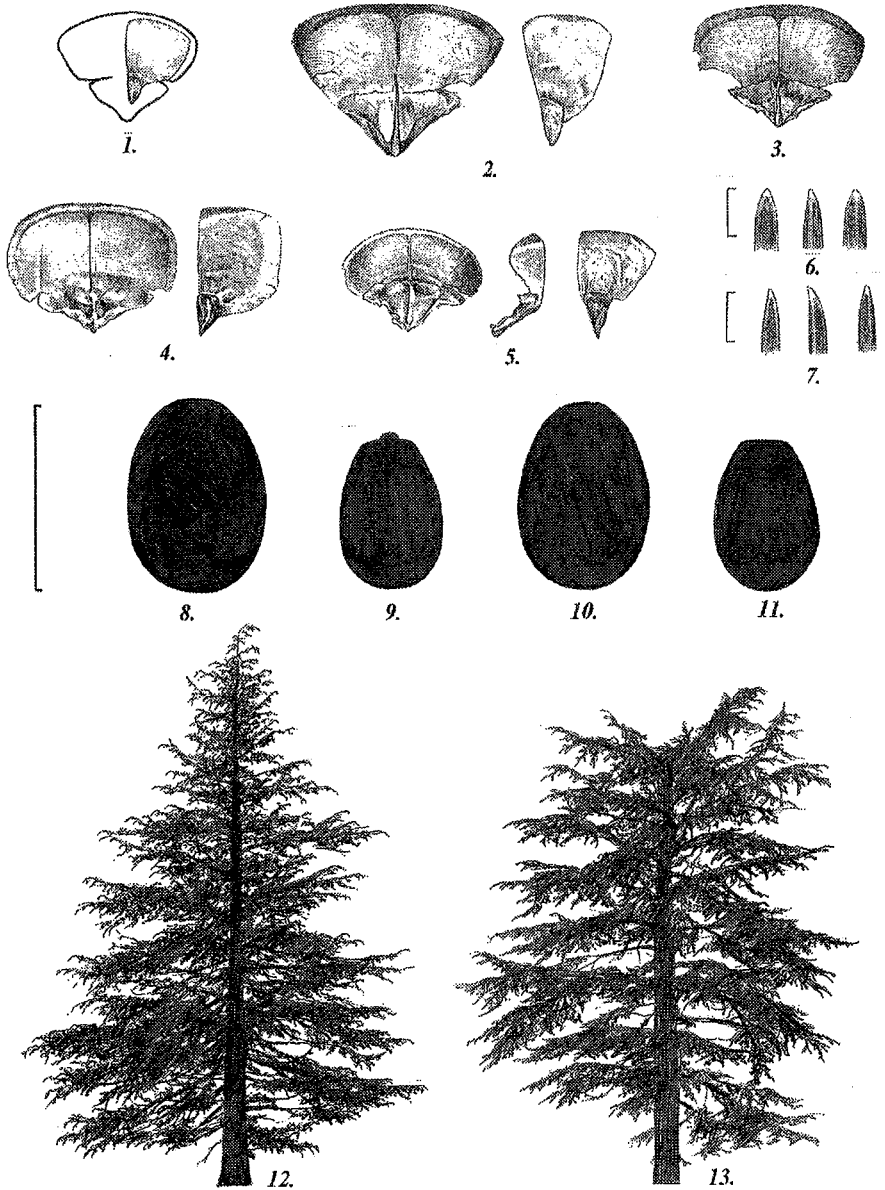
'Aurea pendula' — This cultivar shares the foliage characters of the above though is easily recognised by its weeping branches.

'Golden Horizon' — A spreading bush with bright yellow foliage, raised in Holland in 1975.

'Karl Fuchs' — A hardy tree with silvery blue leaves, raised in Germany in 1979 from seed collected by Karl Fuchs in Paktia province, Afghanistan.

'Pendula' (Weeping Deodar Cedar) — A small, grafted form whose branches weep and spread over the ground. It has a dense, rich-green foliage. In cultivation since 1866.

'Pygmy' — A slow-growing, blue-grey foliaged form 'discovered' in a Californian nursery and distributed in 1943.



**Fig.1**

**Cone scales (interior) & seeds (x1):** 1. diagrammatic representation of a cone scale showing the position of the two seeds.

2. Deodar Cedar. 3. Cyprus Cedar. 4. Cedar-of-Lebanon. 5. Atlas Cedar, including a side view of the cone scale.

The scales were removed from the central section of the cones, those at the base and apex being progressively smaller.

**Translucent leaf tips:** The upper, side and underside views of the leaf tips of 6. Cedar-of-Lebanon. 7. Atlas Cedar. The scale to their left represents 1 mm.

**'Typical' cone silhouettes:** 8. Deodar Cedar. 9. Cyprus Cedar. 10. Cedar-of-Lebanon. 11. Atlas Cedar. The scale to the left represents 8cm.

**Tree silhouettes:** 12. mature Deodar Cedar. 13. mature Cyprus Cedar.



**Fig.2**

Tree silhouettes: Cedar-of-Lebanon - 1. young tree (8m) 2. mature tree (35m)  
Atlas Cedar - 3. & 4. young trees of 5m and 12m. 5. maturing tree of 30m.

- 'Robusta' — A rare, open-crowned form with stout, level branches which distinctly droop at their tips. The leaves, coloured yellow-green to grey-blue, are longer (5–8cm) and thicker than in the type and those on the short-shoots rarely fully open.
- 'Silver Mist' & 'Silver Spring' — Both of these recently raised cultivars possess silvery-tinged leaves.
- 'Verticillata' — A small, bushy form with an untidy crown of level branches. The leaves, coloured dark blue-green with grey-blue bands, are longer than in the type (4–4.5cm on the short-shoots) and are almost whorled (verticillate). It has been in cultivation since 1867.

### Cyprus Cedar (*Cedrus brevifolia*)

- 'Compacta' — A rare, slow-growing form of dense, grey-green foliage, raised in Britain in 1964.
- 'Horizontalis' — A rare prostrate bush raised by Hillier in 1964.

### Cedar-of-Lebanon (*Cedrus libani*)

- 'Argentea' — A naturally occurring form from the Turkish forests with silvery-blue leaves.
- 'Aurea' — A rare, narrow tree which becomes very broad with age. The leaves are bright gold in summer though become paler during the winter.
- 'Comte de Dijon' — A dense, compact cultivar which attains a height of 2m. It has been in cultivation since 1867.
- 'Glauca' — The foliage of this very rare, small leaved (2cm) form are a distinct, steely-blue. Originated in 1855. 'Blue' forms of *C. libani* occur in the Sicilian Taurus mountains.
- 'Golden Dwarf' — A small, yellow-leaved bush, sometimes prostrate, which has been in cultivation since 1960.
- 'Nana' — A squat form attaining a height of only 1.5m. It is similar to 'Comte de Dijon' though has 10–18mm leaves as opposed to 20–25mm. It has been in cultivation since 1838.
- 'Sargentii' — A small, rounded tree to 1.5m with long, weeping branches of blue-green leaves. It has been in cultivation since 1919.
- 'Tortuosa' — A rare form with contorted branches.

### Atlas Cedar (*Cedrus atlantica*)

- 'Aurea' (Golden Atlas Cedar) — A small to medium-sized tree propagated by grafting. The golden-yellow leaves are shorter than in the type. Although in cultivation since 1900, it remains a rarity.
- 'Fastigiata' — A narrowly columnar tree with dense, sharply ascending branches, broadening with age. This rare, blue-grey form has been in cultivation since 1890.
- 'Glauca' (Blue Atlas Cedar) — This hardy cultivar includes all plants with striking blue-grey to silvery foliage, a feature best seen in spring. It occurs both in the wild (principally in a valley in Algeria) and in cultivated seeds, though is usually grafted. The crown is more pointed and less likely to develop multiple stems than the type. The bark is also a paler grey and more finely fissured. It is very common in Britain and, with the possible exception of the Colorado Spruce (*Picea pungens* 'Glauca'), is the most widely planted of all 'blue' conifers.
- 'Glauca Pendula' — A small, generally grafted form with stiff, cascading branches bearing striking grey-blue foliage. It has been in cultivation since 1900 and, with the exception of 'Glauca', is the commonest cultivar of Atlas Cedar.
- 'Pendula' — A small, weeping tree with green or grey-green leaves, which has been in cultivation since 1875. A pendulous form does occur in wild populations.

### Identifying the species

The old method used for identifying the three main species, that of studying the angle of the tips of the long-shoots and remembering the first letter of the species name, i.e. Deodar = Drooping, Lebanon = Level, Atlas = Ascending, still works reasonably well. However, it should be considered only as an initial response to identification, one of several characteristics to be taken into account.

Although the Deodar and Cyprus Cedar are quite distinct, the characters separating the Cedar-of-Lebanon from the Atlas Cedar are not absolute. Not one character is sufficiently constant as to provide a 100% certainty of identification and the minor differences, particularly those pertaining to foliage and

cone details, are variable, even on the same tree! Some specimens are so similar that even experts have difficulty in identifying them with certainty. However, by studying a large number of these cedars the subtle distinctions will slowly become apparent. Two characters which the author did not find useful, relate to the leaves. Those on the short-shoots of the Cedar-of-Lebanon are quoted as occurring in tufts of 10–20 whilst those of the Atlas Cedar number between 20–45. Although the leaf number is generally greater in the latter, this distinction is complicated by the leaves being retained for 3–6 years. What may initially appear to be a single tuft could therefore actually consist of several tufts laid down over many years. The size of the translucent leaf tip given by Stace, i.e. mainly 0.2mm in the Cedar-of-Lebanon and to 0.5mm in the Atlas Cedar was not found to be useful, for in both species it is generally 0.25mm in length.

A beginner on the quest is advised to visit several arboreta or botanic gardens where the specimens should be clearly labelled and their characters examined in detail. Large garden centres offer a further possibility, though they rarely provide a wide choice of cedars and the specimens will obviously lack adult characters. It is safe to assume that cedars under 15m growing in parks and large gardens with silvery blue-grey foliage will be of the Atlas Cedar cultivar 'Glauca'.

### A Key to the CEDARS (*Cedrus*)

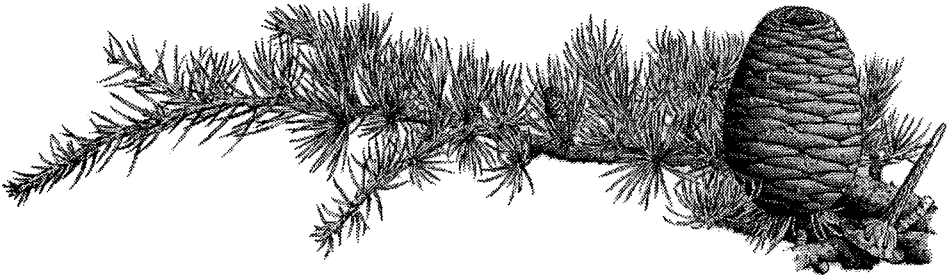
1. Leaves on the short-shoots mainly 3–3.5cm; tip of the leader & long-shoots conspicuously & gracefully drooping<sup>(1)</sup> . . . . . **DEODAR CEDAR (*Cedrus deodara*)**
- Leaves on the short-shoots mainly 0.5–2.5cm; tip of the leader erect or stiffly curved to one side, the tips of the long-shoots stiff or at most slightly nodding . . . . . **2**
2. Leaves 0.5–1.2cm on the short-shoots; female cones 'lemon-shaped', with a small, nipple-like projection at the apex (Fig. 1.9, p. 66); a tree to 20m . . . . . **CYPRUS CEDAR (*Cedrus brevifolia*)**
- Leaves 1.5–2.5cm on the short-shoots; female cones lacking a nipple at the apex; trees to 40m . . . . . **3**
3. Leaves generally dark green<sup>(2)</sup>, mainly 1.5–2.5cm on the short-shoots, and rather abruptly tapered to a scarcely translucent tip (Fig. 1.6, p. 66); first year shoots hairless, with restricted hairs or densely haired; female cones mostly 7–10cm, either with a bluntly pointed apex (Fig. 1.10, p. 66) or truncated with a concave apex; the distal margin of the inner surface of the cone scales is brown, or white with brown edging (Fig. 1.4, p. 66). HABIT: mature trees grown in the open have a very broad ± flat crown, formed of dense horizontal tiers of foliage which are held some distance from the tree (Fig. 2.2, p. 67). The huge trunk supports strong lower branches which either droop or ± immediately ascend to produce multiple trunks. Trees in shade are slender & may have long, clean trunks; young trees (to 15m) are gaunt, rather narrowly conic with level branches which usually nod at their tips (Fig. 2.1, p. 67) . . . . . **CEDAR-OF-LEBANON (*Cedrus libani*)**
- Leaves generally grey-green to silvery-blue, mainly 1.5–2cm on the short-shoots, and are gradually tapered to a distinct, translucent tip which is best seen in side view (Fig. 1.7, p. 66); first year shoots densely haired; female cones mostly 5–8cm, truncated & often concave at the apex (Fig. 1.11, p. 66); the distal margin of the inner surface of the cone scales is white or cream (Fig. 1.5, p. 66). HABIT: mature trees possess a broad, rather bluntly pointed, ± open crown<sup>(3)</sup> formed of stiff, ascending branches which lack dense 'plates' of foliage (Fig. 2.5, p. 66) — due to the latter and to the angle of the branches, the foliage appears less organised and more cluttered than that of the Cedar-of-Lebanon; the trunk is typically single and the poorly developed lower branches are neither thick nor droop, being held ± horizontally, young trees are broadly conic with an open 'spiky' crown, the branches ascending strongly at an angle of about 45° (Figs 2.3 & 2.4, p. 67) . . . . . **ATLAS CEDAR (*Cedrus atlantica*)**

#### Footnotes

<sup>1</sup> A small number of grey- or blue-green foliaged cultivars of the Cedar-of-Lebanon and Atlas Cedar possess a drooping leader and long-shoots.

<sup>2</sup> Many of the older (pre 1840) plantings of the Cedar-of-Lebanon have grey-green foliage.

<sup>3</sup> This character may well become invalid in the future, for aged Atlas Cedar should eventually assume the arrangement associated with the Cedar-of-Lebanon, i.e. a flat-topped crown with horizontal branches, though should remain less spreading.



Atlas Cedar (*Cedrus atlantica*) ( $\times\frac{1}{2}$ ), showing the leaf arrangements, a young female cone, a mature cone and the cone spike or rachis. Del. D. Green © 2001

DAVID GREEN, Illustration & Graphic Design, 9 Knightsbridge Avenue, Darlington, Co. Durham DL1 3HJ. Tel. (01325) 469596.

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### **CHENOPODIUM CAPITATUM — ‘A PLANT OF DISTINCTION’?**

I was interested to read in *BSBI News* 87 about the Chenopodiums, especially *Chenopodium capitatum* (Strawberry-blite). A coloured photo of what looks like this species occurs in a seed catalogue called *Plants of Distinction*. It has been in for several years and comes under the heading of ‘vegetables’. The text accompanying the photo reads:

**‘Strawberry Spinach**

Actually it’s *Blitum foliosum* but anyway, if it was grown by German Monks 400 years ago and eaten as Spinach (first course) followed by the fruit (second course), then it’s surely good enough to try.’

A few years back I decided I would grow it and try out its culinary delights! At least it germinated easily, always an important factor in my busy household, but of its culinary delights I found none. Yes I tried the leaves — cooked like spinach — one mouthful was enough; and then on to the second course of ‘strawberry-like’ fruits — more cautious this time, and rightly so! I did not buy any more seeds — they self-seeded anyway although were easily weeded out and have not caused a problem.

Perhaps the plants that Mr Carter saw were thrown out in disgust by a gardener trying out the delights of ‘plants of distinction’.

I must add that most of the seeds I’ve had from this particular catalogue have been interesting and well worth the money.

ELIZABETH HAYWARD, 31 Cordery Road, Exeter EX2 9DJ

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## NOTICES (BSBI)

### ADVANCE NOTICE

#### FLORA WRITER'S CONFERENCE APRIL 2002

A Flora Writer's conference is to be held, in conjunction with the Society for the History of Natural History (SHNH), at Liverpool from Thursday 11<sup>th</sup> to Saturday 13<sup>th</sup> April 2002.

Following an afternoon session on Thursday 11<sup>th</sup> led by the SHNH, we anticipate two days of talks covering the 'ideal flora', treatment of variations and ecological information, sampling strategies and recording units, electronic Floras and publishing. There will be sessions too on current projects with, hopefully, a number of short talks. The final sessions will concentrate on the use of local Floras for conservation, in assessing floristic change and as a basis of ecological research.

We have a draft programme, but would very much welcome approaches from members to either talk or to exhibit.

Full details and a booking form will be included with the January *News*.

DAVID PEARMAN, Chairman Records Committee

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#### ANGLO-FRENCH MEETING IN CORNWALL 8-12 MAY 2003

Following the most successful and enjoyable Anglo-French meeting in Bailleul in 1998 the return 'match' has now been arranged to take place at Cornwall College, Pool, Camborne, W. Cornwall in May 2003 when it will incorporate the AGM and Presidential Address.

The main purpose of the meeting will be to bring together a wide range of botanists from France, Britain and Ireland to examine the problems of the conservation of vascular plant species which are found in the Atlantic regions of Europe and are common to our three countries: particular attention will be given to the ecology and management of the Lizard Peninsula. In addition there will be a half-day excursion to the Eden Project.

The following is a provisional structure for the meeting:

- Thursday 8 May    Arrival of delegates at Cornwall College. Social evening for foreign guests and local botanists.
- Friday 9 May     Morning visit to Goss Moor followed by visit to Eden Project at Bodelva, St Austell. Evening lecture on the flora of Cornwall with demonstration of database.
- Saturday 10 May   Conference of papers by British, Irish and French delegates on biology/conservation of threatened species common to the Atlantic regions of our three countries. AGM, Presidential Address (on Conference 'theme'). Conference Dinner followed by talk on the Lizard Peninsula.
- Sunday 11 May    All day excursion to Lizard Peninsula with guides from BSBI, English Nature and Plantlife.
- Monday 12 May    Excursions(s) to other parts of Cornwall of particular interest to our French guests.

There has already been an enthusiastic response to the Conference in France and from BSBI members with offers of over 20 papers and posters: there are indications that we shall have French visitors from as far afield as the Pyrenees in the south to Bailleul in the NE of France including the University of Bretagne Occidentale and the Société Botanique du Centre-Ouest. Translation services have also been offered.

Species likely to be covered by paper or poster include: *Asparagus officinalis* subsp. *prostratus* (Wild Asparagus), *Anthyllis vulneraria* subsp. *corbierei* (Kidney Vetch), *Carex depauperata* (Starved Wood-sedge), *Crambe maritima* (Sea-kale), *Genista pilosa* (Hairy Greenweed), *Hypericum undulatum* (Wavy St John's-wort), *Mentha pulegium* (Pennyroyal), *Mibora minima* (Early Sand-grass), *Polygonum oxyspermum* subsp. *raii* (Ray's Knotgrass), *Ranunculus ophioglossifolius* (Adder's-tongue Spearwort), *R. tripartitus* (Three-lobed Crowfoot), *Rumex rupestris* (Shore Dock), *Schoenoplectus triquetus* (Triangular Club-rush), *Scilla autumnalis* (Autumn Squill), *Suaeda vera* (Shrubby Sea-blite) and *Teucrium scordium* (Water Germander).

Further details will be sent to members in the Spring of 2002. If you have a paper or poster to offer please contact the undersigned.

FRANKLYN PERRING, Green Acre, Wood Lane, Oundle, Peterborough PE8 5TP  
e-mail: perring@btinternet.com

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## PRELIMINARY NOTICE

### JOINT BSBI/LINNEAN SOCIETY MEETING BURLINGTON HOUSE 4 APRIL 2002

#### How do we find and train the next generation of field botanists?

This day meeting is being organised by the BSBI Education Group and convened by Franklyn Perring. If you would like to contribute a paper or a poster please contact him. Further details and booking information will be circulated with the New Year issue *BSBI News*.

FRANKLYN PERRING, Green Acre, Wood Lane, Oundle, Peterborough PE8 5TP  
e-mail: perring@btinternet.com

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## THE BSBI EDUCATION INITIATIVE

### Trees and shrubs web site

Members are reminded that, if they have not already done so, they can test their skills in tree and shrub identification by logging on to [www.saps.plantsci.cam.ac.uk/trees](http://www.saps.plantsci.cam.ac.uk/trees).

### Spotlight on Plants

The free course at Preston Montford Field Centre 'Spotlight of Plants' had to be cancelled because of lack of interest. However it has been agreed that this may have been because it was aimed at those students approaching the first year sixth (post-GCSE) and that there could be a much greater uptake by students at the end of their first sixth form year. So we are offering the FREE course again and it will take place at Preston Montford from 21–28 June 2002. Please encourage any young person you know of the right age and inclination to apply for one of the 15 places to FSC on 01743 850380 Fax: 01743 851066.

FRANKLYN PERRING, Green Acre, Wood Lane, Oundle, Peterborough PE8 5TP  
e-mail: perring@btinternet.com

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## REQUESTS

### SOCIO-ECONOMICALLY IMPORTANT PLANT SPECIES — HELP WANTED

Researchers at the University of Birmingham (Drs N. Maxted, B. Ford-Lloyd and M. Raven) are currently undertaking a DEFRA funded project on the ecogeography and genetic diversity of some members of the UK flora. The project is in collaboration with the Millennium Seed Bank and Jodrell Laboratory Kew, the Institute for Grassland and Environmental Research (Aberystwyth) and Horticultural Research International Wellesbourne. They will be looking at a diverse range of socio-economically important plant species including; *Calluna vulgaris* (Heather), *Atropa belladonna* (Deadly Nightshade), *Beta vulgaris* subsp. *maritima* (Sea Beet), *Brassica oleracea* (Wild Cabbage), *B. rapa* (Wild Turnip), *B. juncea* (Chinese Mustard), *B. nigra* (Black Mustard), *Lolium perenne* (Perennial Rye-grass), *Trifolium repens* (White Clover), *Buxus sempervirens* (Box) and *Chamaemelum nobile* (Chamomile). The idea is to locate populations of each species from diverse locations, both geographically and ecologically, across the whole of the UK. Small samples of leaf material will then be collected from chosen populations. DNA analysis will be used to assess the diversity between and within populations for each species and any correlations between genetic diversity and ecogeography will be investigated. It is hoped that this work will help scientists to understand the spread and underlying causes of genetic diversity within the UK, thus enabling development of better conservation strategies. The results will also be used to develop sampling strategies to ensure genetically representative seed samples are conserved in the Millennium Seed bank, thus safeguarding the genetic diversity of the UK flora.

Anyone knowing of populations of these plants, particularly the rarer and casual species, please get in touch with the author at the address below.

MARK RAVEN, Biosciences, University of Birmingham, Edgbaston, Birmingham, B15 2TT.

Tel: 0121 414 5460. E-mail M.D.Raven@bham.ac.uk.

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### THALICTRUM MINUS SUBSPECIES IN BRITAIN

The Royal Botanic Garden, Edinburgh, would like to look into the problem of differentiating the various subspecies of *Thalictrum minus* (Lesser Meadow-rue) in Britain using modern taxonomic methods. In order to carry this out we would need to grow samples here in Edinburgh from as many different races from different habitats as possible (see photo p. 43).

We would much appreciate the help of BSBI members and Botanic Garden Curators in collecting and sending us samples for growing. We must mention that plants should only be dug up with the landowner's consent and then only if the population would not suffer much.

Lesser Meadow-rue is widespread and is normally associated with limestone-rich counties such as v.c.c. 6, 9, 23, 28, 34, 36, 45, 50-57, 63-70. Postage will of course be reimbursed, and it would be preferable if material did not arrive here from Friday to Sunday when staff may be at a minimum.

DOUGLAS R. MCKEAN, (British Section) Royal Botanic Garden, 20A Inverleith Row, Edinburgh,  
EH3 5LR

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Solution to Crossword on page 36.

Across — 1. Chanterelle, 5. Turning, 8. Odd, 9. Leaflet, 10. Gerania, 12. Yeo, 13. Caraway, 15. Service Tree.

Down — 1. Cottongrass, 2. Tri, 3. Label, 4. Electrolyte, 6. Red, 7. Guava, 9. Lonic, 11. Rigor, 12. Yew, 14, Rue.

## OFFERS

### **BRACHYPODIUM FIRMIFOLIUM SEED**

I have a good supply of seed of this Cyprus endemic grass. I will willingly send some to anyone on receipt of an S.A.E.

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

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### **CAMBRIDGESHIRE FLORA RECORDS**

While preparing the text of 'Cambridgeshire Flora records since 1538' for a printed-out version, a number of additions and corrections were made, and these will be transferred to our Web site in September. ([www.MNLG.com/gc](http://www.MNLG.com/gc))

The printed copies will be deposited in September in the Botany Library of the Natural History Museum at South Kensington; in The University Library at Cambridge and in the Cambridge Collection section of the County Council Library at the Lion Yard, Cambridge. Copies on CD-ROM will also be available in September at £5 from the author.

Work on Part 2, consisting of the records for a further 400 species will hopefully start in October for completion in a year's time!

GIGI CROMPTON, 103 Commercial End, Swaffham Bulbeck, Cambridge, CB5 0ND.

e-mail: [gigi.crompton@virgin.net](mailto:gigi.crompton@virgin.net)

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### **ISLE OF WIGHT — NEW FLORA IN PREPARATION**

Last year, here on the Isle of Wight, in the wake of Atlas 2000 and the associated increase in recording, we decided to undertake the preparation of a new Flora. This is to be a 1km square mapping Flora updating the *Flora of the Isle of Wight* (Bevis, Kettel & Shepard 1978).

This note has two purposes; to ask if members who have records of which we may be unaware would communicate them to us<sup>1</sup>, and to mention the existence of a new recording card which may be useful to anyone visiting the Island.

The card is tailored to the Island list and includes locally frequent coastal taxa, e.g. *Raphanus raphanistrum* subsp. *maritimus* (Sea Radish) and some Island specialities like *Pulmonaria longifolia* (Narrow-leaved Lungwort), but excludes many species found on the adjacent mainland which are rare or unrecorded for the Island.

*Polystichum aculeatum* (Hard Shield-fern) was unknown here until in the 1980s two 19th century herbarium specimens were discovered, both with the same site and date. In Hampshire this taxon is currently regarded as 'very locally frequent'. There are other anomalous distributions, *Gentianella anglica* (Early Gentian) is locally abundant on the Island whilst *Geum rivale* (Water Avens) is absent, or so we believe, (come and prove us wrong!).

We have also tried to put in the 'missing' taxa like *Veronica serpyllifolia* (Thyme-leaved Speedwell), which many of us remember scribbling in on the reverse of the RP29 card umpteen times during 'Atlas' recording.

The card is available from the author by e-mail as two MS Word \*.doc files, by post on floppy disk (on receipt of a blank and s.a.e.) or printed on A4 sheets, though this may take longer (again, please send s.a.e.).

<sup>1</sup> Please send records to Dr C. Pope (Recorder v.c. 10) at 14 High Park Road, Ryde, Isle of Wight PO33 1BP.

GEOFF TOONE, 53 Saint Johns Road, Sandown, Isle of Wight PO36 8HE: E-mail: [Geoff@toone9.fsnet.co.uk](mailto:Geoff@toone9.fsnet.co.uk)

## BOOK NOTES

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

*Genera Orchidacearum Vol 2 Orchidoideae (Part One)*. A.M. Pridgeon *et al.* (eds). Pp. xix + 416. Oxford University Press. 2001. Price £75 (ISBN 0-19-850710-0).

[This volume covers the Orchidoideae, Diuridoideae and the Discoideae, thus covering all genera found in Britain and Ireland.]

\**Ecology and Geomorphology of Coastal Shingle*. J.R. Packham *et al.* (eds). Pp. xxii + 459. Westbury Academic Publishing. 2001. Price £48 (ISBN 1-84103-007-4).

[Based on a symposium organised by the UK Branch of the European Union for Coastal Conservation at Wye College in 1999. Sections cover Geomorphology, Hydrology, etc.; Plant Environment and Development of Shingle Communities; Lagoons, Birds, Invertebrates and Lower Plants; Management, Restoration and Conservation.]

\**Instant Notes — Plant Biology*. A.J. Lack & D.E. Evans. Pp. xii + 332. BIOS Scientific Publishers. 2001. Price £14.99 (ISBN 1-85996-197-5).

[Plant biology notes for 1<sup>st</sup> and 2<sup>nd</sup> year undergraduates; very useful for rusty amateurs such as myself.]

\**Wildlife in Church and Churchyard*. N. Cooper. Pp. xi + 83. Church House Publishing. 2001. Price £9.95 (ISBN 0-7151-7587-4).

[Written by a BSBI Member, this very handy little guide covers all the different habitats one might find in stonework, grassland, disturbed habitats and trees, all in a way I found totally pragmatic yet sympathetic. The principles could be extended to any land and buildings where wildlife and human activities meet.]

\**Book of plates of the genus Orchis*. E. Nelson. Pp. 124 plus a hinged, lidded box containing 44 colour plates (all about A4). Erich Nelson Foundation, Zurich. Pre-publication price £65 (to 30/9/2001, thereafter £95).

[The work covers c.80 portraits (and complements his earlier works on *Dactylorhiza*, *Ophrys*, *Serapias*, etc.)]

\**The Changing Wildlife of Great Britain and Ireland* D.L. Hawksworth (ed.). Pp. 454. Taylor & Francis. 2001. Price £150 (yes, £150!) ISBN 0-7484-0957-2

[I have not been sent a copy of this for review. Tim Rich wrote the section on higher plants, with, I understand, comments on recording techniques.]

*Guide to standard Floras of the World*. D.G. Frodin. 2nd edn. Pp. xxiv + 1100. Cambridge University Press. 2001. Price £150 (ISBN 0-521-79077-8).

[A very welcome update. The first edition, published in 1984 had a cut-off for entries of 1980, whereas this includes publications up to and including 1999 and some for 2000. I see that the *Watsonia* reviewer of the time complained of the 'staggeringly high price' of £95, but I suppose that £150, after taking into account inflation in the last 17 years, is probably slightly more modest, and is not that much more than individual volumes of *Flora Europaea* or *Flora of Turkey*, etc.

The new edition (although half as large again) broadly conforms to the format of the first, and has benefited by the author being based at Kew, rather than in Papua New Guinea! He has included rather more data on local Floras, but only where more general works were not available or out of date.

The information contained in the book is awesome, and not available in one place anywhere else.]

\**Early Scottish Gardeners and their Plants, 1650-1750*. F.W. Robertson. Pp. 223. Tuckwell Press. E. Lothian. 2000. Price £25 (ISBN 1-86232-085-03).

\**A Heritage of Beauty. The Garden Plants of Ireland*. E.C. Nelson. Pp. xx + 348. Irish Garden Plant Society, Dublin. Price £33 (ISBN 6-9515890-1-6).

[Some members may recall that the new *Atlas* contains details, for alien (non-native) plants, of their history, including dates of introductions into cultivation as well as first known record in the wild. Both of the above books have been of use.

The Scottish book covers Vegetables and Herbs, Ornamental Plants, Fruit Trees and the Physic garden, in separate chapters. The author knows of the work of Harvey, both concerning medieval gardens and early nurserymen, and, where possible, ascribes 'modern' names to the species cited. Much of the information comes from the primary sources such as estate records and gardener's inventories, which makes it particularly valuable. And of course the 'Scottish' gardener was for many years *de rigueur* in England.

I was amused to note in the bibliographical chapter that George Don, the first finder of so many native plants, a few of which have not been re-found, grew in his garden up to 2000 species, in a disordered assemblage, including more than 100 grasses and 60 sedges. No wonder there was scope for confusion!!

Charles Nelson's *magnum opus* covers c.5300 garden plants that were raised in Ireland or (more rarely) have Irish connections. A very large proportion are cultivars.

The information and scholarship are daunting. For each entry there are details on origin, date of cultivation and literature references including illustrations. To my knowledge there is nothing equivalent for Great Britain so the details on origins (for cultivars) or source (for species) are especially useful. I suspect that not a few of the alien garden plants recorded are, in fact, cultivars, and this book will help here.

Both have been of great assistance in trying to understand the origin of our garden flora with the corollary of its influence on our 'wild' flora.]

*Flora of Middlesex, a supplement to the Historical Flora of Middlesex.* D.H. Kent. Pp. xxxii + 219. Ray Society 2000. (ISBN 0903874 288).

*Flora: An Illustrated History of the Garden Flower.* W.B. Elliot. Pp. 336. Scriptum Cartago Publications. 2001. Price £45 (ISBN 1-902686-14-4).

*Loch Lomondside* J. Mitchell. Pp. 232. Harpur Collins. 2001. Price Hbk £34.99 (ISBN 00-220146-1); Pbk £19.99 (ISBN 00-220146-1). No. 88 in the New Naturalist Series.

*Wild Orchids of Sussex* D. Lang. Pp. 144. Pomegranate Press. 2001. Price (Pbk) £14.95 (ISBN 0-9533493-3-0).

*The Sussex Rare Plant Register.* M. Briggs (ed.) Pp. 126. Sussex Wildlife Trust. 2001. Price (Pbk, spirobound) £10 (incl. p. & p.) (ISBN 1-898388-16-4).

The above notes, broadly speaking, cover the books sent to the Society (some to me, some to the BM, some to Chris Preston and some to Gwynn!). In addition, I hear, entirely by chance, of others, and if members would like me to mention anything, especially of a local nature, please send me details. For instance each year I eagerly await the next issue of *Botanical Cornwall*, edited by Rose Murphy. It is so good, and so worthy of a wider audience, with, this year, 72 pages of articles and plant records. It is obtainable through Summerfield Books.

Ken Adams has been sending me offprints from the *Essex Naturalist* of the start of a series on Rare and Scarce plants in Essex, with exemplary coverage. There must be many other examples of these (to be at least listed in *BSBI Abstracts* the latest part of which is distributed with this issue of *BSBI News*) but I'm happy to mention those I think are good.

County Rare Plant Registers continue to appear. Again, with only occasional exceptions, these are not formally published, yet they are usually very interesting and very relevant to our members — if only for the chance to update something. I know that drafts have been prepared for Radnor and Denbigh and I have just seen what I think is the most clearly laid out yet to appear, from Staffordshire. Here, John Hawksford, the vice-county recorder, has separated the categories into a Main list (of Nationally Rare, Nationally Scarce and Locally Rare), a Supplementary list (of Locally Scarce and declining species, Last Sightings of probably extinct natives and rare significant non-natives), and appendices (of microspecies and last sightings of locally rare non-natives). I think this a model of segregating what is of a national interest from what is of local interest. Incidentally, members may note the use of the term 'non-native'. I always thought they were 'aliens', but the Atlas 'team' were surprised to be told in all

seriousness, by OUP, DETR and English Nature that 'alien' had joined the legion of 'taboo' words excised from our culture by our well-meaning, self-appointed, guardians.

Another really interesting source of books on plants for *overseas* visits has started to appear in the *Bulletin of the Alpine Garden Society*. These are written by one of our members (Dr H.J.B. Binks), but although I wrote to the AGS editor for permission to cite them I have not heard back in time. In summary though, the March 2001 issue gives short accounts of books on Mt Rainier National Park and Steens Mountain, both in western United States, an Italian local Flora of part of the Alps around Chiavenna, a French book on Mediterranean mountain plants (covering the Canaries, Morocco, Andalusia, S & E Spain, Calabria, Sicily, Sardinia, Greece, Crete and Turkey) and three on SE Asia (on Yunnan, NE China and Tibet).

The June 2001 issue covers 16 more! I do not have space, but to whet your appetite they include books on the Russian Arctic (2), St Helena, W. North America (4), Cyprus endemics, Balearic endemics, Corsican endemics and on Corsican vegetation (with line drawings of over 400 species typical of the various vegetation types). All reviews give full details of publisher, price and ISBN, but I would not know where to start to actually obtain most! Ask me if you want more details.

Finally I would like to thank those who contacted me re Book Notes. I was impressed by the total (35 to date) and my pleasure was only slightly dampened by the realisation that this was 1.25% of the membership!

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

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## REVIEWS OF RECENT BSBI PUBLICATIONS (5)

The following reviews have come to my attention since the publication of the last list on pp. 51–52 of *BSBI News* 85 in September 2000. The latest BSBI Handbook, *Sea Beans and Nickar Nuts*, has attracted several comments in the press in both Britain and Ireland, and these are included here. I am grateful to those who have supplied copies and shall be glad to receive any others known to members (with full bibliographic references, please).

### 1. *Plant Crib 1998* by T.C.G. Rich & A.C. Jermy (1998)

*Kieler Notizen zur Pflanzenkunde in Schleswig-Holstein und Hamburg* 27/28: 94 (2000) by Hauke Drews (in German)

### 2. *Sea Beans and Nickar Nuts* by E. Charles Nelson (2000)

*Bionieuws* 15: 6 (30 Sept. 2000) (in Dutch)

*British Wildlife* 12(1): 72 (Oct. 2000) by Peter Marren ('The latest, and certainly the most oddball yet, of the BSBI's series ...'; 'excellent half-tone drawings and descriptions'; 'Nelson's eye for the curious and his fluent style make this one of the most readable and interesting of botanical studies of recent times ....')

*Bulletin of the British Ecological Society* 32(1): 41–42 (2001) ('At last, a detailed book that gives the answers'; 'pithy chapters on history and folklore ..., cultivation and biological consequences ...'; 'Charles Nelson is to be congratulated and thanked .... Definitely the book to take with you on a walk along the beach ....')

*The Drifting Seed* 6(3): 3 (Dec. 2000) by Dr C. R. Gunn ('From cover to cover ... a pure joy to read'; 'a stellar, reader-friendly book'; 'brought to life by the excellent disseminule illustrations by Wendy Walsh with a few supplementary adult plant illustrations by Alma Hathway'; 'This book is a must for your library. Congratulations and well done, Charles.')

*The Garden* (Journal of the RHS) 125(9): 658 (Sept. 2000) (prominent notice headed 'Seeds from afar')

*The Irish Garden* 9(10): 64 (Dec. 2000): 'Christmas books' (front cover reproduced; 'Charles Nelson always combines readability with scholarship, ...'; 'Each species is discussed in detail, with beautifully prepared illustrations by Wendy Walsh and Alma Hathway. All fascinating stuff.')

- The Irish Times* (?9 Sept. 2000): 'Will you have beans with your nurdles?' – Michael Viney's 'Another Life' column (a substantial article; 'a book that any serious beachcomber will prize'; 'I am ... proud to see the only specimen of the box fruit ... so far recorded from a European shore ... because I picked it up myself .... Wendy Walsh's drawing is typical of her exquisite work for the book.'). This is reproduced.)
- The Irish Times* (9 Dec. 2000): 'Critics' choice' – 'Natural world' section by Michael Viney ('both folklore and science'; 'a social and botanical history of the strange tropical drift-seeds that reach our west coast (a must for beach-combers)')
- Kew Bulletin* 56: 254–255 (2001) by Naomi Rumball ('a very accessible reference book for any keen botanist or beachcomber wishing to identify their finds ... a very enjoyable read ....')
- Kovadha Kernow: The newsletter of the Environmental Records Centre for Cornwall and the Isles of Scilly* Issue 2: 14 (Spring 2001) by Stella Turk (short article, with reproduction of front cover; report of new species for Europe, *Fervillea cordifolia*)
- New Scientist* No. 2301: 48–49 (28 July 2001: 'Summer Special'): 'Beach nuts' by Gail Vines ('What's beautifully bronzed, loves swimming and can be found lying around on beaches?': popularised account drawn largely from a 'unique new field guide *Sea Beans and Nickar Nuts*')
- Plant Lore Notes and News* 64: 306 (Sept. 2000) by Roy Vickery ('such seeds have attracted a good deal of folklore, to which Nelson devotes a useful chapter, ...'; 'Drift seeds can be difficult to depict, but these illustrations are among the best available. This is just as well, as some of the descriptions seem to be unhelpful.'). 'A peculiarity of the book (especially given its publishers) is the failure to give the authors of plant-names.'
- Polarflokken* 24(2): 220 (2000) by Dr Torbjørn Alm (in Norwegian)
- Porcupine (PMNHS Newsletter)* No. 7: 10 (March 2001) by Frances Dipper ('When this little book arrived in the post one morning, I was going to put it aside to look at later .... I was still reading it at lunchtime.' 'Definitely one to buy.')
- Texelse Courant* (5 Dec. 2000) (in Dutch)
- The Times* (17 Feb. 2001): 'Rapture on the lonely shore' by Angus Clarke (a review of coastal field guides etc., ending with a brief account of this book, 'a genially eccentric and erudite handbook')
- Trouw* (13 Jan. 2001), p. 33: 'Tropische zaden op het Nederlandse strand' by Henk van Halm, in 'Natuur deze week' (half-page article in Dutch, with five photos of drift-seeds, references to relevant literature, and full bibliographical details of *Sea Beans and Nickar Nuts* at the end)
- The Wildflower Magazine* No. 450: 34 (Spring 2001) by David McClintock (brief note; 'for botanical beachcombing ... fascinating'; 'The job is very well done.')
- Wild Ireland* 1(3): 60 (Nov.–Dec. 2000) (front cover reproduced in colour; 'A fascinating book which should not be overlooked, as it will offer the reader insights into far more than just the subject matter itself.')
- Willdenowia* 30: 409–410 (2000) by Ralf Hand (in German)
- Het Zeepaard* 60(6): 357–360 (Nov. 2000): separate reviews by Gerhard C. Cadée and Gerard Heerebout (in Dutch)

PHILIP OSWALD, Editor of BSBI Handbooks, 33 Panton Street, Cambridge CB2 1HL

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## THE FLORA OF DORSET

The Review of this Flora in *Watsonia* 23(4): 594–595 (August 2001), perhaps because of space limitations, does not to my mind do justice to all the virtues of this splendid Flora, and I planned to write this note before learning of the sudden death of its author, Humphry Bowen.

The introductory chapters go beyond what is expected, not only in covering Archeobotany, but Forestry, Agriculture, and Dorset Gardens and their part in plant introduction down the centuries. There is a beautiful selection of photographs of Dorset's habitats and special plants. The Flora covers

not only the 'higher' plants, and Liverworts, Mosses and Lichens, but also Fungi and Algae, unlike most other Floras.

Nor is the main text just a list of plants' habitats, frequency, localities and herbaria specimens. From time to time there are references to poems, folk-lore, tree sizes, insect food-plants, medicinal and other uses, and, reminding us of the author's background, the chemical constituents of poisons and odours. Albinos, ignored in some Floras, are also included.

Yes there are errata and shortcomings: almost inevitable in a book of this size and detail. I agree with the Reviewer that the designation of Tetrads by letter, though space-saving, is not as helpful as the use of four numerals, e.g., 98N takes longer to locate than 9486. It would also, as another reviewer has written, be more helpful to a wider public to have English plant names as well or instead of Latin names in the introductory chapters of any Flora.

But this Flora is a *magnum opus* — the culmination of Humphry Bowen's forty years as vice-county Recorder, and the fruit of hours and hours of recording by others too, but much by him. It is good that he lived long enough to be thanked for it.

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

### **AN ATLAS OF THE VASCULAR PLANTS OF HEREFORDSHIRE**

I wish to state, as County Recorder for v.c. 36 (Herefordshire) that I can take no responsibility for the veracity of the records in the recently published *Atlas of the vascular plants of Herefordshire*. I have not been consulted at any stage over the production of this publication.

STEPHANIE THOMSON, Hall Pool, Marden, Hereford HR1 3EN

### **CATALOGUE OF *HIERACIUM* AND *PILOSELLA* SPECIMENS FROM THE BRITISH ISLES IN THE WELSH NATIONAL HERBARIUM (NMW), NATIONAL MUSEUM & GALLERY CARDIFF**

The catalogue of the 5655 *Hieracium* and 506 *Pilosella* specimens from the British Isles held in National Museum and Gallery, Cardiff (NMW) is now published (Hand *et al.* 2001). It includes the bulk of the W.A. Shoobred collection with many specimens also from H.J. Riddelsdell, A. Ley, and E.S. Marshall, as well as one of the only two complete sets of *Hieracium* Section *Alpina* courtesy of D. Tennant. There are records from V.cc. 1, 3–9, 11–14, 16–25, 27, 28, 32–60; 62–67, 69, 70, 72, 73, 77, 79, 80, 83, 85, 87–92, 94–99, 104–112, H1, H2, H9, H16, H20, H21, H28, and H38–H40. The collections have been extensively revised and checked by David McCosh.

The catalogue is available from me at the address below, price £10 for paper copy (cheque payable to National Museum of Wales), or free as an Excel spreadsheet by e-mail ([timothy.rich@nmgw.ac.uk](mailto:timothy.rich@nmgw.ac.uk)) or 3½ inch disk (please send disk). Any botanists wanting to visit the collections, are of course, very welcome.

#### **Reference**

HAND, S.O., MCCOSH, D., HUTCHINSON, G., TIPPER, A.D., GRIFFITHS, M., SLADE, D. & RICH, T.C.G. (2001). *Catalogue of Hieracium specimens from the British Isles in the Welsh National Herbarium (NMW), National Museum & Gallery Cardiff*. National Museums & Galleries of Wales, Cardiff.

TIM RICH, BioSyB, National Museum & Gallery, Cardiff CF10 3NP

## OBITUARY NOTES

Sadly we report the loss of four botanists well-known to BSBI members: Prof. W.T. Stearn D.Sc., Sc.D., had been a member of the Society since 1954 and he was a familiar figure at botanical meetings and gatherings. He was on the Maps Committee, which steered the production of *Atlas of the British Flora* (1962) and which preceded the Records Committee; William Stearn was also for many years the BSBI *Allium* Referee.

Derek Wells joined the Society in 1962 and was very much involved with BSBI recording, Records Committee, conferences for recorders and recording for conservation. He was Chairman of the BSBI's Monitoring Scheme Committee and his project to identify in each vice-county the plants with three or fewer records at that time pioneered the highlighting of the plants which are now scarce in Britain, and this is still used as a basis for selecting taxa for County Rare Plant Registers.

As we go to press we have heard of two further deaths: Humphry J.M. Bowen D.Phil., a member since 1952, will be particularly remembered as Secretary of the Meetings Committee for some years, and for his two County Floras: *The Flora of Berkshire* (1968) and *The Flora of Dorset* (2000). He will be sadly missed by many botanical friends.

Dr Andrew Malloch of Lancaster, a member since 1963, was joint editor with our President, of *Wild Flowers and their habitats in Britain and Northern Europe* (1981), a very useful introduction for field botanists and students. Andrew was very involved in the National Vegetation Classification Survey, and gave vegetation ecology papers at some BSBI conferences.

BSBI was represented at the funerals and there will be Obituaries in *Watsonia*.

MARY BRIGGS, Obituaries Editor, *Watsonia*



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# GUIDE TO CONTRIBUTORS TO *BSBI NEWS*

## PAPERS

The success of a journal like *BSBI News* depends on the editor receiving many relatively short contributions of topical interest. There must be lots of members who have something interesting, informative or just plain amusing that they would like to share with others and this journal is meant to be the place for the 'ordinary' member to express her or his opinions. So please do continue to send in your notes or letters and I will do my best to publish them. I am prepared to accept copy in any form but it is so much easier for me if this can be sent typed or printed. The following recommendations will, if followed, make the editor's job that much easier.

1. Keep it short! Preferably to less than two pages of finished print. Longer articles can be accepted but it may be more difficult to fit them in quickly. As you will see by looking through any issue, many contributions are half a page or less.
2. It is nice to have typed copy but if you don't have access to a typewriter or computer, just write it out making sure that your handwriting is **legible**, especially for names of persons, places and other words which cannot easily be checked.
3. Computer produced copy may be sent as a printed page, on disc, or by e-mail.
4. When typing or printing, please use double (or 1½) line spacing and use a new ribbon which gives a **dark** image, especially if using a dot-matrix printer.
5. To make it easier to scan accurately, any corrections to a typed or printed page are best confined to the margins using a **pale-blue** pencil, but do ensure that the instructions are clear. If necessary, send two copies, one with, the other without corrections.
6. Where emphasis is required, mark the words to be in *italic*, **bold** or underlined fonts in the normal way or print them using the correct fonts. There is no need to put Latin names in italics but it would be a help.
7. Latin names must conform to Stace's *New Flora of the British Isles*, Kent's *List of Vascular Plants of the British Isles*, Clement & Foster's *Alien Plants of the British Isles* or Ryves, Clement & Foster's *Alien Grasses of the British Isles*. No authorities are needed for names in these books but if the taxon is not included in any of the above then an authority should be given.
8. English names must also conform to Dony *et al.* *English Names of Wild Flowers*, Stace, Clement & Foster or Ryves, Clement & Foster and if available **must** be given when a species is first mentioned in the text except sometimes in long lists of species.
9. Titles of papers and author's names are always in **CAPITALS**.
10. **Keep formatting to a minimum.**

**PLEASE NOTE:** to save postage, contributions will not be acknowledged when first received, unless accompanied by an S.A.E.

All contributors will receive, if time allows, a proof for checking, so that you will be able to see what your note looks like before it is printed and will have the opportunity to alter anything at that stage. Any contributions received, which appear to be more suitable for inclusion in *Watsonia* as a 'Short Note' will be passed on to the editor of that journal.

Suitable illustrations accompanying notes, in the form of line drawings (see below), black and white or colour negatives, prints or slides are also welcomed.

## ILLUSTRATIONS

The following notes, written by my predecessor, the late Edgar D. Wiggins, are reprinted almost word-for-word from *BSBI News* 25: 31 (Sept. 1980). They are as valid today as they were then and should be read by all aspiring artists. Note in particular the comments on size – **please draw at least at A4 size** so that the printer can reduce them, and on scale bars – please do not give magnifications.

*BSBI News* has more than once been complimented on the excellence of the line drawings, usually of alien plants, which appear in its pages. For these we have to thank the small band of talented artists who freely make their expertise available to us. Nor should we forget our printers who ensure that these illustrations reach the printed page exactly as they left the artist's drawing board.

We set great store by these illustrations as they are often the only extant representation of the species in question, and for this reason are fully protected by copyright.

Regrettably we do receive some drawings, no less meticulously executed, which are unsuitable for reproduction because of technicalities despite all the skill the printer can bring to bear on them.

For the benefit of the many aspiring young artists we know we have amongst our members, we append what we hope will be some helpful notes for their guidance.

First of all, **proportions**. The print area of a page of *BSBI News* is 18.5 cm. × 12.5 cm. giving a proportion of height to width of roughly 3 to 2, and to make the best use of the space available drawings should conform generally to these proportions, whatever their actual size. Next, **size**; as large as possible within reason. Not only is it much easier for the printer to reduce than enlarge, but any blemishes are correspondingly reduced, not magnified. **Evenness of line** is important; not that all lines in a drawing should be of equal thickness or density, that way a drawing looks stodgy or lifeless. But too great a contrast between thick and thin can cause difficulties. Extremely fine lines, which become finer still on reduction, can almost disappear in the final printing.

**Scale** is best shown by a line marked in millimetres or centimetres, thus 1 cm close to the drawing. If several drawings at different scales are shown, a scale bar for each is needed. Then whatever reduction the printer has to use, the scale is reduced correspondingly. Do **not** use the notation × 1, × 2, etc. This may be correct on the artist's original but if the printer reduces it to, say, 3/5 of its size what magnification does that then become?

**Labelling** is most satisfactory if the separate drawings on a page (showing for example, floral organs) are indicated by identifying letters, these being explained either on the back of the drawing itself or on an accompanying sheet.

Lest any budding illustrator is put off by the excellence of some of the drawings already published, let it be said that any drawing is welcome and if it is of an alien, so much the better. If not suitable for reproduction it will be returned together with a letter explaining why it was not acceptable.

To convey as much information as possible about a species, an illustration should include a whole plant drawing to show habit and such anatomical and/or floral details as are helpful in identification.

It should be stressed that the Editor does not consider himself competent to pass judgement on botanical accuracy, the responsibility for which must rest with the artist.

Gwynn Ellis (editor *BSBI News*), 41 Marlborough Road, Roath, Cardiff CF23 5BU. Tel & Fax: 029 2049 6042. E-mail: [bsbihgs@aol.com](mailto:bsbihgs@aol.com)

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The Editor Gwynn Ellis can be contacted by **phone** or **fax** on 029-2049-6042 or

**E-mail:** [bsbihgs@aol.com](mailto:bsbihgs@aol.com)

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

Enquiries concerning the Society's activities and membership should be addressed to: The Hon.

General Secretary, c/o Dept. of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD. Tel: 01719388701

**Camera ready copy produced by Gwynn Ellis and printed by J. & P. Davison, 3 James Place, Treforest, Pontypridd, Mid Glamorgan CF37 2BT (Tel. 01443-400585)**

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