BSBI NEWS

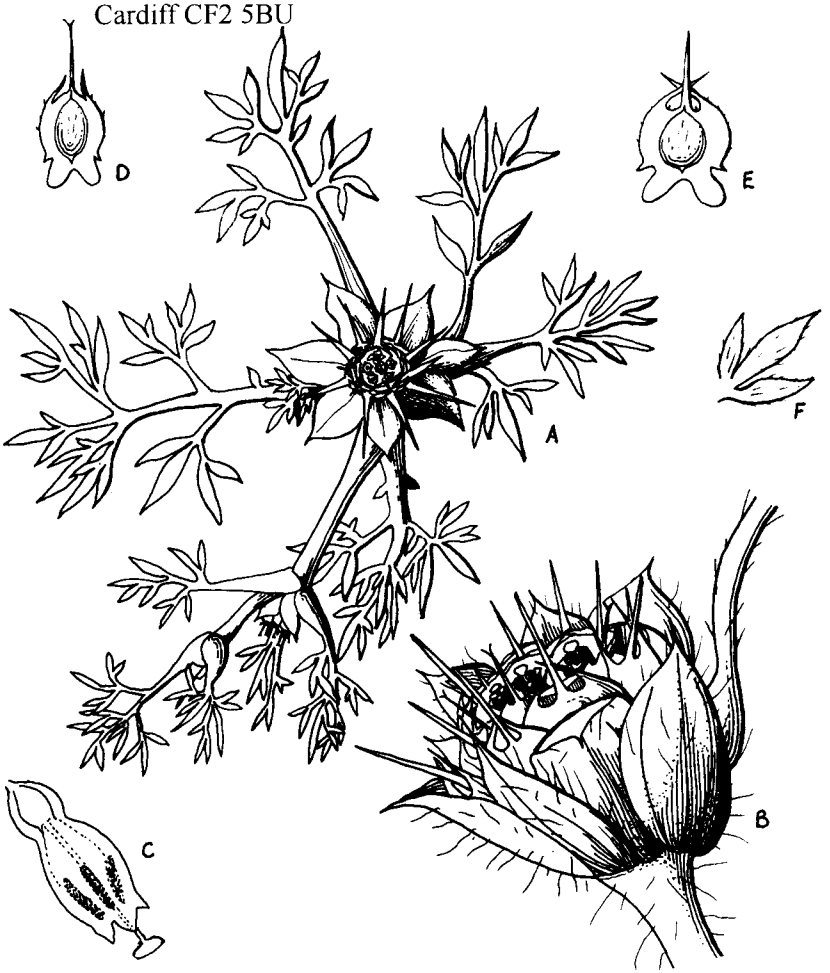
September 1997

Edited by R. Gwynn Ellis

No. 76

41 Marlborough Road, Roath

Cardiff CF2 5BU



A. Whole plant (×3) **B**. Inflorescence (×5) **C**. Central floret (×20) **D**, **E**. Achene (×10) showing lobed wings and pubescence **F**. Enlargement of leaf lobes showing indumentum (×6)

Soliva pterosperma (Juss.) Less. del. Ann Percy © 1997

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IMPORTANT NOTICES

TREASURER AND MEMBERSHIP SECRETARY – THE DIVISION OF LABOUR

It is very important for members to realise that the jobs of Hon. Treasurer and Hon. Membership Secretary have now been split up.

Our new Hon. Treasurer is **Michael Braithwaite** and all queries of a financial nature **apart from SUBSCRIPTIONS** should be sent to him at: 19 Buccleuch Street, Hawick, Roxburghshire, TD9 0HL; Tel. 01450-372267. Fax 01450-373591, **and not to his home address** (given in the *Year Book*) which is for his vice-county recorder duties only.

Mike Walpole remains our Hon. Membership Secretary and all queries regarding **SUBSCRIPTIONS** and **MEMBERSHIP** should continue to be sent to him at: 68 Outwoods Road, Loughborough, Leics. LE11 3LY; Tel. 01509-215598.

EDITOR

Contributions intended for *BSBI NEWS* 77 should reach the Editor before NOVEMBER 1 1997

MIKE WALPOLE – AN APPRECIATION

I was very pleased to have the opportunity, at the Annual General Meeting at Dorchester, to record a tribute to Mike Walpole, our retiring Treasurer. Twenty-six years is a large chunk of anyone's lifetime and for all of those years Mike and I have both been BSBI Officers.

When Mike was elected Treasurer in 1971, I was Secretary of Meetings Committee. We were then thoroughly used to working with Mike's predecessor, Jack Gardiner, and we wondered 'Who is this Mike Walpole?' We need not have worried . . . The following year I became Hon. General Secretary and in all the years since, he has been a reliable, good humoured and wise advisor on BSBI affairs.

Since 1971 the Society has grown from about 1,600 members to nearly 3,000 – involving much extra work in administration. Mike's wife Ann has been able to take on a good part of this through the membership records. But Mike's work for the Society has been *voluntary* – fitted into evenings and weekends, year in and year out, and, until very recently, combined with an exacting and at times very demanding '9-5' job.

Mike tells me that when he became Treasurer he was told to expect to sign 2-3 cheques a week and 5 or so letters. Now it is 50 cheques and 30 letters – or is it the other way round, Mike? I do not have a good head for figures but fortunately he does, and through all his years as Treasurer, we have never had a moment's anxiety over the solvency of the BSBI nor the soundness of our Funds.

From us all I would like to say 'THANK YOU' and, we shall miss you Mike.

MARY BRIGGS, President-elect

[A further tribute will appear in the next issue. Ed.]

DIARY

N.B. These dates are supplementary to those in the 1997 Calendar in *BSBI Year Book 1997*

1997

November

30 *Plant Collecting* Conference, Reading (see notice with this mailing)

1998

March 25- April 5 Northern Cyprus Field Meeting (see page 78)

See also pages 79-80 for dates of other Conferences and Symposia and pages 84-86 for dates of 1998 overseas tours

EDITOR

STOP PRESS The BSBI's Web site address is http://members.aol.com/bsbihgs

EDITORIAL AND NOTES FROM THE HON. GENERAL SECRETARY

I am sure all members will join with me in sending our sympathy to Clive Jermy and Duggie Kent, both of whose wives died suddenly earlier this year.

Another bumper issue this time (I think the largest ever), mainly because of a few quite long papers and the decision to include profiles of new Honorary Members and also two of the papers given at this years AGM. My apologies to those members whose papers have had to be deferred to the next issue. Any slight changes in appearance this time is due to the use of a new computer and a new word processor (Word Pro 97). I hope members approve.

Congratulations to Anne Conolly and Peter Hall, who have both celebrated their 80th birthdays in recent months.

No prizes for guessing who this party girl is!

Changes of address: Nick Turland is no longer working in the Botany Department of the Natural History Museum, London. He has left the country to take up a new post at the Missouri Botanical Garden, USA where he will be working on the Flora of China project. His new address is: Nick Turland, Missouri Botanical Garden, PO Box 299, St Louis, MO 63110, USA. Nick writes – 'since I am no longer resident in the UK, and to save members expensive airmail costs, I think I should resign my joint refereeship for eastern Mediterranean plants and leave it entirely to John Akeroyd. I somehow don't think he'll be overwhelmed with extra enquiries – I've had hardly any!'

Lance Chiltern and Marengo publications have a new address: 17 Bernard Crescent, Hunstanton PE36 6ER. Tel./fax: 01485 532710. The e-mail address stays the same. Lance has an advert on page 85, which gives the old address but any letters sent there will be redirected for at least a year and callers to the old phone number will get a message advising them of the new number.

***Umbellifers of the British Isles* – back in print at last**. Not a new edition, which is still in preparation, but a reprint of the first (1980) edition by T.G. Tutin with 200 pages of descriptions and line drawings of 73 species. The price is £10 from Oundle Books (see new catalogue enclosed with this issue of *BSBI News*).

Contacting the Hon. General Secretary or Editor by phone: If you need to contact me by phone, there is a 24 hour answering machine in my BSBI office, just leave a message (including your phone number – most important, don't assume I have it) and I will get back to you. Bearing in mind that, according to Mary Briggs' classification, I am an owl, the best times to catch me in my office are between 10 a.m. and 12 noon and 2 p.m. to 5.30 p.m. on weekdays but be warned, I do not spend all my time in the office. If you fail to find me in I do apologise, but just leave a message and I will get back to you as soon as I can. I do have another (home) phone number which, in an emergency, can be obtained from Directory Enquiries, but **please**, only use it as a last resort.

EDITOR

PROFILES OF NEW HONORARY MEMBERS

At the Annual General Meeting in Dorchester, five new Honorary Members were nominated for election. The sponsor for each candidate gave a short profile of the nominee and, for the first time, these are published here, more or less as they were presented.

Clive Jermy

Although Clive was unable to be present at the AGM, he would, I'm sure, have appreciated the irony of someone who only 15 years ago was overjoyed to be learning on one of his *Carex* courses at Kindrogan, now proposing his elevation to Honorary Membership. For Clive has been associated with the Society for over 40 years – in fact I think he was on the Conservation Committee 40 years ago. He innovated and produced the first volume in our Handbook series (a series which I think is one of our finest achievements). I would love to know how many copies *Sedges of the British Isles* has sold – I'm told more than 8,000 – and how much goodwill (and money) that has produced for us. He has taught dozens and dozens of us ferns and sedges – and is still as enthusiastic as ever. He sometimes horrifies the conservationists with his bold collecting – but he does something with his collections: he demonstrates, he grows, he observes – all essential; you *cannot* just look and photograph. I would support his approach ant day.

As Council member, Vice-president and, lately, instigator, worrier and guardian of our role in Conservation, as an ever available enthusiast at the Natural History Museum, even in retirement, and in the field, Clive epitomises to me the BSBI and I commend him for Honorary Membership.

[The reason for Clive missing the AGM was his wife's sudden illness and even more sudden death. We send him our sincere condolences for his sad loss.]

DAVID PEARMAN

John Ounsted

John Ounsted has been a member of the Society for over fifty years. He was introduced by a school friend, the late Prof. J.N. Mills; his other sponsor, needed then to join the Society, was the late J.P.M. Brenan, one time Director of the Royal Botanic Gardens, Kew. John Ounsted has served the BSBI in many ways – from 1989 to 1993 he was a Vice-president, he has been a member of Council, of the Junior Activities Committee and, until 1995, a much appreciated member of Meetings Committee – many members and friends will recall his good humoured efficiency 'on the door' at indoor meetings.

Above all, within the Society and without, John Ounsted has been a champion of the young. In the late 1950s he, together with Alick Westrup and Cecil Prime, organised and led inspirational and memorable field meetings for Junior BSBI members – to Scotland, France, Austria and Switzerland – this all well before there were any meetings abroad for adult members. From 1948 to 1970 he was headmaster of Leighton Park School. His own academic discipline is mathematics but his ex-pupils include the botanists S.J. Leach, C.J. Cadbury, A.H. Fitter, Q.O.N. Kay and A.J. Richards, the lichenologist D.H. Brown and Robert Gillmor the wildlife artist.

As a parent and as a teacher, The author of this short appreciation has personally taken much comfort on several occasions from his telling her that, when he was a headmaster and faced with an anxious parent, he would reassure them with the wise words: 'You know, Mrs So-and-so, I am sure he will be fine by the time he's thirty!' and he relates that, indeed, they almost always were!

AILSA BURNS

Franklyn Perring

It gives me great pleasure to propose Dr Franklyn Perring as an honorary member of the BSBI. In many ways this is an easy task as Frank is so well known to almost every member of the society for he has been involved in so many aspects of our work for over 40 years.

The initials FHP (I never have discovered what the H stood for) appear so often in the minutes of Council and various committees, testimony to his far ranging botanical interests and involvement with the BSBI. He joined the society in 1952 and his interest in botanical recording led to his appointment in 1954 as full-time administrative officer of the first atlas scheme, he subsequently succeeded Max Walters in 1959 as Director of the scheme. If you turn to page 154 of David Allen's history of the society you will find a picture of a very youthful FHP sitting in front of a fearsome looking Powers-Samas printer on which is being produced an early copy of one of the distribution maps. The atlas was published in 1962 under the editorship of Frank and Max Walters and I suppose it is true to say that Perring and Walters, like CTW, is one of the best known botanical references. Six years later the Critical Supplement was published and when the Atlas scheme came to an end the data and equipment and personal were transferred to Monks Wood, the start of a long and successful partnership between the BSBI and the Biological Records centre.

In due course Frank took up a position within the conservation movement as Director of what we now know as the RSNC and his name became more widely known outside of botanical circles but his involvement with the BSBI continued unabated. He was a driving force behind the Records Committee, determined that we should build on the experience gained during the original atlas scheme. He is the author of many books and papers relating to the British flora, for instance a joint author of the Floras of Cambridgeshire and Shropshire. For his work in the botanical and conservation fields he was awarded an OBE and later an Honorary Doctorate by the University of Leicester. During his time as president of the BSBI he rejuvenated the conservation committee and put forward many new ideas to help the BSBI into the next century.

It is 35 years since the publication of the original atlas, so an appropriate time for us to recognise the outstanding contribution which Franklyn has made to the BSBI and I have great pleasure in proposing him as an Honorary Member of the BSBI.

MICHAEL WALPOLE

Francis Rose

It is given to few botanists the reputation of becoming a legend in their own life-time. No one would argue that Francis Rose's reputation as a field botanist is legendary. His knowledge of the phytosociology and biogeography of the flora of western Europe has few rivals and what distinguishes him from us lesser mortals is that to him 'flora' uncompromisingly means precisely that; the sum total of the flowering plants, ferns, bryophytes and lichens.

The infant Francis' interest in botany was first awakened by a naturalist grandfather who took him on country walks at the advanced age of five. This interest eventually found him on the staff of the Botany Department at Bedford College London before being appointed Reader in Plant Geography at Kings College.

One of the keys to his encyclopaedic knowledge is the prodigious amount of time that he spends in the field. This knowledge is preserved in a series of more than 200 field notebooks, commencing in 1944, and containing an estimated 250,000 individual records. A project to transfer this unique record to a computer database is now about a third completed. An equally important Rose archive are the famous annotated Ordnance Survey maps which no doubt will one day end up in a national data bank. Students of behavioural ecology have noted that this dedication to field work has led to a number of characteristic idiosyncratic behavioural responses to adverse working conditions: a deluge of rain merely results in the inversion of his pipe and failing light brings out the matches!

For members of the BSBI and all the other countless botanical enthusiasts he is probably best known for *The Wild Flower Key* first published in 1981. With its novel keys to vegetative characters

arranged by habitats and its clarity of presentation it is justifiably the most popular accessible text on the flora of NW Europe. The *Colour-Identification to the Grasses, Sedges, Rushes and Ferns* followed in 1989. Most recently *The Flora of Hampshire* with Anne Brewis and Paul Bowman has set new standards in county flora writing.

This is not the place, perhaps, to dwell on his bryological and lichenological work. Bryophytes were all early love, *A Bryophyte Flora of Kent* appearing between 1949 and 1951. Since the mid-1960s, lichens have increasingly come to occupy his time and he is an acknowledged authority on the lichens of west European forests. He is an Honorary Member of the British Lichen Society.

Finally, we acknowledge a dedicated conservationist and an inspirational teacher. Together with A.E. Smith and Max Walters he was a keynote speaker at the meeting held at the Zoological Society of London in 1958 which was responsible for launching the expansion of the County Wildlife Trust movement and he was a founder member of the Kent Naturalists Trust. He continues to use his influence to insist that active plant conservation is based on sound ecological principles and empirical experience.

His unrivalled knowledge, irrepressible enthusiasm and ability to make even the commonplace exciting stimulates all who share his company in the field. And all those privileged to have had their own stirrings of botanical interest fostered by one of the most remarkable field botanists of his generation would wish to take this opportunity to say quite simply, 'Francis, thank you'.

DAVID STREETER

Peter Sell

Peter Sell was born on 1st November 1929 in the South Cambridgeshire village of Bassingbourn, where he lived until earlier this year. He attended the village school, where his interest in natural history was recognised by his teachers. When he came to leave school at 13 his headmaster asked the Cambridge University Department of Zoology whether they had any vacancies for a bright local boy to work as a trainee assistant. Fortunately for us they had nothing to offer, so Peter was deflected to the Department of Botany, where he started work on 2nd January 1944 and has been based ever since. Peter's country childhood has been an important influence on his work. Years later, for example, when he was working out a taxonomic treatment of hazel (*Corylus*) (*Nature in Cambs.* **23**: 50-53, 1980) he found that he knew most of the British taxa from his wartime boyhood, when there were no sweets and he had searched the autumn hedgerows for hazelnuts. He has described aspects of his childhood experience in a paper in *Nature in Cambridgeshire* (**31**: 12-18, 1989).

When Peter, installed as Herbarium Assistant, was called up for his National Service in 1948-9, Max Walters remembers thinking that once he had seen the larger world, he would not readily return to the dust and obscurity of the herbarium. He could not have been more wrong! On his first day after his demobilisation Peter walked into Max's room saying something along the lines of 'Thank goodness that's finished: now I can get on with some proper work'! That 'proper work' developed into a very happy partnership between Max, as Curator of the Herbarium, and Peter as his assistant, a mutually beneficial partnership that lasts until the present day.

Peter soon demonstrated his capacity for large tasks requiring masses of detailed work. One of his early jobs was to convert W.C.R. Watson's almost unbelievably chaotic manuscript on *Rubus* into the posthumously published book *Rubi of Great Britain and Ireland*. This was such a substantial job that after its successful completion Peter was made an Honorary Member of the Linnean Society. His own contribution to taxonomy developed steadily in the post-war years. He rapidly became an expert on the genus *Hieracium*, where he collaborated with Cyril West, a retired professional botanist whose early work with G.E. Briggs and F. Kidd was on plant physiology. The partnership of Sell & West provided the basis of our current understanding of the British Hieracia. Peter also 'grew into' the *Flora Europaea* project. He not only took on the very demanding task of preparing the indexes, but also wrote or edited all the accounts for Compositae Subfamily Cichorioideae, of which Max Walters was

formally editor. In these ways he became an internationally recognised expert in this important world-wide group.

Peter formed his views of taxonomy early in his career and has stuck to them ever since. Botanists should do botany. Administration, meetings and correspondence have to be reduced to the absolute minimum and committee meetings should be avoided at all costs. This may explain why BSBI members may not have received replies to all their letters! Taxonomic treatments should be based on a review of herbarium specimens and (if possible) living plants, not on other treatments in books. Taxa should be recognisable in the field – those that can only be separated by complex and sophisticated measurements are unlikely to stand the test of time. Names should be checked in the original publications, and typification should respect the actions of the original author, not be 'fiddled' for our short-term convenience.

Sticking to these principles involves a lot of work, work which may not be apparent from the end product. Peter's account of *Lapsana* in *Flora Europaea* covers less than a page, but when Edgar Milne-Redhead made a sarcastic remark about the relegation of *Lapsana intermedia* to a subspecies of *L. communis*, he was stung into justifying his treatment in *Watsonia* (**13**: 299-302, 1981). From this paper it became apparent that his brief account was based on the examination of a very large number of herbarium specimens, including types, from many parts of Europe and western Asia.

Peter is not one of those taxonomists who rarely venture outside the herbarium. He loves field-work and has visited most parts of the British Isles, looking at and describing plants and collecting over 25,000 herbarium specimens. He is very familiar with the East Anglian countryside and was a co-author of the 1964 *Flora of Cambridgeshire*. He also has a particular interest in trees, shrubs and in coastal and other variants of common species. All of his knowledge of infraspecific taxa (and of *Hieracium*) was placed at the disposal of one of our other new honorary members, Frank Perring, when he prepared the *Critical Supplement to the Atlas of the British Flora*, and Peter's help is handsomely acknowledged in that work. Peter is generous in sharing his knowledge and many BSBI members will have benefited from help given to them on visits to the Cambridge herbarium.

After *Flora Europaea* finished, Peter wanted to publish a Flora which would bring together all his knowledge of the British flora. After one or two false starts he teamed up with Gina Murrell to write the *Flora of Great Britain and Ireland*, the first volume of which was published earlier this year. In spite of occasional illness (including two heart attacks), Peter is pressing on with this important project. When Chris Preston visited him in May 1997 in the Cambridge herbarium he looked up from numerous piles of *Leontodon autumnalis* specimens, grinning broadly. He explained that there were 11 distinct varieties in Britain and he had found names for all of them.

We heartily recommend Peter Sell as an honorary member of BSBI, coupling this with best wishes for the completion of his Flora.

MAX WALTERS and CHRIS. PRESTON

Needless to say, all five nominees were elected with acclamation!

RECORDERS AND RECORDING

AMENDMENT NO. 2 TO *BSBI YEAR BOOK 1997*

Panel of Referees

Dr Peter Yeo, who is already refereeing *Aster*, has agreed to take on *Geranium* as well. He asks for all specimens to be dried and pressed, and for a representative leaf and a few petals to be detached and pressed separately; also a flowering calyx, with petals removed, opened out to expose the stamens.

Specimens that have only just begun to flower should be avoided, and he needs ripe and nearly ripe fruit.

We are sorry to report that, due to failing eyesight, Gordon Graham has decided that he must resign from refereeing *Rosa*. He has been sent a large number of specimens since he was appointed referee in 1984, and even before then, and we are very grateful to him for all the help he has given members.

Nick Turland, the joint referee for Eastern Mediterranean plants with John Akeroyd, has also resigned; he has gone to work in the Missouri Botanic Garden and we thank him and wish him well in his new job.

MARY CLARE SHEAHAN, 61 Westmoreland Road, Barnes, London, SW13 9RZ

SHORT CUTS AT SEANA BHRAIGH

The normal way round from Ullapool to Strath Mulzie is on the A835 north to Elphin, east on the A837 to Strath Oykel and up the forestry/hill track as far as you can travel in 4-wheel drive to Coire Mor. It takes about one hour with 7 members of the BSBI in a BM landrover.

You can then be as energetic as you like, exploring the lochans of Loch a Choire Mhoir and Loch Luchd Choire at a low level discovering freshwater sponges, or the grassy slopes in the coires, which may yield *Dryas octopetala* (Mountain Avens), *Saxifraga oppositifolia* (Purple Saxifrage), *Juncus biglumis* (Two-flowered Rush), *J. triglumis* (Three-flowered Rush), *Saxifraga aizoides* (Yellow Saxifrage), *Trollius europaeus* (Globeflower), *Saussaurea alpina* (Alpine Saw-wort). For the more adventurous a scramble up the cliffs and gullies to the summits of Seana Bhraigh, at 927m or Creag an Duine, at 975m provides the alpines *Juncus castaneus* (Chestnut Rush), *Carex saxatilis* (Russet Sedge), *Cerastium arcticum* (Arctic Mouse-ear), *C. alpinum* (Alpine Mouse-ear), *Salix lapponum* (Downy Willow), *Luzula spicata* (Spiked Wood-rush), and if you gain the spot height at 906 m the very rare *Artemisia norvegica* (Norwegian Mugwort) is scattered amongst the short turf on the rocky crest. Nearby grow *Arctostaphylos alpinus* (Alpine Bearberry) and *Loiseleuria procumbens* (Trailing Azalea).

The scenic way down is along the shoulder to the west, returning to the loch side in the valley. The quick way off is over the top and down the stream into Coire Mor.

The scenic route allows you to see the tracks in the landscape and armed with some second-hand knowledge from the day before, you theorise that the track you see to the NE along the north side of Loch an Daimh, joins up with the one you know exists to the north of Loch Achall. But you cannot actually see it along the whole of its length and there are other tracks which do appear to stop in the middle of nowhere.

However, it's 6.30 p.m., the short cross-country route if it does connect up is only 15 km in length, rather than 70 km retracing the mornings drive in, and surely it must be quicker?!

We vote – all in favour, terrain inspected from on high and on the ground, with binoculars and sending a footman ahead over a dodgy bit – we set off in low ratio. A bit muddy, rutted, windy, but certainly scenic and heading in the right direction. Ignore the fact that it's marked as a footpath on the map – there are clearly fresh wheel marks on the ground.

Two km further on we reach a ford. Water levels low, but tricky rock and eroded banks. Two recently constructed (and yet untested?) home-made pine rafts are found nearby and are put to use. Six people direct the driver, Clive Jermy, who is clearly in his tropical mode – i.e. you wouldn't think twice about it abroad – but this is civilised Britain! The official photographer records the event (I hope it comes out as the light meter is playing up). After three attempts the landrover eases down the ramp rafts, splashes across the burn, avoids getting bogged down in the mud on the other bank, and stops on solid ground to allow reboarding of passengers, amidst cheers of relief. [Would we really have been able to go back?]

The next six km are no less eventful – ask Lawrence and Lesley, who were in the back. Lesley mentions that landrovers should have padded roofs. We conclude after the twentieth bang on the undercarriage and tow-bar that a short-wheel base vehicle would be better. I remember the road sign at Drumbeg stating long vehicles at risk of grounding and hope we won't end up straddling a steep dip suspended in space; I also recount my first epic 'getting stuck' tale in Panama in 1973. Ken reckons his African experiences were worse.

Two hours later we reach the bothy at Cadubh, much to the amazement of the youngsters playing outside. There is a track from the west, but a vehicle driving from the east?? However, by then we are on known territory – Trevor having investigated it yesterday whilst mislaying his new grapnel. So we might make it back to the Ceilidh Place in time for late supper at 9.30 p.m.

The statistics:-

Way in – along A roads and track – distance 70 km, time 1.5 hours
Way back – 'the short cut' – distance 15 km, time 2.5 hours
The adventure factor 7 out of 10
The hunger factor 8 out of 10
The appreciation of driver 10 out of 10

Here's to the next BSBI meeting in Wester Ross.

LYNNE FARRELL, SNH, 1 Kilmory Estate, Kilmory, Lochgilphaed, Argyll, PA31 8RR

ATLAS 2000

ORGANISER'S REPORT

A Full Time Organiser

During the course of last year, it became obvious that my 3 day a week post as Atlas Organiser was just too constrictive. Correspondence was going unanswered, articles unwritten, calls unreturned, and I was going quietly insane. David Pearman then rang me with an offer, 'Would you like to work five days a week if we had the funds?' I said I'd think about it long and hard, and made up my mind in 2.34 seconds.

A successful application was made to the BSBI Bequest Fund for the amount of extra funds needed, and I started full time in June. How I ever achieved anything working 3 days a week before I cannot imagine. Of course, the extra days came at the very start of the field season, so I've filled most of them with this, but it's an immense relief and pleasure to work full time on the Atlas. Many thanks to the Bequest Committee for approving the request – I'm sure Atlas 2000 will benefit from it.

Field Meetings

What a difference a year has made. I was impressed with the amount of recording undertaken last season following the launch of Atlas 2000, but this year has currently succeeded all expectations. Everyone seems to be working hard and I get the feeling that the project is gaining momentum. This does not mean that there are still areas causing concern, of course, but I'm much happier that we are on target to achieve our aims.

The most encouraging sign for me is the enthusiasm shown at field meetings. All the recording meetings I've run so far this year have been very well attended (well up on last year, with an average of 15 participants) and the appetite shown for hectad (10 km square) recording is inspiring. We also seem to be turning up more scarce species this year, particularly with arable weeds (is this a good year for them?). Scarce species seen include *Dianthus deltoides* (Maiden Pink) at Kelso, *Fumaria parviflora* (Fine-leaved Fumitory) at Sledmere, *Galeopsis angustifolia* (Red Hemp-nettle) at Hungerford, *Scandix pecten-veneris* (Sheperd's-needle) at Framlingham and *Thesium humifusum* (Bastard-toadflax) at Cirencester. For full details of these (plus a few vice-county first's) please see the field meeting reports in the January 1998 edition of *BSBI News*.

I'd like to take the opportunity to congratulate Clive Stace for his new edition of the *New Flora of the British Isles* (1997). The new typeface makes the book more attractive, and the index is particularly useful. As the standard flora for recording for Atlas 2000, I urge all members to invest in a copy.

Although it's only July as I write this, it's time to plan next years round of field meetings. If there are any Vice-county Recorders that would like an Atlas 2000 Recording Meeting next year, **please let me know as soon as possible!**

Weather Writers

One of the most frequently asked questions at field meetings is where to get good quality Weather Writers from. These are clipboards that provide a sturdy surface on which to fill in a recording card and come complete with clear plastic sides and top. The plastic forms a 'tent' over the card that protects it from rain, wind, snow and hail. You can easily cross species off the card as the tent is open on one side. Difficult to describe but invaluable in the field!

After making a few enquiries, Arthur Chater kindly provided me with an order form and address of a firm supplying Weather Writers. The service was excellent and delivery was very fast (next day in fact). The Writer itself is solidly made and works very well. For more details, please contact VIP at Pettaugh, Stowmarket, Suffolk IP14 6AX (Tel: 01473 890285 Fax: 01473 890764). They supply various styles and sizes of Weather Writers and I recommend the A4 Landscape format (£22.96 + VAT). They also supply waterproof paper, notebooks and pens. Now all I need is a wet-suit.

Atlas 2000 Records

Records for Atlas 2000 are steadily coming in to me from vice-county recorders in the form of Master Cards and computer disks. Congratulations must go to Dr Alan Knapp who is computerising the records of W. Sussex (v.c. 13) and E. Sussex (v.c. 14), as he was the first person to submit records on disk, and these have now been passed on to Monks Wood.

Congratulations must also go to Fiona McKee in Belfast. Fiona has been employed by the BSBI during Atlas 2000 project to input records from the Northern Ireland vice-counties into CEDaR (Centre for Environmental Data and Recording) at the Ulster Museum. After entering the records at CEDaR, they will then be passed onto Monks Wood. We wish Fiona every success in the post.

Amendments to Recording Cards

Unfortunately, due to a printing error, the following amendments apply to Recording Cards RP28 (Midlands/E. Anglia) and RP29 (SE England) that were printed in March 1997.

The following species are additional to cards RP28 and RP29:

35	Agros*can	868	Galeo*tet
131	Aphan*agg	882	Galiu*pal
2382	Bromu × p'th	1057	Juncu*buf
303	Calli*ham	4444	Oenot*agg
7117	Carex*vir	2247	Phleu*pra
821	Festu*ovi	2516	Vicia*sat

Addition to RP28 only: 7533 Rosa*cae

Additions to RP29 only: 369 Carex div 1958 Sorbu ari

The following species have been replaced on both RP28 and RP29:

303.1 Calli ham 822.1 Festu ovi ovi

The following species has been replaced on RP29: 369 Carex div div

An error has also come to light on all recording cards except RP24, RP25, RP30 and RP31:

1809 Savli ver

This refers to *Salvia verbenacea*. The correct BRC number for this species is 1812, not 1809 as it is on the card. 1809 is the BRC number for *V. hormineoides*, a rare taxon which is now considered a synonym of *S. verbenacea*. However, this should not effect you – continue crossing the species off the card if you find it but please don't try to change the number on the card.

Finally, I'd like to point out to vice-county recorders that *Rhamnus cathartica* was omitted from the Mastercard! We are, of course, collecting records for it, and it can be added to the end of the card as necessary should it occur in that particular hectad.

Change of E-mail Address

Oh, the pace of modern technology! To put those that accuse computers of being impersonal at bay, my E-mail address has now changed from 101667.2317@compuserve.com to TrevorDines@compuserve. com. How's that for friendly? Surely it won't be long now before DavidPearman@FromeSt.Quintin comes on line!

Winter Help

Winter is fast approaching and I'd like to finish by making a plea for help during the long dark months. The field season may be over, but there is plenty in which to get involved. Many Vice-county Recorders will appreciate help with the compilation of records, either from the field or from other sources. The latter include herbaria and older county floras, as it's important not to forget the value of historical records. Such work will usually be restricted to selected species, so the task is often smaller than imagined.

Aliens and hybrids require more work of course, and again the extraction of records from herbaria and floras will be valuable. In particular, we have been kindly offered records from a private source and would welcome help with extracting them. Please contact me for more details.

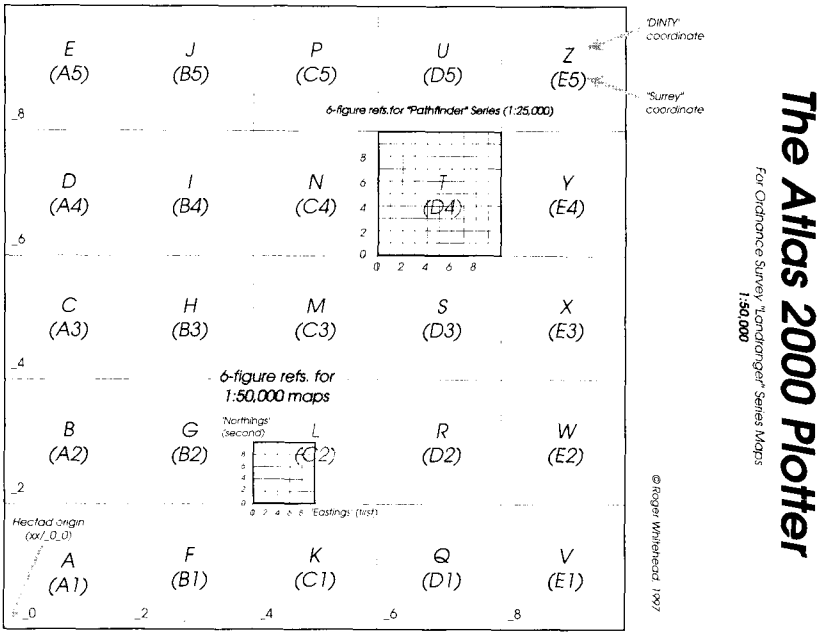
Computerisation is also causing problems for many Vice-county recorders and computer literate volunteers are always in demand.

In all these cases, if you would like to help, please contact either myself or your Vice-county Recorder. Atlas 2000 funds will be available to meet expenses in some cases.

TREVOR DINES (Atlas Organiser) Rhyd y Fuwch, Bethel, Nr Caernarfon, Gwynedd LL55 3PS.
Tel: 01248 670789; e-mail TrevorDines@compuserve.com

THE ATLAS 2000 PLOTTER – AN AID FOR OPPRESSED RECORDERS

If, like me, you find the plotting of site locations for Atlas 2000 to be wearisome work, you may be interested in the gadget I have devised to simplify this. It is a transparent overlay that helps one directly read off OS references for Ordnance Survey Landranger (1:50,000) and Pathfinder (1:25,000) maps.



It is also useful when working on (or from) country floras. As the picture shows, the plotter lets you read off 1:50,000 hectads and tetrads without incurring the usual mental fatigue. It complies with both the 'DINTY' and Surrey lettering systems.

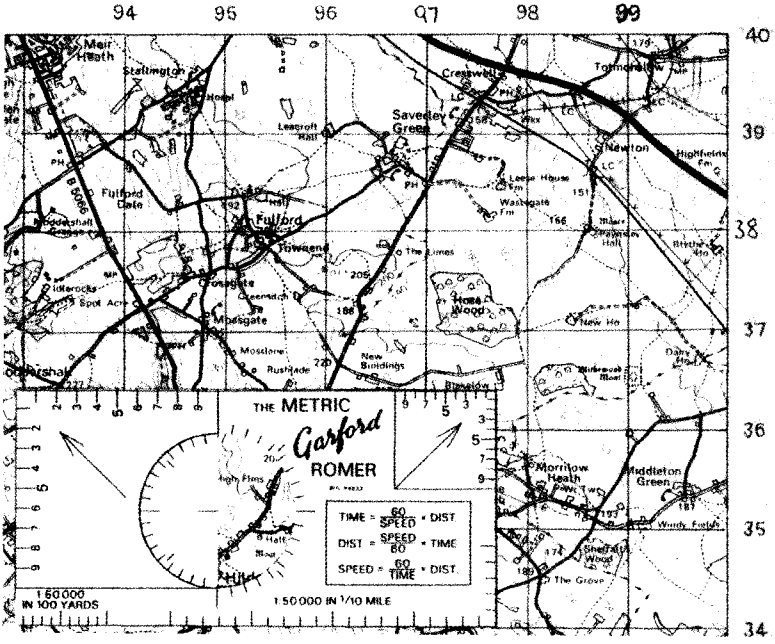
The plotter has been given the once-over by Trevor Dines, who has agreed that it could usefully be offered for sale in these pages. Therefore, if you are tired of muttering and counting on fingers when entering site details, just send me £1.50 and I'll post you, by return, my sovereign cure for brain ache. (Please send cash, a postal order or postage stamps. Also, let me know if you would like a receipt.)

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

MAP REFERENCES MADE EASY!

Do you have problems with map references? Do you find you always guess the last figures? Do you feel, from references you receive, that other people guess too, and don't always guess right? Well, here is just the device for you; one of those things you won't know how you ever managed without once you have tried one. It is called a **romer** and was created for rally navigators who need to be able to produce rapid and accurate map references. This one is made by Garford and costs a mere £1.99 from a local binocular shop. Bigger map suppliers sometimes sell them too.

To use the romer, which is a small strip of opaque plastic, place the corner against the position whose reference is wanted – a house named Blakelow in the illustration – then simply read off the figures on the romer where the relevant grid lines meet it. Hence, Blakelow is at 977.364. You could even estimate 8-figures if needed. The other corner of the romer is for use with 1:25,000 maps. Of course, you still need to be able to read a map and work out where you are, but OS maps are amazingly detailed if you look closely enough, so all it needs is for people to stop building new roads, removing hedges and fences, filling in ponds, etc. and there never need be an inaccurate map reference again!



GRAEME M. KAY, 4 Geneva Road, Bramhall, Stockport, Cheshire. SK7 3HT

CO-ORDINATOR'S CORNER

National Biodiversity Network

As mentioned in the last issue of *BSBI News*, the bid to the Millennium Commission failed but despite this, the NBN is to continue. A meeting took place in March this year to decide on the next steps in light of the unsuccessful bid for funding. In May, a new Executive Group met, chaired by Andy Brown (Chief Executive of JNCC) and decided that the NBN would need to be more narrowly focused than previously, with aims including:

- giving various groups and organisations access to environmental information as required;
- developing and co-ordinating standards for biodiversity information management and assisting individuals and organisations to collect and use biodiversity data;
- showing how data collected by individuals and organisations fits into a scientifically based structure and providing a clear view of the Status of UK wildlife, habitat and landscape;
- and encouraging enjoyment in using biodiversity information to better understand and conserve UK's biodiversity heritage.

This will be achieved by concentrating initially on:

- giving local access to information across the UK;
- making National Information available on the Network;
- getting across to the public, information on wildlife, and providing on-line access to more detailed data at various levels.

All this of course will be limited by available resources which are now quite considerably less than originally hoped. Again, I will keep you posted as things progress.

Kew Seeds Project

To fulfil BSBI's commitment to the seed bank project, which was officially launched at St James's Palace in April, we have recently appointed the well known west country botanist Liz McDonnell. Her main task over the last couple of months has been to target populations of species taken from a list of 300 or so provided by Kew. Progress has been good despite her undertaking this huge task at very short notice! The next step will be to target potential collectors and in that respect, more offers to collect seeds are required. So, if you're interested, please let me know or contact Liz on (01934) 712649 or Steve Alton, the recently appointed Seed Bank Project Officer at Wakehurst Place on 01744 894079.

Plant Status Nomenclature

I don't know about you but I've been getting rather confused over which of the terms to use in describing the Site Status (or Distribution Status), of a particular plant record. It is trees which cause me most trouble. The way I interpret the nomenclature (see *BSBI News* **72**: 13-16) *Surviving* refers to any plant which has been planted (presumably?) and which has survived subsequently for at least five years but is neither spreading vegetatively nor reproducing effectively from seed. Whereas, *Planted* refers to any plant which has been planted but which is not *Established*. Simple. But, a tree initially planted on a site but which has been there for over five years is both *Planted* and *Surviving*. OK, fair enough. However, in discussions with various people on this subject it has been suggested that *Surviving* only refers to plants (trees in this instance) which have established themselves (i.e. not planted) and subsequently been there for over 5 years. But that to me would then mean that they are *Established*! Would it not? Curiouser and curiouser!

Further bemusement comes from the phenomenon of alien hybrids. If I've understood it correctly, in addition to well documented new 'rare endemics' such as *Senecio cambrensis* which arose from alien hybridisation (not to be confused with alien abduction!), plants such as × *Cupressocyparis leylandii* which first arose spontaneously in Montgomeryshire (at Mr Leyland's Nursery – not really

named after the town of Leyland – see Co-ordinator's corner last issue!), and *Picea omorika* × *P. sitchensis* which has arisen spontaneously in Perthshire, should be considered native and the latter at least, a rare endemic, indeed. Even more curiouser and curiouser. But perhaps I've got it wrong and there needs to be at least one native parent to make it count? So, what then about the hybrid oaks – *Quercus robur* × *Q. canariensis*, *Q.* × *turneri* (*Q. robur* × *Q. ilex*) or *Q. robur* × *Q. cerris* all of which to my knowledge have arisen *de novo* in Britain? Any suggestions?

Computer Software

The news about Recorder is that there is no news! Except to say that the Windows version is still under development and that the latest upgrade has still to materialise. In fairness though, I was sent a test version of the upgrade but unfortunately this was faulty so no testing took place!

With regard to the other BSBI Approved packages, Roger Whitehead has done a comparative review on Aditsite and BioBase, later in the issue (see Computer Bytes pages 72-77). This will highlight the differences between the two and hopefully help those who are intending to acquire one or other of the packages but are as yet undecided, to make a choice.

On a slightly different note, I recently received a copy of AditKey developed by Trevor Dines (name sounds familiar!) and Adit Ltd. This is a very useful little package. I've spent the odd hour here and there over the last few weeks tinkering with it – what I like doing best. Aditkey is a tool for constructing computerised keys, both dichotomous and multi-access, and subsequently using them to identify various groups of plants. There are two versions available: the standard version which comes with complete keys ready for use (only a few are available at the moment but many are promised); and, the professional version which also comes with the currently available keys but with the added capability of constructing your own keys to your own particular taste.

There is no documentation since it is expected that the on-line help files will adequately take you through the process. I'm a lazy computer user and jump into a package with both feet but inevitably come unstuck and have to resort to the documentation or help files. In this case, I found them indeed quite helpful. If you are constructing a key, it is useful to examine the existing keys to see how they are structured. You are also advised to draft your key in advance of putting it onto the computer although the keys can be modified after adding to the database. In addition to the key information, there is the facility to add a description or even an illustration and there are links to Aditsite. All in all this is a very useful tool indeed but be warned, as with all computer software packages, constructing computerised keys does take some thinking about and quite a lot of time, though the effort is well worth it. By the way, in case you were wondering, I've been working on a key to conifers (no surprises there eh!).

A full review of Aditkey will appear in next issue of *BSBI News* but in the meantime, anyone who wants further details can contact Trevor at the usual address or Adit Ltd. on 01248 430075.

And finally . . .

Talking to Trevor Dines, a number of things have occurred to me. Firstly, that there is another category of BSBI member in addition to Larks and Owls *viz.* Dormice. And, I should like to take this opportunity to nominate Trevor and myself to this category, forthwith. Secondly, could it be that botany, along with other forms of recording and collecting, is a misplaced manifestation of the human hunting instinct? And lastly, is there a preponderance of members in certain professions who take up botany (other than the obvious professional botanist/ecologist)? For example, Accountants, Medical practitioners, Teachers, Vets and Librarians seem quite well represented, whereas there are few Lawyers, Architects, Police, Actors, or Musicians. Any thoughts on any of these points? We would be very pleased to hear them.

Trevor and I sometimes talk about field botany too.

CAMERON S. CROOK, Co-ordinator, Millstones, 8 Woodstock Close, Lostock Hall, Preston PR5 5YY, Lancs. Tel and fax: 01772 316717. e-mail: cameron_sc@compuserve.com

NOTES AND ARTICLES

REQUEST FOR NEW RECORDS OF ACTION SPECIES IN SCOTLAND

As part of the UK response to the Biodiversity Convention, Scottish Natural Heritage initiated a Species Action Programme. Six vascular plant species are included at present – *Linnaea borealis*, *Saxifraga hirculus*, *Primula scotica*, *Lychnis viscaria*, *Cicerbita alpina* and *Pilularia globulifera* – all appear to be significantly threatened in the world or the UK and Scotland has a valuable role to play in their recovery. Most of the action at this stage involves investigating how we can improve their survival but also involves making sure that we have adequate information on their distribution and abundance.

Three of these species could well be under-recorded but it would be impossibly expensive to attempt to survey Scotland comprehensively for them as they are so sparse. However a good idea of their distribution is a necessary background to choosing future conservation actions and it could be very valuable for BSBI members to look out for them on Atlas 2000 fieldwork and send me details of any sites located.

Saxifraga hirculus is believed to be declining throughout Europe and is one of the relatively few British vascular plants listed on the Habitats and Species Directive. It was widely overlooked in its stronghold in the north Pennines and could still be overlooked in Scotland. Past records have included places like Ben Lawers and Ben Lui – presumably on the lower ground which has long been afforested or improved. It was also reliably recorded in widely scattered places from the Borders to Caithness but with no records west of Ben Lui. The known sites have all been well re-examined over the years but there is still a need to look for it more widely in places where it has not been recorded previously.

The species now grows in relatively dull moorland between 300 and 450 m, rather lower than its distribution in the Pennines. The flushes in which it occurs are rather more interesting than the rest of the moorland and have such associated species as *Sedum villosum*, *Selaginella selaginoides*, *Polygonum viviparum*, *Epilobium anagallidifolium*, *E. alsinifolium* and *Triglochin palustris*. The flowers are conspicuous and diagnostic and appear in late July and early August. Unfortunately they are eaten readily by sheep and its flushes can be well cropped. When they survive. the yellow flowers are superficially similar to *Ranunculus flammula*, and one wonders if the rarer species has been unconsciously dismissed in passing as yet more spearwort. The leaves of *S. hirculus* are very similar to the leaves of the *Epilobium* spp. usually flound alongside it but have characteristic 'rusty' hairs on their petioles. As it spreads vegetatively, it can be abundant in the parts of the flushes where it occurs.

Pilularia globuilfera is one of many inconspicuous slender-leafed aquatics, only easy to identify when its leaves are unfurling and the little crosiers reveal that it is a fern, or once it has produced its sporocarps – the pills – usually in late summer. It can be abundant on mud flats exposed by summer droughts and can grow in amongst mosses in mires, for instance in the Western Isles, but typically it is found under shallow, but generally cold, Scottish water – often on the backwater of a delta made by a stream flowing into a loch. It appears to have declined considerably in Britain and across most or all of Europe. Plantlife comprehensively re-checked for SNH a sample of sites in Scotland where the species had not been recorded recently and confirmed that the species was extinct there. This survey was undertaken by snorkelling which is necessary to establish the absence of the species in a murky water body – but the less aquatic botanist can find evidence that the species is present with no more than 'wellies'. Again the need now is to look with a fresh eye at wet areas where this species has not been recorded before. Periods when water levels are low can be particularly productive.

Linnaea borealis is found from Caithness to the Borders, again restricted to the east, with a striking concentration of records around the Cairngorms. It is generally restricted to ancient pine forests or old pine plantations which ought to have been well recorded. About 30 sites were known in Scotland but an appeal for information within SNH produced 20 new records from our reserves and since RSPB took over the Abernethy estate this area has produced a remarkable 22 records. It is possible that the species is less striking than it appears to be especially when growing in tall heather and where its flowers are grazed by deer. Moreover it does occur on moorland and here it may be even more frequently overlooked. The species is widespread in the world but at its present rate of decline could be lost from Britain. Any locations for this surprisingly uncommon species would be welcome. Both *Linnaea borealis* and *Pilularia globulifera* are Nationally Scarce plants and useful additional background information is available in Stewart *et al.* 1994. *Scarce Plants in Britain*. Peterborough, JNCC.

SNH has a special rare species recording form but the purpose of that is mainly to encourage people to take a photograph of the site (to aid relocation), to attempt to estimate the number of plants present, and to look for, and attempt to quantify, evidence of regeneration (from flowers to young plants) which can be very helpful in assessing the conservation needs of a population. All these species now figure in the lists of the UK Biodiversity Action Plan and so new locations for the species in any part of the UK will be welcome and will be forwarded to the other Country Agencies. Any records sent to me should also be passed to v.c. recorder or BRC as normal.

Dr CHRIS SYDES, Scottish Natural Heritage, 2 Anderson Place, Edinburgh EH6 5NP.

ORCHIDS FROM THE 18TH CENTURY HERBARIUM OF JOSEPH ANDREWS (1688-1764)

The Sloane Herbarium at the British Museum is one of the oldest British herbaria. It consists of 265 volumes from various early botanists and horticulturalists and is a rich source of information for the historian of botany and gardening in the seventeenth and eighteenth centuries. It not only contains valuable type specimens, but gives a wonderful insight into the methodology of early botanists. One such early botanist whose material is incorporated in the Sloane Herbarium is Joseph Andrews. His beautiful herbarium is remarkably well preserved, comprising of ten fascicles, mostly of plants from Suffolk and Essex.

Little is known of Joseph Andrews, who apparently lived in Great Conard, in Suffolk, and worked as an apothecary at a shop in nearby Sudbury. He was a friend and correspondent of Samuel Dale (1659-1739) who was also an apothecary. Dale was a highly respected botanist who collected numerous interesting British plants, his herbarium also being at the British Museum. The earliest dated specimens in Andrew's Herbarium are from 1711; these include some from Peckham Fields, Putney Heath and Islington. Further collections are from Cambridge, Newmarket, Maldon and Bulmer. Putney Heath was one of the places regularly visited in the 'herborizings' of the Apothecaries' Society. Nearly all of Andrew's orchid collections are believed to be from Suffolk or Essex, from locations within a days walking distance of Sudbury. He seems to have collected in this area between about 1728 and 1755.

After Andrew's death the herbarium became the property of the Rev. John Hemstead of Haverhill, Suffolk whose grandfather was of Sudbury. Hemstead added Linnaean and vernacular names to Andrew's herbarium and rearranged it according to the Linnaean system. It was in 1889 that his descendent, a Miss Hemstead, presented the herbarium to the Department of Botany at the British Museum.

The orchids are to be found in fascicle IV, on sheets numbered 29 to 38. The following is a list of his collections, with comments from Andrew's labels in quotations.

Sheet 29

Lesser Butterfly-orchid – *Platanthera bifolia*

'Link hills, Maplested. 27 May 1746' [Essex]

This record may be the only authenticated record of this species in Essex. In the present day it is unknown in Suffolk or Essex. It was probably also very rare in Andrew's day, early botanists enjoyed seeking out rare plants, and liked to have the rarest, most unusual specimens for their own herbaria, much like stamp collecting. It is often difficult to distinguish *P. bifolia* from *P. chlorantha* from herbarium material but on this specimen close-set parallel pollinia can be seen on one of the dried flowers.

Pyramidal Orchid – *Anacamptis pyramidalis*

'Bulmer Limekiln yard. 16 June 1746' [Essex]

Still well distributed in Suffolk, but rather scattered in Essex.

Sheet 30

Early Marsh-orchid – *Dactylorhiza incarnata*

'June 13, 1745'

This species is becoming rather rare due to loss of habitat.

Green-winged Orchid – *Orchis morio*

'May 7, 1744'

This species is plentiful but only in a few sites.

Burnt Orchid – *Orchis ustulata*

'This specimen was sent me by the name above, 1 July 1754'

As the herbarium has been rearranged the 'name above' is no longer apparent, it is not clear where this specimen came from. There are no records of this species in Essex and only rather doubtful records from Suffolk.

Sheet 31

Heath Spotted-orchid – *Dactylorhiza maculata* subsp. *ericetorum*

'June 13, 1745'

This species is much confused with the similar Common Spotted-orchid (*D. fuchsii*). The Heath Spotted-orchid is still a fairly common orchid in Suffolk and Essex.

Military Orchid – *Orchis militaris* [*Orchis galea & alis fere cinereis*]

'is not in Mr. Dale's opinion the Cawsham hills plant, that being the *Orchis Zoophora Cercopithecum experimens, Oreades* neither is it *Orchis magna, latis foliis, galea fusca vel nigricante* found by Mr. Shepard at Northfleet. This pretty orchis I found in a little field on the left hand of the gate that opens onto Water Belchamp Cansey from Bulmer. 27 May, 1729. So that this plant is new to us and not found before in England.'

Dale wrote to Andrews from Bocking, May 30th., 1729, three days after the latter had found the plant, as follows:

I rec[d]. yours with the orchis on Wednesday but had not time then to return thanks for it, nore answer your quere. That it is the *Orchis galea et alis jère cinereis* J.B.2.755. I believe upon reading attentively and comparing it diligently with his description, but not the plant which Mr. Ray so-called, having the authority of his own dried plants against it. The synonims to that of Cawsham Hills being *Orchis zoophora Cercopithecum exprimens Oreades* Col. Ecph. 1.319. *Orchis flore Semian refferens* C.B.82. *Cynosorchis laufoha hiante cucullo minor* ejusd. 81. If Mr. Shepards plant is rightly figured it cannot be that of yours, the body being too short as are likewise the Arms which are also too broad. The hood in yours is cut into 3 in the Dillenian its made whole; nor can it be the plant of J.B. that being near half a yard high . .

Nine years later (May 13th. 1738), Andrews showed Dale the living plant *in situ*. There is a specimen in the Dale herbarium annotatated thus:

'This I take to be the plant which on the 13th of May 1738 shewen me by Mr. Jos. Andrews in Walter Belchamp Parish Essex on a little Hillock in the corner of a ploughed field adjoining from the way leading from Goldingham Hall by the Lime-kiln towards Gastingthorpe . . .'

This specimen has caused some controversy, and a note appearing in the *Journal of Botany* by P.M. Hall (1935) argued that this is *O. purpurea* not *O. militaris*. Hall quoted Dale as follows:

> 'Dale's words "The label resembles that figured by Dr. Dillen. Tab. 19 f.2 Raii Synop. iii, 379" are conclusive; this figure is certainly of O. purpurea Huds'

Hall went on to say that Dillenius's description related to a collection by a Mr J. Shepard, commonly quoted as the first British record of *O. purpurea*. However, Hall was quoting out of context. Dale stated that his plant resembled that of Dillenius and he went on to list the differences thus:

> 'only the arms or side-segments are narrower and the body longer. The armes thighs and spur behind are purple the body slender and paler, but spingled with deeper spots. The hood is large, projecting forward, consisting of 3 pale leaves or segments edged and striped faintly with a deeper colour above but spotted as the body underneath.'

I think this is a fair description of how *O. militaris* differs from *O. purpurea*. As for Hall's assumption that this is the same as Shepard's plant, I repeat from Dale's letter to Andrews:

> 'If Mr. Shepards plant is rightly figured it cannot be that of yours, the body being too short as are likewise the Arms which are also too broad'

Both Andrews' and Dale's specimens have been confirmed by Jeffrey Wood and Phillip Cribb at Kew to be *O. militaris*. After all this has been said, Dale's specimen is not a good match of the contemporary plants growing in Suffolk. The 'body' is too short and the 'limbs' a little broad. However, the consensus of opinion at Kew is that this specimen is *O. militaris* and not *O. purpurea*.

It is interesting to note that seventeen years after his initial find Andrews reported:

> 'The place where I found this Orchis is ploughed up & sowen with Oats this 9th of May, 1746 so I fear it is lost.'

Sheet 32

Early-purple Orchid – *Orchis mascula*

> 'I gathered it on a Bogg in meadow Bulmer, Essex. 17 May 1749. Could observe no spots on the labellum.'

This species is still widespread in East Anglia.

Fragrant Orchid – *Gymnadenia conopsea*

> 'Boggs at foot of Link hills, Maplested. 14 June 1744' [Essex]

Rare in Suffolk and only one contemporary record for Essex.

Sheet 33

Frog Orchid – *Coeloglossum viride*

> 'I found this June 1744 with a yellow, a green & an iron-coloured flower. In the Bushy Pastures . . . Ballingdon & Rayner's Grove, Otten Belchamp.' [Essex]
>
> 'On the broad green of a field by Brook hall foxearth that goes down to the Brook.'

The frog orchid is now very scarce in East Anglia.

Bird's-nest Orchid – *Neottia nidus-avis*

> 'Kings Wood, Sudbury. 8 May 1728' [Suffolk]

In 1743 Andrews adds a note to the effect that he has searched for this plant over the past few years but been unable to find it. Now a rare species in Suffolk and becoming rarer.

Small-white Orchid – *Pseudorchis albida*

This specimen of unknown origin does not bear one of Andrew's labels, but is annotated in Hemstead's hand *Satyrium albidum*. Nowadays this orchid only grows in the north-west of Scotland, the New Forest, parts of Wales, the Isle of Man and Ireland. It was described as being found in 1871 by J.J. Woods, Esq., near Nutley in East Sussex, so maybe the specimen in Andrew's herbarium is from Southern England.

Sheet 34

Musk Orchid – *Herminium monorchis*

> 'Ballingdon kiln-yard 15 June 1739' [Essex]

Probably extinct in Suffolk for more than 170 years, and only recorded the once in Essex in 1805.

Man Orchid – *Aceras anthropophorum*

'Gallow hill, Gravell pitt, 25 May 1744'

Now very rare in Essex and Suffolk.

Common Twayblade – *Listera ovata*

'I gathered it in a boggy pasture behind the last house on the left hand the road from Milford, before turn down the road to Lavenham. 27 May 1748' [Suffolk]

Still plentiful in Essex and Suffolk.

Autumn Lady's-tresses – *Spiranthes spirilis*

'Conard Heath and Conard Mere & on Armsey in Bulmer' [Suffolk/Essex]

Today known only from a single site in Suffolk, rare in Essex.

Bog Orchid – *Hammarbya paludosa*

This specimen of unknown origin is another that does not bear one of Andrew's labels, it is annotated in Hemstead's hand *Ophrys paludosa*. Although scattered throughout the British Isles this rare plant is only to be found in any numbers in Scotland and the New Forest. This orchid has been extinct in Suffolk for at least 100 years and has not been recorded from Essex.

Sheet 35

Bee Orchid – *Ophrys apifera*

'Middleton hall Brick-kiln yard or pasture, 17 June 1745' [Essex]

Still locally common.

Early-spider Orchid – *Ophrys sphegodes*

'Gallow hill Gravel Pitt plentifully. 3 May 1745'

Not recorded in Suffolk or Essex for the past 200 years

Fly Orchid – Ophyrs insectifera

'Acton Lane. 25 May 1744' [Suffolk]

A species in sharp decline in Suffolk due mainly to habitat loss.

Sheet 36

? **Greater/Lesser Butterfly-orchid** – *Platanthera chlorantha* or *P. bifolia*

'Bogs at the foot of the Link hills, Maplestead. 27 May 1746' [Essex]

This is a much larger and sturdier plant than that on sheet 29, however size is not always a reliable way to distinguish the two butterfly-orchids. The habitat is suggestive of the lesser butterfly-orchid but as there are no visible pollinia on the specimen its determination remains questionable.

Common Twayblade – *Listera ovata*

'from Brickkiln yard, Conard, May 13, 1748' [Suffolk]

Still plentiful in Essex and Suffolk.

Broad-leaved Helleborine – *Epipactis helleborine*

'Goldingham Hall Wood. August 1755 . . .' [Essex]

Uncommon throughout East Anglia.

Marsh Helleborine – *Epipactis palustris*

'Woodhall between Acton Lane and the Hall. 7 July 1746' [Suffolk]

Uncommon throughout East Anglia.

Sheet 38 (there are two sheet 38s)

Marsh Helleborine – *Epipactis palustris*

'Boggs at the foot of Link hills, Mapplestead. 12 August 1748' [Essex]

'Lungley's farm near the paper mills, 18 July 1746' [Suffolk]

'Goldingham Hall Wood. August 1729' [Essex]

In total there are 23 orchid species to be found in the Andrew's herbarium of which the Bog Orchid, Burnt Orchid and Small-white Orchid are of uncertain origin, but it is possible that these also came from Suffolk and Essex because the other Andrew's collections are very localised and as Hemstead was himself a local man. Of the localities given by Andrews, all fall within a five mile radius of Sudbury. Today, of Andrew's 23 species, seven can be considered locally common, nine are rare and seven are extinct in Suffolk and Essex. It would be remarkable for a modern-day botanist to record

more than seven species within a five mile radius of Sudbury, and this would be with much good fortune and searching.

Acknowledgements:

Many thanks to Jeffrey Wood and Phillip Cribb for helping to identify this material. Thanks also to Mrs Mary Briggs of the BSBI for bringing the *Orchis militaris* problem to our attention, and to the Natural History Museum for allowing us to borrow and photograph their specimens.

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FLY ORCHID ABERRATION? ANOTHER RECORD

The fly orchid aberration/speciation question (cf. Roberts, R.H. *BSBI News* **74**: 24 and Hoare, A.G. *ibid.* **75**: 26-27) has stimulated me to add a further record. The Old Burghclere lime quarry in North Hampshire is managed by the Hampshire and Isle of Wight Wildlife Trust so that invasive scrub is controlled and casual visitors discouraged. The site has been locally famous for colonies of fly orchid (*Ophrys insectifera*) since 1940 when quarrying ceased and it reverted to nature. The site comprises typical chalk grassland flora including the hard-to-see adder's-tongue (*Ophioglossum vulgatum*) and common chalk grassland orchids, *Listera ovata* (Twayblade), *Cephalanthera damasonium* (White Helleborine) (in shade), and *Dactylorhiza fuchsii* (Common Spotted-orchid).

In May 1995 I noticed a slightly larger form, so I thought, of *O. insectifera* with a broader and yellow-bordered labellum and a yellow gynostegium, although the tiny antenna-like petals were dark brown/purple with yellow tips (illustration). I photographed it but was unable to identify it beyond being an aberration of *O. insectifera*. With the publication of Delforge's book later in the year I was tentatively able to identify the 'aberrant form' as *O. aymoninii* (Breistr.) Butler, although Delforge's description that separates *aymoninii* [from *insectifera*] rests on the yellow gynostegium [brownish green] and green petals [blackish].

In late May this year I visited the site. I could not, unfortunately locate the same plant since scrub clearance had removed some vital landmarks and rabbit grazing had removed spikes from about 20% of the plants. I did observe, however, that certain *O. insectifera* orchids appeared to have hybridised with the suggested *O. aymoninii* resulting in inflorescences with pale-bordered labella; the gynostegium and labellum morphology remained true to *O. insectifera*.

This now begs the questions: due to its broader labellum, the colours of its petals and gynostegium does it belong to *O. aymoninii* or is it an aberration of that species?! Does this former subspecies of *O. insectifera* belong to the British flora? How long has it been in this country? How is there such a paucity of records between our southern counties and the French Massif Central?

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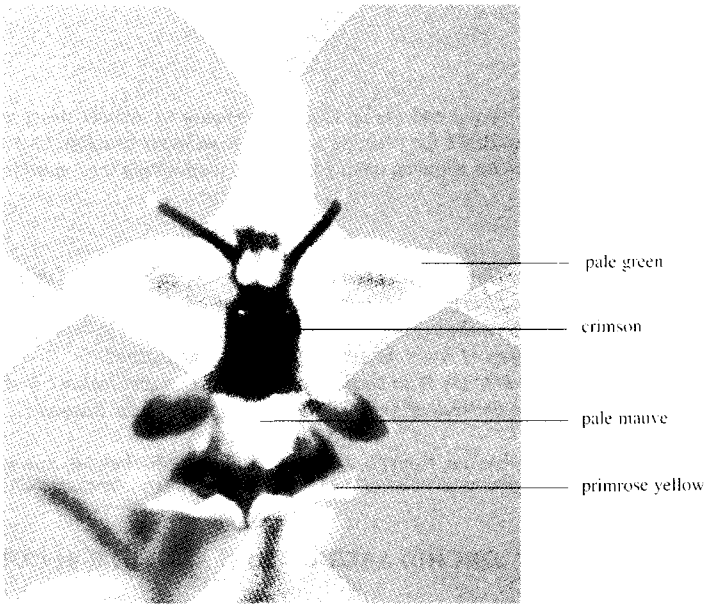

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ATLAS 2000 AND A PROBLEM WITH PURPLE FLOWERED COMFREY

Like many others, I became involved with the *Symphytum* Survey organised by Dr Franklyn Perring in 1968-70, the purpose of which was to determine the distribution of the taxa in the *Symphytum officinale* L. complex.

In May 1970 I felt sure that I had found purple flowered *S. officinale* in S.E. Yorkshire (v.c. 61) at Woodhall, SE/695.320. This plant was one of a uniform population growing by an arable field, the soil being somewhat sandy. However, this record was not accepted as *S. officinale* because the purple flowered form should have reddish buds and in this plant they were deep purple. In 1974 a plant was sent to Dr Perring to grow on. The verdict at that time was that it was the hybrid Russian Comfrey, *S.* × *uplandicum*, probably with 2n=36, though that taxon should not show petiole decurrency to the extent present.

In 1975 a chromosome count of the Woodhall plant was made for me by Dr G.E. Marks of the John Innes Institute and the figure obtained was 2n=48, thus confirming my determination of *S. officinale*. This record eventually appeared in *The Flora of the East Riding of Yorkshire*, (F.E. Crackles, 1990) where it is given as found by myself and determined by F.H. Perring – a somewhat inaccurate attribution.

Members may wonder why this matter is being raised so many years after the original finding. The work for Atlas 2000 has brought the subject very much back to mind and the population at Woodhall is still there. Much work on the complex was undertaken by the Dutch botanists Th.W.J. Gadella and E. Kliphuis and together with F.H. Perring they also looked at some British populations. A relatively

recent statement of the accepted position is given by Perring (1994) in which the purple flowered Comfreys are:

S. officinale, 2n=48, with red buds opening to purple flowers

S. × *uplandicum*, 2n=36, with deep purple buds opening to a colour ranging from purple violet to violet blue.

A frequent form of *S.* × *uplandicum*, 2n=40, with pink buds opening blue and the cream coloured forms of *S. officinale*, 2n=24 and 2n=48 do not pose a problem here, nor does purple flowered *S. officinale*, 2n=40 since it is stated to occur only in Holland. Assuming Dr Marks determination is correct, and I am not in a position to doubt it, how is one to determine the Woodhall type in the field if petiole decurrency is thought to be insufficient? This petiole or leaf decurrency is in fact quite difficult to assess overall since it is less pronounced the further one goes down the stem. Stace (1991) states that the nutlets of *S. officinale* are shiny compared with dull and minutely tuberculate in the case of the hybrid.

To check this point at Woodhall, I returned this summer (1997) only to find most ovules were turning black and not developing. A local man suggested this was due to crop spraying, but I have found very few developing ovules on similar populations where spraying seemed very unlikely. The nutlets that did form are shiny though possibly very minutely punctate. This it could be argued supports hybridity.

It may seem unwise to base an argument on one chromosome count from one population of plants. However, it seems to me that in recording for Atlas 2000 there will be a tendency to record any purple flowered comfrey without reddish buds (if indeed the bud colour is noted) as the hybrid.

Finally it may be of interest to note that according to a local farmer, the plants at Woodhall have been known for several decades and were believed to have come in with manure brought up the Humber from Hull. Did the seed get to Hull from Holland, I wonder?

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SALTMARSH SPECIES AT INLAND COLLIERY SITES

I was interested in reading Ian K. Morgan's note on this subject. I have already (Primavesi 1991) contributed a note concerning the presence of *Lepidium latifolium* (Dittander) in the Leicestershire coal fields, but at that time I had no idea of a possible explanation of its presence there. It occurs in considerable quantity, and in the survey for the *Flora of Leicestershire* it was recorded from no less than 18 tetrads, on coal mine spoil heaps, roadside and railway verges, and various ruderal habitats. It is thoroughly established, and behaves like any truly constituent member of the vegetation. It is almost confined to the coal field area in the west of the county.

Since we know it to have been thoroughly established at the beginning of the Leicestershire flora survey in 1968, it must have arrived in these localities some considerable time before that. Its status in the future may be somewhat problematical, if it really does depend on the chemical composition of coal mine spoil. Most of the West Leicestershire coal mines have now ceased working and are

abandoned, so that fresh material from underground will no longer accumulate, and the spoil heaps will almost certainly be modified for other uses.

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SALTMARSH SPECIES AT INLAND COLLIERY SPOIL SITES

I was interested in Ian Morgan's observations on saltmarsh species on colliery spoil in *BSBI News* **75**. The references in *Restoration and Revegetation of Colliery Spoil Tips and Lagoons* to salinity in colliery spoil indicated that the spoil heaps of Eastern England were the most saline and those of South Wales much less so. This is certainly generally the case and I well remember *Aster tripolium* (Sea Aster) being a coloniser of field trials on fresh colliery spoil in 1975 at Thorne colliery when some of the non-salt tolerant sown species were having a job getting going! At the same time such species were not seen at similar field trials in Mid-Glamorgan where levels of salinity in fresh colliery spoil were orders of magnitude less than in the South Yorkshire spoils. As an author of the DoE publication I have to say that we had not considered that South Wales spoils would be colonised by salt marsh species on the basis of the salinity levels we had observed.

I wonder however if the clue is in Ian Morgan's reference to settling lagoons. Here, levels of salinity would be higher, particularly at the edges, due to water from coal washing continually entering the lagoon and then evaporating. Salinity may also be increased in washery water because of chemicals added during the coal washing process.

Colliery spoil is not noted for supporting many unusual plant species so it is good to hear of Ian's records. Has anyone else got any notable plant records on colliery spoil?

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SUBSPECIES OF *VICIA SATIVA* (COMMON VETCH)

In my attempts to record *V. sativa* subspecies I have found many plants which are isophyllous with more or less concolorous flowers. Many of them are small and slender. They are usually in grassy or rough places or field borders. I suspect that they are subsp. *segetalis* which should be robust with bicolorous flowers. At present I am recording them as *V. sativa* s.l. Have other observers experienced this difficulty?

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BIOMANIPULATION

In response to the editor's query in *BSBI News* **75**: 35, members may be interested in the following explanation of 'biomanipulation'.

It means manipulating an ecosystem by biological means. It is most commonly used in lakes which have no plant life because the water is too turbid (murky). Zooplankton-eating fish are removed so you get more zooplankton, so you get less phytoplankton (algae – the cause of the turbidity), so you get clear water, so aquatic plants can re-establish. The important thing about this technique is that (providing certain conditions are met, such as not having too great a phosphorous input) the new clear water state is stable.

So not painful at all!

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LONGEST NETTLE CONTEST (DORSET)

I was recently sent an article from the *Bridport News* on the Marshwood (Dorset) Longest Nettle Contest. Part of it reads as follows:

> 'He (Alex Williams) arrived with a nettle that was 15 ft 6 ins long, & said that if anyone beat him, he would eat it. Amazingly someone turned up with a 16ft (4.8 m) nettle, so Alex carried out his promise. Now every year if his nettle is not the biggest, he eats the winner.' [Presumably the winning nettle, rather than the winning competitor.]

I am just over 6ft and nettles often sting my forehead. Most Floras give the height ranges as 2-4 ft, or 1-5 ft. Stace gives the maximum at 1.5 m (5 ft) but CTM allowed an exceptional maximum of 2.5 m (8ft 4ins). Whenever I comment on 8 to 9 ft nettles, fellow botanists say '. . . its the reduced light' (woodland), or 'competitive growth' (ditches) or 'ideal growing conditions' (riversides) or 'overenrichment with nitrates' (farmland).

Autumn 1997 might be a good season for long nettles. So far my confirmed Wiltshire record is a mere 3.4 m (11ft 4ins). It seems that Alex Williams and his Dorset drinking companions have shown more resolution than amateur and professional botanists elsewhere in Europe. It would be good to have reliable records of extreme nettle heights, and those of other tall herbaceous native plants such as bracken or rose-bay willowherb, as we have for trees. After all, we in the BSBI are not committed to eating non-winning specimens!

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DROUGHT ADAPTATION IN NETTLES

Unaccustomedly prolonged dry spells for the years 1992-97 in the Kennet Valley, have caused the ground to crack with wilting of herbs, grasses and trees. In the nitrate and phosphate enriched soil, the monopolistic behaviour (Crawley 1989; Grime *et al.* 1989) of the Common Nettle (*Urtica dioica*) seems to prevent the natural regeneration of trees and shrubs by seed, and imperils the survival of planted specimens. The nettle's armoury includes shading out by dense vertical growth in summer, commonly 1-2 m (higher than given in the Floras), and rapid colonisation by the pink, cream, white or pale green stolons in spring, autumn and winter. However the failure of at least 98% of oak, elder and hawthorn seedlings and saplings seems to be due to water starvation rather than etiolation. They shrivel!

Wheeler (1995) sampled nettle rhizomes under 1 sq. metre of riverbank to find a total length of 63.41 m! I have also found extensive rhizome networks under nettle plants on chalk, flints, gravel and peat. These rhizomes are always yellow, tough and extensively branched. From any one vertical clump of stems, the main rhizomes can extend 2 m in any direction, but more commonly 30-90 cm. They intertwine with adjacent colonies and often clamp stones or go through holes sometimes found in the larger flints. The diameters of the primary rhizomes vary from 3-20 mm, usually about 5 mm, and are irregularly knotted. A 3-dimensional network is formed which can be 35 cm deep. As the nettle-bed

enlarges, established grasses such as Meadow Foxtail (*Alopecurus pratensis*), Cocksfoot (*Dactylis glomerata*) and Tufted Hair-grass (*Deschampsia cespitosa*) die, although Couch (*Elytrigia repens*) tends to survive on account of its rapid tall vertical growth and rapid stoloniferous spread.

The weedkillers Diquat and Paraquat are not transmitted along nettle rhizomes, and therefore only kill the vertical stems, surface stolons and immediately underlying roots. Glyphosate is carried along the rhizome network to unsprayed parts of the same clump, although not very far along stolons beyond nodes with well-rooted plantlets. Distal parts of a nettle-bed can sometimes wilt in dry conditions when a main rhizome is broken, even when the distal clumps are well-rooted and firmly established. This implies that all the tall photosynthesising parts of a summer nettle-bed on very dry ground can continue to thrive and colonise if served by a rhizome network tapping a single water source 3-4 m away from most parts of the surface nettle-bed. Alternatively in a single season, a vigorous clump of vertical stems might be taking most of the water from 2 × 2 × 0.35, or 1.4 cubic metres of ground. This is about twice the volume of ground used by the roots of a 2 or 3 year-old healthy tree.

The common nettle colonises by seeding and by rapid growth of stolons and rhizomes, ultimately fuelled from densely leafy tall summer stems. Stolons can develop into rhizomes in the next season. The combination of late frosts and drought in Spring 1997 delayed **vertical** growth above the rhizome networks. Nutrients from the rhizomes kept the **horizontal** stolons spreading, despite frost-blackening of the ends of taller and more exposed stems, but the latter elongated to overtake the grasses again in late May and June following rains. It would seem to be the rhizome networks which enable colonies to thrive and spread in fields, by roads, tracks and buildings, and from dumps, ditches and hedges during the dry spells.

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BOTANY AND BOTANISTS IN LITERATURE – 7

The 'artisan botanists' of north-west England provide a fascinating chapter in the story of nineteenth century natural history. Elizabeth Gaskell, living in Manchester and married to a clergyman who had many contacts with the working class probably met at least some of those hardworking naturalists; at any rate, she gives a striking portrait of such a man in her early, tragic novel *Mary Barton*

> 'There is a class of men in Manchester, unknown even to many inhabitants, and whose existence will probably be doubted by many, who may yet claim kindred with all the noble names that science recognises. I said "in Manchester" but they are scattered all over the manufacturing districts of Lancashire . . . the more popularly interesting branches of natural history have their warm and devoted followers among this class. There are botanists among them, equally familiar with either the Linnean or the Natural system, who know the name and habitat of every plant within a day's walk from their dwellings; who steal the holiday of a day or two when any particular plant should be in flower, and tying up their simple food in their pocket handkerchiefs set off with single purpose to fetch home the humble-looking weed . . . Margaret's grandfather was one of these. He was a little wiry-looking old man, who moved with a jerky motion, as if his limbs were worked by a string like a child's toy, with dun-coloured hair lying thin and soft at the back and sides of his head; his forehead was so

large it seemed to overbalance the rest of his face, which had, indeed, lost its natural contour by the absence of all the teeth. The eyes absolutely glowed with intelligence . . .'

In her last and greatest novel *Wives and Daughters*, Mrs Gaskell presents a naturalist from a different class of society. Roger Osborne, son of a local squire, becomes in the course of this long (alas, unfinished) story a well-known natural scientist, who goes, as Darwin did, on a long and adventurous overseas expedition to explore the living world far from British shores. Before this happens, we meet Roger walking in his father's grounds:

'. . . he spied out one which was rare, one which he had been long wishing to find in flower, and saw it at last with those bright keen eyes of his. Down went his net, skilfully twisted so as to retain its contents while it lay amid the herbage, and he himself went with light and well-planted footsteps in search of the treasure. He was so great a lover of nature that, without any thought, but habitually, he always avoided treading unnecessarily on any plant; who knew what long-sought growth or insect might develop itself in that which now appeared but insignificant?'

Roger, and his family and friends, existed in a social class where an awareness of wild plants and their names was part of belonging to polite society. Here is the local doctor paying a professional visit to local aristocracy:

'He saw his patient, gave his directions to the housekeepers, and then went out, with a rare wild-flower in his hand, to find one of the ladies Tranmere in the garden . . . 'I was calling to see Nanny, and I took the opportunity of bringing Lady Agnes the plant I was telling her about as growing on Cumnor Moss.'

'Thank you so much, Mr. Gibson. Mamma, look! This is the *Drosera rotundifolia* I have been wanting so long.'

'Ah! yes; very pretty I dare say, only I am no botanist. Nanny is better, I hope?'

Here we are in a very different milieu than that of the artisan botanists; Elizabeth Gaskell was familiar with both.

I am indebted to Antony Galton of Exeter for drawing my attention to the botanical matters in *Wives and Daughters*.

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BOTANY AND BOTANISTS IN LITERATURE – 8

As long ago as 1979 David Allen drew attention to the fact that the Canon T. Butler listed by D.H. Kent (1957) in *British herbaria* was the son of the much better known Dr Samuel Butler (1774-1839), Headmaster of Shrewsbury School, and father of the even better known Samuel Butler (1835-1902), novelist, poet, painter, iconoclast and satirist; he was 'thus the model of the appalling Theobald Pontifex in that masterpiece of autobiographical fiction, *The way of all flesh*', published in 1903 after the author's death. A fuller entry for Thomas Butler (1806-1886) therefore appears in Kent & Allen's (1984) revision of Kent's book, and I have myself provided further information about him in *Ecological flora of the Shropshire region* (Sinker *et al.* 1985, 1991, pp. 25-26).

Samuel Butler claimed to have little respect for his father's botanical activities. In a note headed 'My father and science', written in 1884, revised in 1897 but not published until 30 years after his death (Bartholomew 1932, quoted by Allen 1981), he denied any connection between Thomas Butler's interest in botany and his own in evolution. 'My father,' he wrote, 'knows the names of a good many plants, and if you give him a plant he does not know, he can worry out its name from one or other of the many botanical works of reference. And he can cut the *ligulae* to tie the plant down to the blotting-paper; and he can make the gum; and he can strap the plant down with consummate neatness, and write its name under it, and say where it comes from. All this he can do, and does exceedingly well,

and he likes the job because it gives him something to do; but with this his botany begins and ends, and his love of science generally begins and ends with his botany.'

Another of Butler's notes, written in 1882, appears in Henry Festing Jones's (1919) memoir of his life

'My Father's Woodsias

> When I was a boy we used to get Woodsia on Snowdon and Glyder Fawr. There were four plants left on Glyder still when I was young, and William Williams swore that there were none others. My father would get a plant, take it home, and put it in the greenhouse. Of course it died; but his other ferns were kept in the greenhouse, so this must be kept there too. I had a plant which I found in a hitherto unsuspected place where there were many plants. I brought its own stones and its own earth, enough to fill a pot; knowing that the Woodsia likes growing where water can flow on it in heavy wet weather from some swollen rill, I made a little syphon, and occasionally let the water run on to it for two or three hours as from a miniature waterfall. My Woodsia lived for years. I remonstrated with my father about keeping this high mountain fern all the summer in the greenhouse; but it was no use. Years afterwards, I brought him some very fine Woodsias from Canton Ticino; and I brought their own stones and earth, and planted them where they would occasionally be dripped on by water from a gutter; but it was no use. Next time I went to Shrewsbury there they were in the hot bed with the other ferns. This is my father all over.'

H.F. Jones adds a footnote saying that William Williams was a servant of the family and spoken of as 'William Williams, the Butlers' butler'; but it seems much more likely that Butler was referring to the famous Snowdon guide of that name (1805-1861), described by Newman (1854) as 'but too well acquainted with the Snowdonian stations of both the Woodsias' and 'subject to such constant solicitations from botanical tourists to be conducted to the localities, that the utter extermination of these ferns from all accessible places is not only certain, but also imminent' (see Jones 1996, pp. 147-153).

We learn that Theobald Pontifex, the father portrayed in *The way of all flesh*, owned a *hortus siccus* (Allen 1979), but botany does not figure largely in that work. However, one of a series of jottings headed 'Addenda for the Pontifex novel', reproduced as part of Appendix D of Jones's memoir, reads 'My father's Woodsias', suggesting that Samuel Butler at one time intended to work this story into the plot.

Perhaps because of his experience of his father's botanical activities, Butler was scornful of botanists in general, as the following item shows. This comes from material for a projected sequel to his travel book *Alps and sanctuaries* (1881) which was published in *The note-books of Samuel Butler* (Jones 1912).

'Introduction of Foreign Plants

> I have brought back this year some mountain auriculas and the seed of some salvia and Fusio tiger-lily, and mean to plant the auriculas and to sow the seeds in Epping Forest and elsewhere round about London. I wish people would more generally bring back the seeds of pleasing foreign plants and introduce them broadcast, sowing them by our waysides and in our fields, or in whatever situation is most likely to suit them. It is true, this would puzzle botanists, but there is no reason why botanists should not be puzzled. A botanist is a person whose aim is to uproot, kill and exterminate every plant that is at all remarkable for rarity or any special virtue, and the rarer it is the more bitterly he will hunt it down.'

Another of the addenda for *The way of all flesh* is 'The rarer virtues to be treated as botanists treat rare plants and exterminated.'

Thomas Butler's wife's great niece, Martha (Mrs R.S.) Garnett, presents, in her book *Samuel Butler and his family relations* (1926), a more sympathetic picture of 'Canon Butler'. She quotes an obituary notice which said that for the last 10 years of his life he was 'occupied in making the Shrewsbury herbarium one of the finest collections in the kingdom', mounting 'with his own hands' and naming 'about 65 volumes of plants, each containing 40 to 50 specimens'. To refute 'the idea that there was in Canon Butler anything of that insensibility to his wife's affection and that sluggish coldness of heart which is the most displeasing feature of Theobald Pontifex', she cites the lines of

verse, 'sometimes tender, sometimes amusing doggerel', which he scribbled on slips of paper accompanying flowers given to his wife every day during illnesses in the springs of 1836 and 1839. Examples are: 'Here's a China primrose / As a balm for your woes.' and 'There's no rhyme to Polyanthus / So I must manage as I can, thus: / Will my wife accept a posy / For her pretty little nosey?' and 'Here I send you violets blue / In token that my love is true, / How I wish the scent they make / Could relieve the blister's ache.' and 'In the cold, the garden round, / I have wandered till I found / Double primroses to prove / Double portion of my love.' and 'I, in the innermost / Part of my cranium, / Thought you might like / A scarlet geranium.' and 'Here's a yellow oxalis / For which I think I deserve a kiss. / 'Tis a sort of wood sorrel, / And means 'I hope we shall never quarrel.''

A story which may be new to Dewi Jones, whose book *The botanists and guides of Snowdonia* (1996) I have just reviewed for *Watsonia*, appears in Mrs Garnett's book. Canon Butler 'was with his grand-daughter in the Snowdon district, searching for a very rare fern, only known to exist there, and had just lighted on a specimen, when he was joined by a rival collector, who entered into conversation and began to enquire if the very rare so-and-so was not found in the neighbourhood. Canon Butler on his approach had seated himself upon the object of their quest, and carefully concealing it with his person, truthfully replied that he believed it was indeed to be found here and there. When the rival had moved off out of hearing, he and his grand-daughter carefully dug up a part of their specimen, he gleefully explaining that it was too rare for everyone to take, and that they did not know that other collectors would be as moderate as himself.'

Mrs Garnett seeks to show that Samuel Butler's aim in writing *The way of all flesh* was 'much wider than to draw a picture of his early years. He wanted to expose the whole generation and ideals of the age that had formed him.' Later she says: 'It was a system and an age that were the real subjects of his satire, and he pilloried them under the types . . . that were most familiar to him'. Perhaps Thomas Butler was as representative of the botanists of his day as he was of 'the whole tribe of foggy-minded fumbling parsons', and perhaps, for that, he deserves his son's strictures!

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A PADDLING DANDY

This wonderful photograph was unearthed by M.D. in the Natural History Museum. '*Pot. Drucei*' was written in pencil on the back. The identity of *Potamogeton drucei* puzzled British botanists from the time of its description in 1898 until 1939, when J.E. Dandy and G. Taylor pointed out that it was identical to *Potamogeton nodosus*, long known in central and southern Europe and elsewhere. Many BSBI members recognised the figure in the water as a youthful J.E. Dandy (1903-1976); the older gentleman was more puzzling but W.T. Stearn confidently identified him as H.W. Pugsley (1868-1947). When and where was the photo taken? It seemed more than likely that Dandy had collected a specimen of *P. nodosus* (a second photo in the same batch shows him grapnelling in the river, carrying a large vasculum over his shoulder). Interrogation of the BRC database revealed that only one of the dates when Dandy collected *P. nodosus* could be linked with Pugsley. On 7 September 1938 Dandy gathered it from the River Loddon above Whistley Bridge in the parish of St Nicholas Hurst, Berkshire. On the same day he collected *P. natans* from Southcot Ditch between Old River and R. Loddon, and from Copperbridge Brook, a branch of Old River. Pugsley gathered *P. natans* from a 'branch of R Loddon near Twyford' on the same date. Whistley Bridge is only 1.5 km south of Twyford. When Dandy came to record Pugsley's specimen in his card index (held at **BM**) he was unable to allocate it to a particular parish, and commented on the card 'cf. Dandy gatherings of same date'.

J.E. Dandy & H.W. Pugsley photo © Natural History Museum

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INCLUDE THEM ALL?

An important decision which has to be made by any writer of a Flora is which alien taxa should be included and which should not. It is also a very topical question. For example, the articles by John Killick *Aliens and Introductions in a VC 22 garden*, Michael Braithwaite *Recording Conifers and other alien trees for Atlas 2000* and Cameron Crook *A (very) provisional checklist of conifers in the British Isles* in the last *BSBI News* (No. 75, April 1997) touch on different aspects of this question.

Exactly the same problem, namely of which alien species to record, arises in Zimbabwe, although, naturally, many of the species involved are different to those in Britain. However, I believe that in both countries, in practice, the decisions which have to be taken are highly controversial and difficult to apply on a consistent basis.

Stace, in his *New Flora*, 1991, enormously expanded the possible range of taxa by including plants 'found in the wild', which may include (for example) **planted** ornamental trees. It seems to me that a logical extension would be to go one step further and **include all cultivated plants**, whether in gardens or in the wild. The object of such an approach would then be to answer the simple question of what actually grows in a certain area, regardless of how each plant got there. It must be emphasised that this approach would not solve the problem of determining the status of each particular plant in a particular place, but each species would at least be included in the Flora on one or other side of the traditional divide. Clearly, multiple (and possibly more complex) statuses would be required, as many species would be (for example) both planted and native.

The main objections which immediately spring to mind regarding this approach are:

(i) the fact that the species which would be included can be influenced (by planting);
(ii) the difficulty of access to people's gardens to see what is actually growing there;
(iii) the very large numbers of taxa involved (does anyone know how many taxa are planted in a vice-county?); and
(iv) the taxonomic difficulty of many cultivated plants.

Of these, I suspect that (ii) would be the major problem in practice.

Finally – has anyone attempted to do a full flora including **all** plants within a specific area? Do any Flora writers feel that this idea is worth pursuing?

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RUBUS IN THE NATURAL HISTORY MUSEUM

The great strength of the Natural History Museum's 'British Herbarium' in critical groups, to which Roy Vickery drew attention in *BSBI News* **75**, applies *a fortiori* to *Rubus*. The **BM** collection of that is by far the largest and richest in the British Isles. Moreover, it has recently been rendered much more easy to consult than hitherto. All but a small (and dull) hard core of the various previously separate and unmounted British *Rubus* herbaria have now been mounted and incorporated with the rest. As this rendered obsolete the 'quick reference' collection made up out of a few select sheets of each species arranged in alphabetical order, that has been done away with and a single integrated whole, arranged according to Kent's *List* and the Edees & Newton monograph, created instead. The giant task of bringing the determinations and nomenclature in this up to date, which Alan Newton gallantly took about halfway a few years back, has now been more or less completed. Finally, and for the non-specialist the greatest gain of all, under each species the sheets are all at last in vice-county order. Similarly grouped by vice-counties are the many folders of 'indet.' material and of known but innominate local forms, which together form a sizeable appendage to the main collection, taking up much of one whole bay.

With perhaps just a single exception every *Rubus* taxon on the present British list is now represented in **BM**, in most cases by specimens from several or even many localities and from at least the

majority of the vice-counties for which the species is on record. The collection also holds the holotypes or lectotypes of more of the British species than any other herbarium

A main reason for this strength is the Museum's acquisition over the years of the *Rubus* herbaria of so many of the past specialists in the group, most notably those of Rogers, Barton, Riddelsdell, E.F. Linton, Rilstone, Briggs and Wolley-Dod. The special *Flora of Herefordshire* collection put together by Ley and Purchas must run a good second in richness to Ley's main herbarium at Birmingham University. Just about every *Rubus* gathering ever distributed through the two exchange clubs must also be represented, in numerous cases many times over. Similarly, the historic 'Set of British *Rubi*' of the turn of the century is multiply present. The only conspicuous deficiency indeed is in W.C.R. Watson's many dubious entities, of which **CGE**, **K** and **SLBI** have a near-monopoly.

Geographically, the **BM** collection reigns supreme too. Its Ulster material, for instance, is far more extensive – surprisingly – than that at Belfast, its other Irish holdings scarcely less so than those at Dublin. While Scotland is only thinly covered, that is anything but true of many of the English and Welsh vice-counties, 2, 3, 11, 12, 14, 16-19, 23, 27, 33-36, 41, 46, 48, 49, 55, 57, 58 and 64 being particularly richly represented. One oddity, though, is the paucity of material from Hertfordshire and Middlesex: most London-based batologists have lived and primarily collected south of the Thames!

Given the ease with which vice-county records can now be extracted from this principal British Isles collection, it will henceforward be much harder to excuse the absence from a county or local Flora of a reasonably full coverage of this particular critical group.

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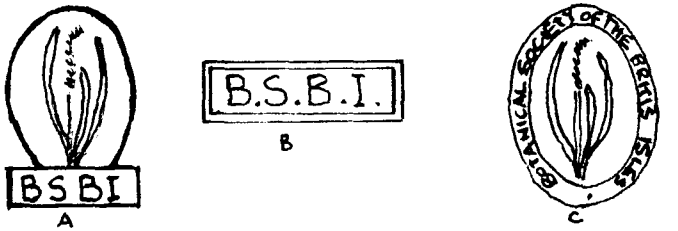
CAN YOU RECOGNISE A FELLOW MEMBER?

I recently attended a field meeting in north Shropshire, organised by Keele University. We all got on well together, though names were not exchanged and I had not met any of my fellow botanists before. The BSBI has a large and widespread membership and I am sure that a good percentage of us would not recognise a fellow member if we met one.

My point is that our Society has a very attractive and well thought out emblem that would make an ideal lapel badge. The idea of wearing badges is to advertise the group or society one belongs to and also to recognise fellow members. I put it to members and Council that a badge would not only advertise but, hopefully, help to increase membership.

Below are three ideas that could be suitable and I invite members comments.



Lapel badge designs del. M.J. Hill

I also invite Council to put the idea on its agenda for discussion if not implementation.

MICHAEL J. HILL, 42 Grounds Road, Sutton Coldfield, B74 4SE

A HERESY

I must confess to a politically incorrect belief which, if not quite amounting to 'The Sin Against The Holy Ghost', should be enough to get anyone drummed out of the Brownies.

I like motorways! And I like the new trunk roads and the associated by-passes.

This is not the place to extol their advantages to the motorist, though one must mention in passing the saving of time, the improved safety and diminution of stress, the ability to see the countryside without constant interruption by ribbon development, advertising hoardings and the like, and the prevention (at least for a while) of fume-ridden traffic gridlocks in towns and cities; what would Birmingham Maidstone or Exeter be like without them now, or Newbury in five years time?

From a Natural History point of view they have one outstanding advantage. They have wide verges, often very wide ones, that so far have largely escaped that cardinal British vice – the love of tidiness. For much of England they represent the only strips of ground where small wild plants and creatures can survive surrounded by square miles of barley prairie, oil-seed rape, alien conifer plantations and overgrazed leys. The Kestrel has become the 'motorway hawk' because motorways are often the only places where the wretched bird can find something to eat.

What is more, these strips constitute corridors along which populations can flow and spread, perhaps recolonising lost areas. To take examples from the Orchidaceae, the Bee Orchid (*Ophrys apifera*), Common Spotted-orchid (*Dactylorhiza fuchsii*) and Pyramidal Orchid (*Anacamptis pyramidalis*) from Twyford Down have now spread to much of the Winchester arterial road network. The M27 north of Portsmouth has substantial colonies of Southern Marsh-orchid (*Dactylorhiza praetermissa* and the improved A1 north of Berwick-on-Tweed many of the Northern Marsh-orchid (*D. purpurella*). The A38/A30 all the way from Exeter to Penzance has Southern Marsh and Early-purple Orchids (*O. mascula*) at frequent intervals and the western end has already provided a new site for the rare Cornish Spotted-orchid (*D. fuchsii* subsp. *cornubiensis* Bateman & Denholm). These are large obvious plants; who can say what scarce but less conspicuous ones remain unrecognised because of the difficulty of access?

Reverting to Twyford Down, it is ironic that the damage to an SSSI which was so much deplored and even fought over has, in effect, extended its boundaries. And the similar canyon made by the M40 through the Aston Rowant NNR (the focus of much less attention though larger and more important) has already acquired patches of calcicole vegetation on its cliff-like banks.

If only there were co-operation in principle and over arrangements for management between English Nature, Scottish Natural Heritage and the Countryside Council for Wales on the one hand and the Department of Transport and the local-authority Highways Departments on the other, these verges could become valuable *de facto* Reserves, protected by the fact that the general public and farm animals are usually denied access; they could, for example, provide ideal sites for the reintroduction of some of the orchids raised from seed at RBG Kew under the Sainsbury Orchid Project.

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WHY OH WHY!

Why don't planners in Highways departments incorporate lay-bys into motorways? If they had done so I wouldn't still be wondering if the pinky grey foam, growing down the central reservation of the M5 in Somerset, is really scurvygrass going over or something else. And that lovely clear pink flower I got a glimpse of as the car flashed past at 70 mph couldn't just have been red campion, could it?

Why do the smallest of plants grow in the most difficult situations? For instance, there was Mossy tillaea begging to have its portrait taken but, like the seeds of the Bible 'some fell on stony ground' and oh! how stony the ground becomes when one has to kneel upon it.

I was brought up on the maxim 'Always take the book to the plant', so why is it that the only time I do not have the book I unexpectedly find a plant I do not recognise? Having carefully collected one

leaf, one bloom, one bit of stem, etc., why do I always manage to leave behind the one bit of the plant's anatomy crucial to its correct identification? Come to think of it, when seed is the diagnostic feature, the plant will be in flower not in seed, and when basal leaves are required, then they will 'have withered at the time of flowering' which is when you have discovered the plant in the first place if you get my meaning. Why do some authors of some floras (?) state in their keys 'larger than, redder than, hairier than (or whatever the case may be) the previous species. It is more likely than not, that the previous species isn't around to be compared with your specimen.

If classical Latin did not form part of your educational background how do you know, without looking it up, which ending to use in specific names? For example, why is it *Alopecurus pratensis*, but *Phleum pratense*?

Is it old age, a blind spot or sheer botanical inaptitude, that whilst I can tell the differences between species, like the last two quoted, I cannot remember which species is which?

Finally, why is it that I am frequently unable to think of the English name of a plant but have no difficulty in bringing the Latin to mind? These are some of my whys, what is on your list?

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MADDER IN NORTHERN ENGLAND

Margaret Cannon (*BSBI News* **75**) asks for examples of madder flowering in Britain. I have grown madder in a small bed against a south-facing wall (and sheltered by a high wall a few metres to the south) within the Walled Garden at the University of York (SE/625.503) for the best part of a decade and it seems to flower most years (buds are opening as I write this on 19th June); indeed, we very often get berries, though I have not tested the viability of the seed. The shoots begin to appear very early in the late winter or early spring (they seem to be quite immune to late frosts) and the plant 'ramps' happily over a space of perhaps two square metres in gentle competition with *Urtica dioica* (Common Nettle), *Chelidonium majus* (Greater Celandine) and *Chenopodium bonus-henricus* (Good-King- Henry). The soil is poor and rather shallow, but the plants are always vigorous. I have also seen (and recorded on film) flowers on plants growing at the National Trust's garden at Acorn Bank near Penrith, Cumbria (NY/612.281), again in a sheltered walled garden.

Plants from the same original stock (grown from seed from a French botanic garden, I think) which were planted on an allotment barely 1 km away from the University site did not grow at all well and were lost within a few seasons; I don't recall them flowering.

Margaret Cannon is right to counsel against trying to reproduce Turkey Red with home-grown madder, though some very good brownish-reds and brick-reds can be obtained easily on wool (and the use of alum as a mordant will usually brighten and strengthen the colour achieved considerably). Expert craft dyers can produce as good a deep, bright red as one is likely to see without resorting to the extreme methods necessary to achieve Turkey Red, though my own efforts have always fallen well short of this!

Readers may be asking why we grow madder at the University. The stimulus was the discovery of fossil remains of the roots of this plant (and some other dyeplants) in Anglo-Scandinavian ('Viking Age') deposits at Coppergate in York during the early 1980s. Being wholly unfamiliar with the plant (though in appearance it is actually only a rather robust version of our native *Rubia peregrina* (Wild Madder)) we were keen to see it 'in the flesh'. Since then, we have been able to pass on plants to many others – the vigorous roots provide an endless supply of cuttings! And we have also extended the archaeological records of madder to include two other sites of Anglo-Scandinavian date in York (both close to Coppergate), 12th century Beverley, E. Yorkshire (from two adjacent sites), and 14th century York, whilst colleagues in Bristol identified material of 14th century date from a waterfront site at the same time we were recognising reddish patches at Coppergate as dyebath waste rich in madder root.

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USEFUL IDENTIFICATION AID

The Field Studies Council's range of visual, folded and laminated identification aids currently includes a glossary of terms used to describe flowering plants – *Describing flowers: a guide to the structure of flowers and their identification* by Anne and John Bebbington (*Field Studies Council Occasional Publication* **42**, 1996). Starting with the parts of a flower the authors, one of whom is a BSBI member, use drawings to present inflorescences, leaf shape and arrangement, and form of fruit. The illustrations are clearly laid-out to enable the diagrams to be easily matched with field specimens and, as Anne and John Bebbington work at the Juniper Hall Field Centre where they both have extensive experience of working with young people, the aid is especially useful for people developing an interest in botany. It would make an ideal gift for a new botanist of any age and can be obtained, price £1.95 (incl. p.& p.), from Field Studies Council Publishing Company Limited, Preston Montford, Shrewsbury, SY4 1HW; The Richmond Publishing Company, PO Box 963, Slough, SL2 3RS; or any Field Studies Council Field Centre.

Earlier fold-out aids like *Grasses identification chart* (1994), Occasional Publication **33**, and *Lichens and air pollution: an identification chart* (1995), Occasional Publication **34** are still available at the same price from the same sources.

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A SAD NOTE ABOUT THE ANCIENT YEW AT 'THE BULL', STREATLEY

In my note in *BSBI News* (**74**: 28) headed 'A very remarkable Yew tree at "The Bull", Streatley, Berkshire', I described a beautiful and venerable old Yew (*Taxus baccata*) located in the back garden of this public house – an old coaching Inn on the main road between Reading and Oxford. My daughter and I first discovered it on 2nd October last year and went back the following week to measure and photograph it. Thank goodness we did! It was a lucky chance that we had stopped there for lunch in the first place and an even luckier chance that we photographed the tree before the middle of October, 1996, because when we returned there on Tuesday, 1st April, 1997, for a sandwich lunch and a chat with the bar staff, we were horrified to see what had happened to the tree in the meantime. It had been subjected to the most ferocious tree surgery – all its lower branches had been removed, up to a height of about 1.5 m from the ground, leaving only two bare trunks supporting the remains of the dome-shaped crown with the blackboard still propped up in front telling the story of the nun and the monk whose bones were said to have been buried beneath this same tree in 1440.

The tree itself is quite unrecognisable – a skeletal shadow of its former self. After we had ordered our lunch we asked the barmaid when this devastating surgery had taken place and the reason for it. She told us that it had been done round about the middle of last October – just a week or two after we had photographed it – and she thought that the reason was that the garden staff had got tired of having to prune it all round so frequently to keep it from encroaching on the path in front and the lawn at the back and sides where the picnic tables are placed.

I cannot imagine that it will ever be able to regain its former beautiful dome shape right down to the ground even after several more centuries have passed, but I am thankful to have seen it in all its glory just weeks before the devastation took place. Was it fate that guided our steps that day? We only lunched at 'The Bull' because the car park at 'The Swan' in Pangbourne was full. Obviously a blessing in disguise, for which I shall always be grateful to the forces of destiny!

I find that the story of the nun and the monk '. . . here slain for misconduct' is firmly embedded in the folklore of the Streatley area, but whether there is any truth in it I have been quite unable to discover. Probably the date 1440 is too long ago for written records to have survived.

Yew tree at Streatly, before and after 'desecration', photos C. Hora © 1996 & 1997

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GARDEN WEEDS IN A V.C. 23 GARDEN

John Killick's note on his garden weeds in (historic) Berkshire (*BSBI News* **75**: 39-40) prompted me to survey those of my Oxfordshire garden, not much more than 20 miles away. They fall into two categories, those that seed themselves all over the place and those that spread aggressively out from the place where they have been planted.

The principal self-seeders are *Alchemilla mollis* (Lady's-mantle), which would reduce the garden to an alchemilletum if allowed to, *Allium christophii* (*albopilosum*) (a garlic), *Aquilegia* × *hybrida* (Columbine) *Galanthus nivalis* (Snowdrop), which almost qualifies for the second category too, *Geranium phaeum* (Dusky Crane's-bill), *Gladiolus communis* (Eastern Gladiolus), *Malva moschata* (Musk Mallow, white form), *Melissa officinalis* (Balm), *Myosotis sylvatica* (Wood Forget-me-not), *Nectaroscordum siculum* (Honey Garlic), *Scrophularia vernalis* (Yellow Figwort) and *Tulipa sprengeri* (a tulip). On a smaller scale I also have *Oxalis corniculata* var. *atropurpurea* (Yellow Oxalis) and *Saxifraga cymbalaria* (Celandine Saxifrage), *Digitalis grandiflora* (Yellow Foxglove) which has taken possession of the front steps, and on brickwork *Chiastophyllum oppositifolium* (Lamb's-tail), *Sorbus hupehensis* (Hupeh Rowan), the inevitable *Cotoneaster horizontalis* (Wall Cotoneaster) and various unidentified species of *Hebe* (Hedge Veronica).

The principal aggressive spreaders are *Alstroemeria* (Peruvian Lily) hybrids, a blue *Geranium*, probably 'Johnson's Blue', various species of *Sedum* especially a yellow one that appears to be *S. kamschaticum* (Kamchatka Stonecrop), *Symphytum grandiflorum* (very aptly named Creeping Comfrey) and the var. *oxyloba* of *Vinca major* (Greater Periwinkle), which is about to launch into battle with not only the *Alstroemeria* but also a so far unidentified *Mentha* (Mint). In addition there are long-standing patches of *Cotula squalida* (Leptinella) in the lawn and two patches, now almost under control, of *Cicerbita macrophylla* (Blue Sow-thistle). However, *Allium sphaerocephalon* (Round-headed Leek), which was locally established a few years ago now seems to have died out.

In addition I can count many invaders of the flower-beds from the surrounding woods, such as *Digitalis purpurea* (Foxglove), *Primula vulgaris* (Primrose), *Glechoma hederacea* (Ground-ivy), *Oxalis acetosella* (Wood-sorrel), *Mercurialis perennis* (Dog's Mercury), *Scrophularia nodosa* (Common Figwort), *Stachys sylvatica* (Hedge Woundwort) and the distinctly unusual (as a weed) *Luzula pilosa* (Hairy Woodrush).

A part of the lawn allowed to go wild has many wild grassland plants including *Dactylorhiza fuchsii* (Common Spotted-orchid), *Carex caryophyllea* (Spring Sedge), *Calluna vulgaris* (Heather) and at one time *Ophrys apifera* (Bee Orchid), together with one notable invader from the garden (where it now refuses to grow), *Gentiana asclepiadea* (Willow Gentian).

All this besides more normal weeds, such as *Anagallis arvensis* (Scarlet Pimpernel), *Calystegia sepium* (Hedge Bindweed), *Convolvulus arvensis* (Field Bindweed), *Chelidonium majus* (Greater Celandine), *Lapsana communis* (Nipplewort) and *Sonchus arvensis* (Corn Sow-thistle).

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OBSERVATIONS ON *PULSATILLA VULGARIS*

For some years I have grown *Pulsatilla* on a dry calcareous slope with low nutrient content. Originally I interplanted with Cowslips, *Primula veris*, but almost all the latter have since died, after seeding freely into the lawn around the *Pulsatilla* bed. Presumably toxins, such as alkaloids, which are present in *Pulsatilla* leaves, have killed the normally vigorous cowslip plants.

Pulsatilla seeds from packets germinate poorly or not at all for me. However, seed ripened on my plants, collected just before it falls, germinates freely, so I now have an extension of the colony in pavement cracks along an asphalt drive.

In Berkshire, colonies of wild *Pulsatilla* often lose their flowers. This is probably due to pheasants. On several occasions I have seen male pheasants peck off whole flowers just below the tepals, though they do not eat them. The motive for this defloration is a mystery.

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DON'T FORGET THE VASCULUM; AN OBJECT LESSON

Susan Delano McKelvey[1], in her account of the plant-hunting activities of Thomas Drummond in the early part of the last century, mentions 'an alarming encounter' with a Grisly Bear in North America. William Gardiner, in his splendidly discursive Forfar Flora[2] quotes from Drummond's own account of this adventure, which I think members of the Society should heed carefully since it demonstrates an important use for an article of equipment not often carried nowadays by botanists in the field. Drummond tells us that the bear approached him 'growling a horrible defiance'. He aimed his rifle – but his powder was damp. He was saved just in time by the arrival of other members of his party with the dogs. He says:

'For the future I took care to keep my gun in better order, but I found by future experience that the best method of getting rid of bears when attacked by them was to shake my vasculum, or specimen box, when they immediately decamp.'

This cannot have been good for any specimens already collected, and one wonders just how much noise shaking it would make, but it has to be a useful tip.

By the way, the indefatigable Drummond wasn't put off by the encounter. He did even better than that brave girl who 'got up and finished fifth'[3]; he still secured the Jungermannia which he'd glimpsed just before the Grisly appeared on the scene.

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PAIRS

An article in the last *BSBI News* mentioned trees growing closely together. In v.c. 62, N.E. Yorks., we have a SSSI near the town of Helmsley, which is described as a unique example of relict wood-pasture.

The oak trees are very ancient, and it would appear that at some time all the top branches were lost leaving a trunk of about 5 m high. New branches have grown and the trees are described as 'stag-headed' oaks. There are a few small-leaved limes (*Tilia cordata*) which have suffered the same fate.

One of the oaks appears to have two kinds of leaves but a single origin; the reason being that a large birch tree is growing out of the hollow trunk of the oak.

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FIELD RECORDING AT COUNTY LEVEL

I have recently become the co-ordinator of the SBI (Sites of Biological Importance) recording system in Cheshire, so I have been interested to read the papers on the reliability of field recording in *Watsonia* (Rich & Smith, Sept. 1996, and Rich & Woodruff, Aug. 1992), and more recently Alison Stewart (*BSBI News*, Jan. 1997).

Our system has been run by the Cheshire Wildlife Trust since the early 1980s when sites were first located and surveyed, sometimes very professionally, but often more cursorily just to find and note the existence of potentially valuable sites. These first sites were approved in 1986, and the current total is over 650. Many of the original sites have been upgraded from C to A or B with the greater expertise of our surveyors (we run frequent training days to help them) and, of course, some sites have been lost to development or the plough, etc.

Unlike the Atlas and Monitoring schemes, our surveys are site-specific though, obviously, species data could be transferred to relevant tetrads, and interesting information is passed to the BSBI County Recorder, Graeme Kay, in any case. Our site information is transferred to RECORDER, but we are only just beginning to store species data on this system. At present field data is still in a series of site folders.

The problems of reliability outlined by Rich *et al.* is very real for us, but when we aim to survey around 100 sites each year, we have to use all available volunteers. Repeatability really only arises when sites are resurveyed after, at most, 10 years. It often happens that some species seen earlier cannot be found again but, equally, a more expert survey may find many more species than before. There are many possible explanations for this, such as change in the habitat itself, different time of year, and different competence of the surveyors.

It would be interesting to try to examine these variations between surveys, but our aim is mainly to distinguish good sites and estimate their value, particularly as a planning tool for their protection in association with Cheshire County Council, the Borough Councils and English Nature. A really good semi-natural woodland with a number of ancient woodland indicator species in the ground flora will probably get an A grade anyway, so one species more or less will not be significant in this context, though obviously we aim for the best survey possible.

The SBI system has been used effectively in the planning process with developers regularly consulting the register before selecting development sites, except for the Manchester Airport extension where politics took precedence over conservation of a number of SBIs. However, for what it is worth, substantial mitigation was written into the decision.

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DIALECT PLANT-NAMES

The following continues from *BSBI News* **75** a list of names collected since 1992.

Hardheads – *Centaurea nigra*, Common Knapweed. Widespread, including Pimperne, Dorset, January 1992 and Cheltenham, Gloucestershire, November 1993.

Harris's bullets – *Galium aparine*, Cleavers, fruits: 'I have been told by a life-long resident that, as children, the burrs of goosegrass (cleavers) were always termed Harris's bullets' [Retford, Nottingham, October 1996]. Any comments or explanations would be much appreciated!

Hassocks – *Deschampsia cespitosa*, Tufted Hair-grass: 'I have never heard the official name used by anyone. "Tussock grass" in the south; "Hassocks" in Lincolnshire, and, I believe, elsewhere in the north.' [Newton, Powys, April 1997].

Hay maids – *Glechoma hederacea*, Ground-ivy [Cinderford, Gloucestershire, November 1993].

Headache flower – *Geranium robertianum*, Herb-Robert: Berkshire, 1920s and 30s [Neath Abbey, West Glamorgan, July 1996].

Hedge nut – *Corylus avellana*, Hazel: Cawsand, Cornwall, *c.*1930 [Callington, Cornwall, October 1996].

Hens-and-chickens – *Lotus corniculatus*, Common Bird's-foot-trefoil: [South Collingham, Nottinghamshire, January 1992].

Horse pennies – *Rhinanthus minor*, Yellow-rattle [Addington Moorside, West Yorkshire, May 1994].

Humack – *Rosa canina* agg., Dog-rose: West Somerset, between 1914 and 1939 [Breage, Cornwall, October 1993].

Hurts – *Vaccinium myrtillus*, Bilberry, fruits: 'called hurts – mother, when a girl picked them to make a pie'. [St Day, Cornwall, January 1996].

Thanks to W.L.L. Andrew, W.J. Antell, Kate Mason, Elsie Olivey, Edythe Pearce, Colin Small, F.W.P. Thorne, William R. Wooldridge, John Yiend and other correspondents for their contributions.

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A WISE INVESTMENT

Judy Dinwiddie's writing about J.G. Baker in *BSBI News* has reminded me of my husband's meetings with J.G. Baker's son, E.G. Baker shortly after the war. As I remember, E.G. Baker was then in his eighties and confided in Ted that he was uncertain what to do with his copy of Curtis's *Flora Londinensis* which had belonged to his father. EGB had no family to whom to bequeath it and he was afraid it would be sold abroad or cut up for the plates. He remarked 'If I knew someone who would give me £10 and look after it I would let it go'. Well £10 was worth a lot more in those days but we decided it was a treasure not to be missed. So Ted went over to Richmond and bought the *Flora*, the two volumes of which were so heavy that he had to get a taxi to get them back to Streatham!

After Ted's death in 1975 I had two offers for the Curtis, one of £1,000 and another of £1,400 neither of which I accepted. When I moved to my present very small bungalow in Lancaster I could not think where to keep the *Flora* and eventually, rather reluctantly, I contacted a bookseller to see about a possible sale, explaining that I did not want it to go out of the country. It was finally purchased by a botanist in the south of England for over £8,000. Ted was an investment expert in Barclays Bank and I reckon this must have been his very best BUY!

Another connection with E.G. Baker was that he gave Ted J.G.'s presentation copy of Darwin's *Origin of Species*, (author's writing on flyleaf). This was in March 1947.

EGB in his Will left the contents of his house to his housekeeper and my husband was able to help her with advice in disposing of various items. As a 'thank- you' she offered him some Baker ornaments – two lovely plates and a cake or fruit stand designed and worked by Hannah Baker, mother of J.G. One plate is of wild roses on a blue background, the other of red-backed shrikes on a branch with a border of autumn leaves and an insect crawling up. The stand (alas slightly damaged) is blue with a centre design of daffodils and a border of primroses (all pin-eyed!). This has the initials H.B. and date 1894 All these I greatly treasure.

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BLACK POPLAR IN THE *ANGLO-SAXON RUNIC POEM*

Years ago I noticed that the verse for the letter B in the *Anglo-Saxon Runic Poem* read in translation like a description of black poplar, although it was clearly headed *Beorc*, 'Birch'. Peter Horn's article (*BSBI News* 75: 28) led me to re-examine the original text and see what the words themselves say, rather than translators' attempts to make sense of them.

'Birch be without branch, lo! [it] beareth yet
shoots without children, is beautiful in boughs
high on helm fair adorned
laden with leaves near to sky.'

The word *bled*, which I translate 'branch', was rendered by Bruce Dickins as 'fruit'; it can mean a flower or almost any aerial part of a plant.

Like most Anglo-Saxon poetry, this verse is powerfully constrained by alliteration. This literary device is almost untranslatable – though, like the original, I have got four b-words into the first line – and makes it difficult for the versifier to convey meaning at the same time. The only vaguely poplarish feature, 'laden with leaves', is probably due mainly to the author's need to get three l-words into a line.

The *beorc* verse could thus be a description of birch or black poplar or virtually any big tree. The same goes for two of the other four tree-verses in the *Runic Poem*: Y-is-for-Yew and Æ-is-for-Ash fail to characterise those trees, although Th-is-for-Thorn and A-is-for-Oak do tell us a little about thorn and oak. (However, the verse X-is-for-Sedge gives a very convincing description of *Cladium mariscus*.)

Anglo-Saxon *beorc*, like the corresponding words in other Germanic languages, certainly meant birch. Some contemporary school textbooks used it to translate Latin *populus*, which confirms what I discovered at the age of six, that schoolteachers don't always know the differences between trees, and also tend to copy each other's mistakes.

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THE PENDENTIVES OF SAN MARCO

Instructive though it is, Gould & Lewontin's famous paper on the Spandrels of San Marco (cf. 'More on Teasel Water Traps', *BSBI News* 74: 26-27) contains two flaws. The authors first confused spandrels with pendentives. A spandrel is a flat triangle with one curved side between an arch and the moulding or frame that may enclose it (Fig. 1). A pendentive is the spherical triangle of masonry between a central dome, like that of San Marco in Venice, and two of the four arches on which it rests (Fig. 2).

The second flaw is the authors' assumption that a mosaic-decorated 'spandrel' (properly a pendentive) is not an architectural feature in its own right, but merely the consequence of marrying a round dome to a four-arched square base. However, as all students of Byzantine architecture know, the same effect can also be achieved by using squinches, small arches set diagonally across the corners of the square to reduce it to an octagon (Fig. 3). The architect of San Marco may well have chosen pendentives, rather than squinches, precisely because pendentives could more satisfactorily be decorated with mosaics.

Gould & Lewontin's example, thus extended, does not support their thesis that structures need not have a specific function. If it has any biological analogy at all, it should perhaps be taken as a warning not to be dogmatic about evolutionary explanations without having verified the data and considered alternative possibilities. If eminent scholars can so easily misinterpret the construction of San Marco, which is simple and comparatively recent, what hope is there of being right about evolutionary processes which took place much longer ago in environments much further removed from our own experience?

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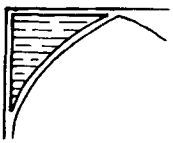

Fig. 1

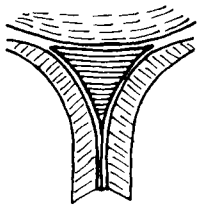

Fig. 2

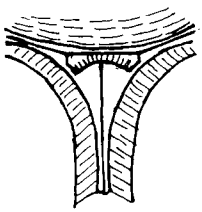

Fig. 3

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CONSERVATION NEWS

FLORA LOCALE: PUTTING WILD PLANTS BACK WHERE THEY BELONG

BSBI members may recall John Akeroyd's 1994 report *Seeds of destruction*, which highlighted the problem of non-native varieties of wild plants being scattered in the countryside to 'restore' native vegetation.

It is pleasing to report that this work is now being taken a step further through the *Flora locale* initiative, which is a collaborative project between Plantlife, the Institute of Ecology and Environmental Management and the Nature Conservation Bureau. Initial funding has been provided for the project by the World Wide Fund for Nature (UK) and English Nature.

Flora locale's principal aim is to protect indigenous wild plants and plant communities from introduced species and varieties.

Critics may feel that this is an impossible task in the UK, given the fact that our countryside has already been so 'mucked about', but the fact is that the risk to our flora is increasing daily, as more and more exotic material is imported and plonked into the countryside. The work of BSBI members in recording the presence of peculiar varieties of native species, and of introduced and established aliens is critically important in monitoring what is actually happening 'on the ground' and this role is likely to become increasingly important into the future.

Flora locale intends to work towards its 'mission' by:

- liaising with plant nurseries, conservation groups, horticultural trade associations and others to engage support for *Flora locale*
- developing an independent and voluntary source-certification scheme for native plants: this will be available to growers, suppliers, specifiers and organisations who carry out or supply plants for native revegetation schemes
- drafting a code of environmental practice for growers and specifiers
- developing regions of provenance guidance
- identifying existing technical guidance and helping to draft new guidance for growers and people who will be carrying out habitat creation/ecological restoration schemes
- developing links with growers, organisations, researchers and practitioners who are involved in cultivating wild plants and using them for habitat creation/ecological restoration schemes: establishing the *Flora locale* network
- encouraging local community groups, garden centres, seed houses and nurseries to grow and supply wildflowers, trees and shrubs that have been sourced from indigenous plant communities in the territories within which they will be planted
- encouraging public bodies to introduce policies that will require native-origin plants only to be used for ecological restoration and habitat creation schemes paid for with public (national and EU) funds
- establishing a series of focal points and demonstration sites for advice and guidance on best practice and prior experience
- compiling a database of research, practice and publications which can be used to service enquiries and promote good practice.

One of the key priorities is to develop an independent source-certification scheme for plants used in habitat creation. At the moment, we simply do not know which nurseries are supplying native material because of the lack of such a scheme and the failure of many suppliers to maintain good supply chain records. We also need to support and promote the work of groups wishing to establish supplies of local-origin seed and other plant material for habitat schemes in their area.

Although the work of *Flora locale* will be initially focused in Britain, links with other European partners are intended with a view to encouraging parallel and supporting actions in other European countries. The actions proposed are relevant to the protection of wild plant communities world-wide.

Why should we be concerned?

Threat to the genetic integrity of native plant species

No-one knows to what extent this is a problem for each wild species which grows in the UK. For some species we know that the gene-stock of some wild plant populations has been 'polluted' – bluebell is a good example of this, as demonstrated by observations made by BSBI members. Another example is provided by Professor

John Parker's work on *Scilla autumnalis* which identified the threat posed to an indigenous strain of this wild plant from another native and potentially invasive strain – indicating that it would be harmful to bulk up seed of the latter and introduce propagated plants into the vestigial territory of the former. Another recent study by Andrew Jones at Aberystwyth compared the performance of local-origin meadow plants with plants of British native-origin grown from seed supplied by a well know wild-plant nursery. The genetic 'origin' of the two samples was some 250 miles apart. The propagated material performed better, indicating potentially invasive qualities and a potential for eroding the local gene-stock.

But for the majority of wild plants, we simply do not have any information on 'in-species' variety and the distribution of distinctive genotypes. This means that the 'precautionary principle' should apply, i.e. that any material of the same species that is planted in the countryside should be of native gene-stock. It should also be preferably of local origin and originally sourced from a habitat type similar to the one which is being established – although the latter is currently an unattainable ideal, given the lack of local wild-plant nurseries. However, in some areas local initiatives are already developing. For instance in Orkney the Farming and Wildlife Advisory Group is encouraging local farmers to collect and propagate seeds of local wildflowers (until now the seed used has been imported from England or the Continent). The current initiative to restore Caledonian Pinewood is another example of a local scheme which would most certainly meet the criteria of *Flora locale*.

This leads on to questions about regions of provenance – if it is acceptable just to use native-origin material, what is the difference between using seeds of *Lotus corniculatus* from Scotland in southern England, to using seeds of the same species from north-west France? Scottish Natural Heritage has already taken the line that wildflower seed used in Scotland should be sourced from Scotland. *Flora locale* is currently drafting a position paper on regions of provenance for wildflowers and grasses. Contributions to this debate would be most welcome! (The Forest Authority is also currently producing a consultation document on regions of provenance for forest trees.)

Threats to native plant communities from potentially invasive species and varieties

Alien wildflowers and grasses are often present in imported grass seed mixes which are widely used for seeding road verges and habitat creation. BSBI members, through the pages of *BSBI News*, have already observed some of the weird and wonderful exotic plants (as well as red data species such as Pennyroyal, *Mentha pulegium*) which have suddenly appeared in newly seeded grassland. Because road verges and habitat schemes are not subject to intensive weedkillers (unlike agricultural leys), this gives an increased likelihood of aliens (originating from 'contaminated' grass seed) becoming established and becoming a long-term threat to the integrity of native plant communities. Unfortunately, many suppliers of native wildflowers have been deterred from propagating native grasses because of restrictive European Union regulations governing crop and grass seed. This means that the majority of grass seed used is of cultivated varieties, often grown in bulk in countries such as the United States and New Zealand. A specific recent case involved a habitat creation scheme in northern England where the landscape manager was asked by English Nature not to use Highland Bent, *Agrostis castellana* but Yorkshire Fog, *Holcus lanatus* instead. The resulting seed was imported from the USA. Incidentally, *Agrostis castellana*, an alien grass, has been a species commonly used in wildflower grassland creation schemes in the countryside as it is a popular and widely available grass for amenity uses.

Not achieving the desired result

Increasing amounts of public funds are being put into habitat creation in towns and in the countryside with the specific aim of trying to replace (at least in the long term) the native plant communities which have been wiped out over vast tracts of Britain. The danger is that many of the schemes will not end up resembling native plant communities, because exotic varieties of wildflowers and cultivated varieties of grasses have been used. Unfortunately there has been very little systematic long term research on such habitat creation schemes. However, the project has been made aware of a number of cases where introduced plant varieties exhibit greatly different appearances than native ones. 'Classic' variants include fodder varieties of *Lotus corniculatus*, *Anthyllis vulneraria* and *Sanguisorba minor*. The project also has in its possession a 1.5 m tall specimen of *Galium verum* (with woody stems) from a Derbyshire road verge.

There is evidence that some non-native varieties of wild plants are not as well adapted to local conditions (climate, soils, etc.) and in some cases may not survive. While there are some extreme examples of this, we know very little about what happens with many of the commonplace wildflowers which are sown in habitat creation schemes. There is likely to be considerable variation between and within species. Some limited data on certain trees and shrubs is available. For example, a paper on hawthorn, *Crataegus monogyna*, recently published in *Watsonia* (Jones, A.T. & Evans, P.R. in *Watsonia* **20**: 97-103, 1994), indicated that continental European material grew less well and was morphologically very distinct. This issue is particularly crucial to

foresters, as exemplified by the loss of 70,000 ha of maritime pine *Pinus pinaster* in Les Landes, south-west France, in 1985. A Portuguese strain which was not frost-tolerant had been planted instead of the local, frost-tolerant variety. John Akeroyd's example of native British wildflower seed being used in Gibraltar also underlines the scale of the problem. John has reported that in the early 1990s an area of ground adjacent to important Mediterranean plant communities with endemic species was sown with British wildflower seed. All the young plants which germinated died, illustrating the importance of the *Flora locale* principle: putting wild flowers back where they belong.

Limiting benefits to associated fauna

To what extent does the widespread use of non-native varieties effect populations of invertebrates? This is another million-dollar question for which research data is badly needed. On one 'new' Wiltshire chalk grassland, a fodder variety of kidney vetch *Anthyllis vulneraria* has attracted small blue butterflies, not seen previously in the area for a significant period. With trees and shrubs, the earlier flowering of continental varieties may not be so good if pollinators haven't appeared when the flower buds break and will consequently limit berrying and the benefit this brings to hedgerow birds. The vast majority of hedgerow hawthorn planted in the countryside in recent years has been of continental origin (much of it Hungarian), usually 'laundered' through Holland first.

Challenges for botanical monitoring

The unfettered scattering around of wild plant seeds, and the wide-scale planting of exotic (varieties and species) of trees and shrubs in the countryside must be closely monitored and the only organisation that has the capacity to do this on a nation-wide scale is the BSBI. The problem is that the quantities of introduced material are now so large that botanical monitoring must now pay acute attention to detail if it is to be meaningful. Wildflowers planted in a set-aside scheme or as part of the countryside stewardship programme for chalk grassland restoration must be recorded as planted, otherwise the overall picture of natural plant distributions is going to be badly out of sync with what has happened to the countryside during the past 50 years. Furthermore, not one of the habitat creation schemes funded through the agri-environment programme can be guaranteed as permanent. All the schemes are subject to time-limited contracts which under some circumstances can be broken by the landowner. New wildflower grasslands may disappear as rapidly as the original native ones did long ago. The sheer scale of introductions also means that it will be harder to assess natural changes in plant distributions and will obscure long term environmental trends associated with climate change.

Technical guidance

Flora locale is currently drafting a range of technical guidance. These include *Definitions for British native-origin plants* (No 1) and *Putting wild plants back where they belong: guidance on using native and local-origin plants in habitat creation* (No 2). Both are available on the *Flora locale* WWW site but paper copies can be supplied on receipt of a large s.a.e. Codes of conducts for wild plant growers and specifiers are also under preparation.

Summary

Flora locale wishes to work closely with all the organisations which have a close interest in the protection of the countryside and its wild plant communities. It is also important that the project builds up a good working relationship with other organisations in the horticultural and landscape management sector, who will be able to assist the initiative achieve its aims.

Any BSBI member who wishes to contribute information to *Flora locale* or weigh in on the debate, can contact the project co-ordinator (details below). The project would be particularly interested in making contact with researchers in relevant fields, and receiving observations on habitat creation schemes where 'native' plants have been used. Information on native plant varieties or exotic species should continue to be sent to local BSBI recorders as these will help to contribute to Atlas 2000 and the ongoing monitoring work of the Society, but anecdotal information associated with such introductions would be useful to the project and may be sent to the *Flora locale* co-ordinator.

Flora locale is just beginning. Further funding is being sought to ensure that the project is put on a long term footing and it is hoped that the BSBI will become involved in some specific aspects of the initiative that will build upon the expertise of its membership.

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More information may be found on the web site at: http://www.naturebureau.co.uk/pages/floraloc/floraloc.htm.

RONALD GOOD'S DORSET

Papers read at the AGM in Dorchester

RONALD GOOD AND THE BOTANICAL SURVEY OF DORSET

Introduction

It was with great pleasure that I accepted David Pearman's invitation to give a talk about Professor Ronald Good and particularly about the Botanical Survey of Dorset. We so frequently hear his work referred to as 'Good's Flora' but it is not this and if you think it is a flora you are wrong. It is one of the great landmarks of plant science and an original and outstanding piece of research. First, I shall give a few details about the man, who follows in a distinguished line of naturalists and scientists which this County has produced, and then explain the Survey. I hope by the end of this paper you will have an insight into what Ronald Good achieved in the Botanical Survey of Dorset.

Good the Man

Ronald D'Oyley Good died in December 1992 at the great age of 96. He was born in Dorchester on 5th March 1896. Both his father and grandfather were doctors, having their practice close to the Dorset County Museum in High West Street, Dorchester.

Good was educated at Weymouth College and went up to Cambridge as an Exhibitioner and Foundation Scholar at Downing College. He rowed in his college eight. During the First World War he first served in the Inns of Court OTC and later was commissioned into the 4th Dorsets and served in France. He graduated in 1922 and immediately took up an appointment in the Botany Department of the British Museum (Natural History) where one of his colleagues was J.E. Dandy.

In 1928 he moved to Hull as Head of the Botany Department where he remained until his retirement in 1959. On his retirement he moved back to Dorset to live at Parkstone where he remained until the death of his wife in 1975 when he moved to sheltered accommodation in Surrey. The final 3 years of his life were spent in a nursing home in Henley.

Fuller details of Good's life can be found in the excellent obituaries by Humphry Bowen in *Watsonia* and Roger Peers (Curator of the Dorset County Museum) in the *Proceedings of the Dorset Natural History and Archaeological Society*.

Roger Peers tells us that Good knew the Dorset County Museum from the age of 10 years. He was subsequently President of the Dorset Natural History and Archaeological Society (1961-64) and Trustee of the Museum until his death. He was also one of the founders of the Dorset Naturalists' Trust (now the Dorset Wildlife Trust). Despite living in Hull, he visited the county regularly and wrote three books about it – the *Lost Roads of Dorset* in 1940, *Weyland: the story of Weymouth* in 1945, and in 1979 the *Lost Villages of Dorset*.

Good the Scientist

Humphry Bowen describes Good as an 'intelligent and solitary man': an apt description as those of us who knew him can confirm. In 1933 he published *Plants and Human Economics*, in 1947 the monumental *Geography of Flowering Plants* and books on evolution in 1956 and 1981.

The Geography of Flowering Plants went through four editions and remains to this day a standard text on this subject. Good was a scholar and scientist of great distinction; his abiding interest was plant geography. Perhaps, because of the lack of interest in biogeography there has been a tendency to overlook Good's scholarship and the originality of his thinking so much of which was ahead of its time. Nevertheless, if you take the trouble to read his works you will come face to face with ideas that are as relevant today as when they were written.

For example, as Humphry Bowen points out, Good showed the that the affinities between the floras of Australia and South Africa were best explained by the theory of continental drift. When I was an undergraduate in the early 1960s, the biogeography which I was taught was still reluctant to invoke

this theory to explain the distribution of the world's biota, but in the 1930s to hold such ideas would almost have been heresy. Good also promoted the view that the North temperate Flora was still in flux following glaciation; again a concept we readily accept today. Good was the first in the field of climate change research when in a classic paper the 1936 he explained the spread of the Lizard Orchid (*Himantoglossum hircinum*) in southern England in terms of the climatic changes during the first half of this century.

When reading the *Geographical Handbook* in preparation for this talk I was struck by yet another concept which was way ahead of its time. In discussing rare plants in Dorset, Good tells us – and I quote – that rarity 'has three components, sparsity in space, sparsity in number of individuals and sparsity in time, and species, what ever their status, may be rare in one or more than one of these, the extreme expression of scarcity being shown by those that are rare on all three counts'. Today ecologists attribute this concept – the so-called seven forms of rarity – to Rabinowitz (1981), but here almost fifty years before her paper is the same idea expressed with exceptional clarity. Humphry Bowen tells us that Good 'preferred the Darwinian approach to research, involving many years of thought before producing a *magnum opus*, to the modem custom of writing or helping to write as many short papers as possible'. Is there a lesson here?

The Botanical Survey of Dorset

What we incorrectly refer to as Good's *Flora of Dorset* he called the *Botanical Survey of Dorset*, and the results of this survey were published as *A Geographical Handbook of the Dorset Flora*. This book is exactly what its title says it is. It is a scholarly work which broke new ground and today remains unique – it is a landmark in plant science – and I believe I am correct in saying that this type of exercise has never been repeated.

It is a Geographical Handbook in that it describes the patterns of occurrence of the plants which grow in Dorset – the flora – and explains the reasons why these patterns exist: the principal factors being variations in climate and soils. If you think it is a flora or plant atlas you are wrong. Good recognised that field botanists wanted information of this type and to meet their needs he provided in the last Chapter a 'Handlist' – a list of every plant ever found in Dorset with notes about its occurrence. However, the bulk of the book is a pioneering work on plant geography and presents the analysis of the considerable body of data which Good accumulated during his survey. In 1959 he deposited the Archive of the Botanical Survey of Dorset at Furzebrook Research Station.

Good's aim was 'to make a comparative study of the distribution, within the County, of as many as possible of the members of its flora . . .' Good thought Dorset was the ideal place for this study. Apart from being a Dorset man, born and bred, he claimed that the County was ideally suited for this study on account of its size, its location on the coast of southern England at a point where the climate of the continental east meets that of the oceanic west to produce gradients from both west to east and from south to north over a wide variety of rocks and soils.

To achieve this aim Good 'sampled' the vegetation of Dorset. He tells us that ' in working out the distribution of a single species in the field it is possible to proceed from the plant to the locality – that is to seek out the plant and make notes of its geographical situations. But in working out the distribution of a great number of species simultaneously it is necessary to reverse the process – to select areas and note all the species occurring in them.' He called this the 'stand method'. It consisted of making a great number of species lists, each list being made at a definite and recognisable spot. Each list is a single sample from one plant association.

Each stand was selected in a distinct area of vegetation – a wood, a marsh, a heath, a length of hedgerow and so on, rather after the manner of phytosociologists. Where there were large areas of similar – homogeneous – vegetation he took few stands and as the vegetation increased in diversity so the number of stands he took was increased. Good's method was to visit each stand, walk around and make a plant list – he did not search in a detailed manner and in effect took a time-quadrat. The centre of each stand and the area over which he walked was marked on a set of 6-inch Ordnance Survey maps which are now in the Archive. He then moved on to the next stand and in this way he often covered 15 to 20 stands in a day. It is important to understand this method and that it depends on making the same

sampling effort at each site. In this way it is objective and enables the relative abundance of each species over the county to be assessed. Many subsequent recorders have visited Good's stands and have made painstaking searches. This approach is flawed and is a misunderstanding of the essential features of the sampling approach.

If sufficient stands were taken, they would comprise the whole area of the County of Dorset and provide a complete description of its vegetation. Of course this was too much to do so, in effect, Good sampled the vegetation. He aimed to record 8,000 stands (Good 1937) but he achieved 7,575. As Dorset is roughly 1,000 square miles in area there are on average 7 to 8 stands per square mile; thus, with an average of 40 species per stand, the Survey contains about a quarter of a million plant records which were collected by Good himself between 1931 and 1939.

The figures, reveal which species are absolutely the most abundant and which are the least frequent. *Holcus lanatus* was the most abundant occurring in just over 4,000 stands. *Prunella vulgaris*, *Ranunculus repens* and *Urtica dioica* occurred in about 3,000 stands; 14 species in 2,000-3,000 stands; 20 species in 1,500-2,000 stands and 36 in 1,000-1,500 (Good 1948).

To reveal the distribution of species and the factors generating these distributions the next step was to prepare a series of maps. Good hand-plotted maps for some 600 species out of the 1,300 for which he had records. To plot the position of each stand on the maps Good devised his own Grid – a quarter mile grid subdivided into four. He could not use the National Grid, as we might do today, because it had not been invented – yet another pioneering approach.

The maps, Good tells us in Chapter 5, are derived from an intensive process of sampling which was designed not to show every separate occurrence or locality of a plant, but to reveal with reasonable accuracy where it is present and where it is absent – the pattern and not the detailed occurrence. The maps represent the plant distribution in the 1930s and Good said that the survey could be used as a baseline to record change. This of course involves resampling the vegetation of Dorset. To go to a few stands and make new lists is not acceptable; furthermore, if you sample with a different effort your results are not comparable with Good's.

Then, by using overlays of soils and climate, Good set about explaining the patterns of distribution which he had found. It is not possible in this paper to go in to the detail of these results; you must read the *Geographical Handbook* yourselves. The text is an analysis and discussion of the results of the Survey and is illustrated with some 40 examples of plant distribution taken from the 600 maps produced. I suspect few bother to read Good's book. It is my experience that most who come to use his Archive at Furzbrook do not understand the method he used. This also seems to have been a problem in Good's own lifetime for he was always stressing his method and which comparisons could and could not be made. Most modern plant atlases are based on presence and absence data and are subject to various biases depending on recording effort (Rich & Woodruff 1992; Rich & Smith 1996), Good's method embodies an objective and constant sampling method which enables one to know the relative abundance of every species and which, if repeated, enables change to be assessed quantitatively. Indeed, Good discusses the merits and shortcomings of the traditional ways of accumulating plants records, which are subjective and often biased in favour or rare or unusual species, with his own object method in the *Geographical Handbook*.

The Archive is available for research at Furzbrook. It is massive and consists of an inventory of stands, a series of note books containing the plant lists for each one of the 7,575 stands, further note books which cross-reference the species with the stands and the vegetation types with the stands. A set of 6-inch OS maps on which the location of every stand is marked and a set of maps showing the distribution for some 600 species over the stands. We would balk at undertaking such an exercise today even with the power of modern computers.

The final point I shall leave with you is that the Botanical Survey of Dorset was an exercise in manipulation of what we now call spatially-referenced data; a task which the power of modern computer programs has made relatively easy. Yet another instance in which Ronald Good was ahead of his time.

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PROF. GOOD AND DORSET'S HEATHLAND FLORA

I came to Dorset in 1982. It took me some time to realise what the Prof. Good resource actually was. I had a copy of the *Flora* which was different from almost any other *Flora* I possessed, if only because of its long introductory chapters on distribution and the factors affecting that. But I had no idea of what lay behind the *Flora*. Then Miss Anne Horsfall's articles began to appear in the *Proceedings of the Dorset Natural History and Archaeological Society*. Each year she would revisit an area of Dorset and summarise if and how the habitat had changed. She followed Prof. Good's habitat categories, and over 6 years she revisited all of his sites – except the arable sites. A year or two later she summarised these in a final paper.

By this time I was well on the way to accumulating data for my book on Dorset Cyperaceae. Not only was I able to incorporate Good's data, for his coverage of Dorset with 7,500 stands was always going to be more comprehensive than mine, but because all his records were traceable back to a set of stands on a set of 6" maps, I was thus able to revisit the sites. Somehow maps are better than grid references! Roll on GIS! I am sure this all sounds like stating the obvious, but to me as a plant enthusiast rather than an amateur ecologist at that date, the next stages were my learning curve. The Cyperaceae, by and large, grow in the wet places. The wet places were, by and large, less improved. Apart from Anne Horsfall, who was looking at habitats, few people had been back to most of Good's sites in 50 years. Out of an accumulation of Sedge and allies data came the genesis of the Dorset Sites of Nature Conservation Interest (SNCI) scheme. I initiated this with colleagues in 1989, because I was finding all the habitats still existed, but were threatened on all sides not only from development, but also from neglect. The story of that odyssey, with the help of other enthusiasts, to a network now of *c.* 1,300 sites, staff to run it, and above all, an almost full-time person whose job it is to tell landowners what they have and to help them, where wanted, to manage it, is only relevant here to demonstrate how we learnt that finding and surveying a site is one thing, maintaining its natural history interest quite another. This may sound obvious and simplistic now; it certainly was not only 10 years ago.

Enter Andy Byfield. He worked then (1990) for NCC in Hampshire, and he was based in the New Forest. He had been visiting Dorset for ten or more years, and could immediately see that whilst both had substantial areas of southern lowland heath, that for Dorset seemed less rich, less diverse. I was able to tell or remind him that Prof. Good had visited over 500 heathland sites, and made species lists. It would have been too big a job to resurvey every species found in his heathland sites, so we chose a set of species that we thought would be important as indicators. Table 1 (p. 51) shows the list, and you will see that not only does it contain many Red Data Book (RDB) and Nationally Scarce plants, it also

includes under 'Other species of note', many species that I would rate important in an English and particularly a southern English context. I hope that our new Atlas 2000 will give enough detail to enable an opinion to be expressed, one way or another, but *Apium inundatum*, *Baldellia ranunculoides*, *Genista anglica*, *Radiola linoides* and *Sagina subulata* are all, in my book, special enough nowadays to warrant pleasure at finding.

So we (Andy and I) restricted ourselves to revisiting sites where Good had recorded these 41 species, and that involved 390 sites. That seems an awful lot now, but in 1990 it was all in a days work, even though I live the other end of the county, 30 miles from Wareham. We visited each site, looked for which of the noteworthy 41 species he recorded, and noted (rarely, only) any noteworthy species he did not find. We then assessed the state of the site, and perhaps generously, only marked it as destroyed if 75% or more of the original vegetation (as described in Good's records) had been grossly altered by one or more deliberate activity by man – e.g. ploughing, deliberate afforestation, roads, houses, golf courses, etc. Thus we marked it as 'surviving' even if natural succession had meant an entirely different vegetation today. There are a few caveats here which I should at least mention. We actually, I think, looked harder than Good. He aimed to sample the vegetation of the heaths, visiting each site once and typically during the long summer vacation. He made no special attempt to seek out rarities, but merely recorded them as part of the compositional make-up of the vegetation.. His list of sites for each species is therefore not a comprehensive record of all the individual species localities existing in the 1930s. We on the other hand tried to not only search hard, but to look for annuals early on in the year, and species like *Rhynchospora fusca* later on when they were more conspicuous. We even went back sometimes if we felt that we hadn't done the site/species justice. However I believe that our sample of 41 species from 390 stands, many of which contained more than one of the chosen species, is sufficiently large to give a clear picture of the overall fate of Dorset's more valued heathland flora.

That is the background. I hope I have covered it in enough detail. One of my failings is that I always assume everybody is as *au fait* with a subject as I am, and I never quite dot all the 'i's. But this paper is meant to be an introduction, and the full details are in Anne Horsfall's articles and our book, (Byfield & Pearman 1997) with all the grid references of all the stands.

The Results

We listed the number of sites lost, and how they had been lost, and you can see from Table 2 (p. 52) that we estimated 35% had been lost. This figure of 35% is less that that computed by Norman Moore and Nigel Webb in their surveys (Moore 1962; Webb 1987). The main reasons are that our definition of 'heathland' is broader that theirs (including track verges, acid village greens and commons) and our definition of survival, as I mentioned above, is also more generous.. We did not look at much 'dry heath' where much has been lost, because, by and large the vegetation there is of less interest to the botanist than the invertebrate specialist and the herpetologist, and in fact none of our 41 species is found there.

We also categorised our 253 surviving stands into how they are now protected. Over 77% (200 or so) of the stands are protected in one way or another (if you count an SSSI as protected!) and only a very few populations of indicator species are found on the remnants. Therefore on balance most of the stands of conservation importance are protected, and the rest are really relics, small, highly fragmented and usually in a degraded (i.e. overgrown) condition. We listed five of those sites (3 of them lakes or ponds) that might be worth future protection, but we felt that any botanical conservation would be better spent on the 'protected' sites.

We then listed the declines in our 41 chosen species. Please remember the caveat that we were only looking in the sites where Good recorded these species, and not in every site where they might have occurred (if we knew) or where they occur now (Table 3, p. 52). This list is the heart of the research. Remember that we categorised 65% of the sites as 'surviving' and by and large returnable to Good's conditions. The survey showed that 25% of the species had survived. A few were only in a few stands anyway, so are statistically unreliable but most have declined massively – look at *Chamaemelum nobile*, *Lycopodiella inundata*, *Veronica scutellata*, *Rhynchospora fusca* and *Radiola linoides*. The only significant survivors are *Gentiana pneumonanthe* and above all *Erica ciliaris*. Indeed if

E. ciliaris, as being the only substantial shrub in the list of 41 is excluded, the survival rate drops to 18% – 4 out of 5 of populations on stands have gone.

We broke down the decline in the flora into habitats, looking at half-a-dozen categories (remember no species on dry heathland) – Dry heath grassland, lawns and greens, humid heath grasslands, seasonal ponds, wet heath and valley mires. Our report went into a lot of detail looking at the individual species in each habitat, and why they had declined.

I think that it is too detailed to easily present here – the details are all in the report – suffice it to say that although wet heath and valley mires sites have, predictably survived better, the ratio of losses of populations of plants to sites is worse on lawns and greens, ponds and dry heath grassland. The data suggest that nutrient and moisture content are perhaps the most important factors determining the survival both of heathland habitats and their populations of indicator plant species – because the more fertile soils are easier to agriculturally improve, and unmanaged, grow faster, and thus successionally change faster.

We compared the Dorset picture with the New Forest, which of course Andy knew well, and we were aided by information from Clive Chatters (Hampshire Wildlife Trust) and the Hampshire Flora Group. We think that with the exception of a very few species, the most noteworthy of which is Dorset Heath, the flora was fairly comparable. There may be more sandy habitats in Dorset. But today the areas are greatly different for two reasons. Firstly the New Forest is intact spatially, whereas Dorset's heaths are fragmented. Secondly the New Forest is grazed probably more intensively and extensively than any other lowland heath in Europe, and Dorset is not or was not. The time when Good surveyed the Dorset heaths probably was as the former pastoral economy was collapsing.

We adjusted the figures for the two sites to take into account the difference in size (the New Forest is very approximately double the surviving Dorset Heaths) and the result is this rather daunting table (Table 4, p. 53). What it means, baldly, is that *Moenchia erecta* is 27 times more common in the New Forest than in Dorset and so on down the list. On the other hand of the few species more common in Dorset, *Crassula tillaea* and *Lotus subbiflorus* are associated with dry sandy heath grasslands that are frequent around Poole Harbour but rare in the New Forest. *Gentiana pneumonanthe* seems to flourish under a burning regime and is perhaps grazed off in the New Forest, and *Erica ciliaris* I just do not know. Perhaps it is climate.

We made some comparisons of how species had survived on 'protected' and 'unprotected' sites and although yes they did better on protected a) not by much and b) still almost half the species were lost.

We finally looked at how and where the surviving indicator species still occurred, and found three-quarters of these were at sites that received disturbance as a result of human activity. This may have been grazing (at one or two sites only), quarrying or pool creation, horse-riding (Stoborough), artillery shelling (excellent patches on the Povington ranges) or mowing – the best surviving site of all is at West Moors R.A.O.C. where, because of 50 million gallons of petrol, the vegetation is kept very short, and the whole 1930s suite of species is still there. Many of these 'management' activities are short term, and though we accept it is possible to do intensive work in small areas on a one-off basis, and to protect single species in that way, that does not, to me at least, seem a sustainable way forward.

These then are the results. Even as the survey progressed NCC, by then EN, were talking to us about what we were finding. Ambitious plans were being developed in Peterborough to restart grazing on the Dorset Heaths. I mentioned that, by and large, no grazing, furze-cutting, wheeled transport for the clay digging and consequent rutting, or small scale peat-digging had gone on for 60 years. The only 'management' was accidental burning or arson, or disturbance by the Army. In addition, of course, a great number of forestry blocks had been planted, and more insidiously their offspring had seeded and spread over the remaining heathland areas. As you all know the Dorset heathland 'bareness', the 'bleakness' described by Hardy, is artificial, is manmade. Take away man and his beasts and his husbandry, and gorse and scrub and trees return, and the outlying bogs close over.

Our draft information was, I think, material in providing the hard evidence for the results of this 'lack of management'. By 1994 the decisions at EN were made, and grazing recommenced in 1995. This meant large investments in fencing (to cope with modern traffic) and cattle grids and other

payments. But by now (1997) 2,000 out of the 6,000 hectares remaining is covered by grazing agreements, and the RSPB Heathland management teams have, over the last 8 years, cleared 580 hectares on 28 heathland sites.

We have looked at his heathland sites, and it was quite a laborious task to extract the information. To us and to our colleagues at RSPB, Dorset County Council (Heathland Forum) and Plantlife, the results were a revelation. Here was hard information on specific sites from 60 years ago. We could revisit those sites; we could resurvey them; we could manage them for what they contained, with the help of his brief descriptions and occasional dominance data. What else did he visit? Well, about 1,500 woodlands, 1,500 grasslands and trackways and 500 arable sites and another 1,000 on top of that! The long and the short of it is that DERC in connection with ITE at Furzebrook, are bidding to computerise all of his data from all of his sites – about 200,000 records from 7,500 sites – to add to our distribution data and maps and to enable further monitoring work to be done on other habitats. I do not think any other county has this quality of data from so long ago.

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Table 1 – Species of note included within survey

National Red Data Book species

Eriophorum gracile
Erica ciliaris
Lobelia urens
Pulicaria vulgaris

Nationally scarce species

Chamaemelum nobile
Cicendia filiformis
Crassula tillaea
Deschampsia setacea
Gentiana pneumonanthe
Hammarbya paludosa
Hypochaeris glabra
Lotus subbiflorus
Lycopodiella inundata
Moenchia erecta
Persicaria minor
Potentilla argentea
Pilularia globulifera
Rhynchospora fusca
Trifolum glomeratum
Trifolium ornithopodioides
Trifolium suffocatum
Viola lactea

Dorset Red Data Book species

Carex lasiocarpa
Carex limosa
Platanthera bifolia
Sparganium natans
Wahlenbergia hederacea

Other 'species of note'

Anagallis minima
Apium inundatum
Baldellia ranunculoides
Drosera longifolia
Filago vulgaris
Genista anglica
Littorella uniflora
Pinguicula lusitanica
Potentilla palustris
Radiola linoides
Sagina subulata
Utricularia intermedia
Utricularia minor
Veronica scutellata

Excluded species

Botrychium lunaria
Carex curta
Carex dioica
Eriophorum latifolium
Eriophorum vaginatum
Mentha pulegium
Ranunculus tripartitus

Table 2 – Stand destruction and causes of loss #?alignment

10km sq	Stands surviving	Stands destroyed (No)						Total stands
		Agriculture	Residential/ Industrial	Recreation	Mineral extraction	Forestry	Drainage	
SU/0.0	29	11	2	2	0	4	0	48
SU/0.1	2	4	0	0	0	1	0	7
SU/1.0	2	1	1	0	0	1	0	5
SU/1.1	3	4	0	0	0	0	0	7
SY/7.8	8	8	0	0	0	0	1	17
SY/7.9	1	4	0	0	0	1	0	6
SY/8.8	33	10	0	1	3	2	1	50
SY/8.9	11	4	1	2	1	8	0	27
SY/9.8	116	33	4	0	2	7	0	162
SY/9.9	14	8	1	0	0	3	0	26
SZ/0.8	32	0	0	0	0	1	0	33
SZ/0.9	2	0	0	0	0	0	0	2
Totals	253	87	9	5	6	28	2	390
(% of overall total	[65%]	[22%]	[2%]	[1%]	[2%]	[7%]	[1%]	

Table 3

Species	Number of stands in which species recorded		% decline in recorded stands
	1931-37	1990-93	
Chaffweed *Anagallis minima*	26	1	96
Lesser Marshwort *Apium inundatum*	10	3	70
Lesser Water-plantain *Baldellia ranunculoides*	15	3	80
Chamomile *Chamaemelum nobile*	39	3	92
Yellow Centaury *Cicendia filiformis*	12	0	100
Mossy Stonecrop *Crassula tillaea*	7	0	100
Great Sundew *Drosera longifolia*	8	7	13
Dorset Heath *Erica ciliaris*	82	59	28
Common Cudweed *Filago vulgaris*	23	1	96
Petty Whin *Genista anglica*	28	5	82
Marsh Gentian *Gentiana pneumonanthe*	46	23	50
Smooth Cat's-ear *Hypochaeris glabra*	10	1	90
Shoreweed *Littorella uniflora*	11	1	91
Hairy Bird's-foot-trefoil *Lotus subbiflorus*	5	3	40
Marsh Clubmoss *Lycopodiella inundata*	48	6	88
Pillwort *Pilularia globulifera*	4	0	100
Pale Butterwort *Pinguicula lusitanica*	26	6	77
Marsh Cinquefoil *Potentilla palustris*	37	13	65
Allseed *Radiola linoides*	74	2	97
Brown Beak-sedge *Rhynchospora fusca*	26	6	77
Heath Pearlwort *Sagina subulata*	16	0	100
Lesser Bladderwort *Utricularia minor*	15	7	53
Marsh Speedwell *Veronica scutellata*	27	1	96
Pale Dog-violet *Viola lactea*	7	1	86
Ivy-leaved Bellflower *Wahlenbergia hederacea*	6	0	100
Overall totals and average decline	644	163	75

Table 4

Species	Difference in adjusted tetrad figures	Microhabitat types
Species proportionately most frequent in the New Forest		
Moenchia erecta	27.5	Sandy heath grasslands
Pilularia globulifera	26.5	Seasonal pools
Veronica scutellata	23	Seasonal pools
Viola lactea	22.5	Humid heath grasslands
Radiola linoides	22	Lawns and greens
Apium inundatum	21.5	Seasonal pools
Pinguicula lusitanica	21	Valley mires
Chamaemelum nobile	18	Lawns and greens
Littorella uniflora	16.5	Seasonal pools
Trifolium ornithopodioides	16.5	Sandy heath grasslands
Baldellia ranunculoides	15.5	Seasonal pools
Cicendia filiformis	13.5	Lawns and greens
Platanthera bifolia	13	Humid heath grasslands
Persicaria minor	12.5	Seasonal pools
Hammarbya paludosa	11.5	Valley mires
Anagallis minima	9.5	Lawns and greens
Lycopodiella inundata	8.5	Wet heath
Utricularia minor	6	Valley mires
Deschampsia setacea	5	Seasonal pools
Wahlenbergia hederacea	4	Humid heath grasslands
Sagina subulata	3.5	Sandy heath grasslands
Pulicaria vulgaris	2.5	Lawns and greens
Carex limosa	1.5	Valley mires
Eriophorum gracile	1.0	Valley mires
Species proportionately most frequent in the Poole Basin		
Gentiana pneumonanthe	40	Wet heath
Erica ciliaris	28.5	Wet heath
Crassula tillaea	20.5	Sandy heath grasslands
Lotus subbiflorus	14.5	Sandy heath grasslands
Rhynchospora fusca	9	Wet heath
Potentilla argentea	5.5	Sandy heath grasslands
Drosera longifolia	5	Valley mires
Hypochaeris glabra	3.5	Sandy heath grasslands
Carex lasiocarpa	0.5	Valley mires
Lobelia urens	0.5	Humid heath grasslands

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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*, Clement & Foster's *Alien Plants of the British Isles* or Ryves, Clement & Foster's *Alien Grasses of the British Isles*. Arrangement is alphabetical; an * following 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* are eligible for inclusion but other more widespread aliens listed in that work may be included at the discretion of the VC 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 (10 km square).

My thanks to Paul Bowman, Graeme Kay, John Palmer, Ron Payne and Bill Tucker, for supplying the following records.

Achillea clypeolata × *A. filipendulina* (a hybrid yarrow). Dump at Green Street Green Common, TQ/5.7, W. Kent (v.c. 16), 1977, J.R. Palmer, det. E.J. Clement.

Achillea filipendulina (Fern-leaf Yarrow). Abundant in cracks of brick-paved walkways, near Hall Place, Bexley, TQ/5.7, W Kent (v.c. 16), 24/6/97, J.R. Palmer.

Allium moly (Yellow Garlic). About six large clumps established some distance from the nearest habitation on verge of old drovers track, N of Round Clump, Whitsbury Down, SU/114.230, S. Wilts (v.c. 8), 26/6/1995, P.D. Stanley.

Allium paradoxum (Few-flowered Leek). Three small clumps established away from gardens on roadside verge, Hambleton, SU/647.149; also 6 clumps established on lane verge close to large house (where present in garden), Hambleton, SU/651.151, both S. Hants. (v.c. 11), 4/1995, P.D. Stanley.

Allium subhirsutum (Hairy Garlic). One small but increasing patch established in roadside hedge, Aston Lane, Bishop's Waltham, SU/540.183, S. Hants. (v.c. 11), 5/1996, P.D. Stanley, conf. R.P. Bowman.

Anisantha tectorum (Drooping Brome). New bank, Moreton, SJ/26.90, Cheshire (v.c. 58), 1997, P. Gutteridge. **Hb GMK**

Brassica juncea (Chinese Mustard). Adjacent to fence at end of Campbell Road, Eastleigh, SU/462.178, S. Hants. (v.c. 11), 1996, P.J. Selby, conf. T.C.G. Rich. Second record for v.c.

Chamaecyparis pisifera (Sawara Cypress). A 15 cm seedling of the form 'Plumosa aurea' (with young foliage yellowish-white) was found at the foot of a tall fence near Wilmington, TQ/5.7, W. Kent (v.c. 16), 6/6/97, J.R. Palmer. No parent tree seen in the vicinity. Previously, on 2/8/92, a 1.5 m. specimen was found in scrub also at Wilmington, J.R. Palmer.

Chenopodium strictum (Striped Goosefoot). Canal bank, Chester, SJ/40.66, Cheshire (v.c. 58), 1996, D.J Tinston. Det. EJC.

Cynara cardunculus (Globe Artichoke). Several self-sown plants on old sand-dunes, Meols, SJ/23.90, Cheshire (v.c. 58), 1997, P. Gutteridge.

Cynoglottis barrelieri (False Alkanet). In cliff scrub near gardens, Mortehoe, SS/454.446, N. Devon (v.c. 4), 4/6/1995, W.H. Tucker.

Dianthus allwoodii × *D. barbatus* (A hybrid Sweet-William). Roadside bank, Darenth, TQ/5.7, W. Kent (v.c. 16), 10/6/97, J.R. Palmer.

Dracunculus vulgaris (Dragon Arum). In shrub border at foot of arch, The Swan Centre, Eastleigh, SU/456.187, S. Hants. (v.c. 11), 1996, P.J. Selby, conf. E.J. Clement. First record for v.c.

Euphorbia myrsinites (Yellow-topped Glaucous-spurge). bird sown in mown grass under railings, Greenwich Park, TQ/38.77, W. Kent (v.c. 16), 26/9/83; pavement weed Sutton-at-Hone, TQ/5.6, W. Kent (v.c. 16), 7/6/97, not seen in nearby gardens, both J.R. Palmer.

Lavatera thuringiaca (Garden Tree-mallow). Car park, Torrington, SS/491.194, N. Devon (v.c. 4), 12/7/1995, W.H. Tucker.

Leucanthemella serotina (Autumn Oxeye). Old station area, Torrington, SS/479.198, N. Devon (v.c. 4), 12/7/1995, W.H. Tucker.

Levisticum officinale ('True' Lovage). Extensive on pavements, in alleyways etc., Sutton-at-Hone, TQ/5.6, W. Kent (v.c. 16), 1996-7, J.R. Palmer. Plants of a more 'wild' status in W. Kent, at Wrotham and near Darenth Wood have probably been destroyed, by drought and building development.

Limnanthes douglasii (Meadow-foam). Three plants on seeded bank, Stockport, SJ/90.90, Cheshire (v.c. 58), 1997, G.M. Kay & E. Kearns.

Limonium bonduellii (Algerian Statice). Junction of brick wall and pavement in rural road Hawley, TQ/5.7, W. Kent (v.c. 16), 9/6/97, J.R. Palmer. **Hb. JRP**. Not seen in neighbouring gardens, but a nursery is not far away. Stem cylindrical, not winged but divisions of panicle are slightly. Calyx limb violet, hairy. Corolla yellow. Flowers subtended by narrow continuations of the wings.

Lychnis coronaria (Rose Campion). Bank of old railway, Ashford, SS/523.348, N. Devon (v.c. 4), 6/9/1991, W.H. Tucker. Still present in 1995.

Nigella damascena (Love-in-a-mist). Several plants on soil heap by track, Hoylake, SJ/23.88 , Cheshire (v.c. 58), 1997, G.M. Kay.

Phygelius capensis (Cape Figwort). Spreading in long-abandoned nursery, Hythe, TR/1.3, E. Kent (v.c. 15), 11/8/77 and large clump near lock-up garages between Dartford and Barnes Cray, TQ/5.7, W. Kent, (v.c. 16), 7/7/97, both J.R. Palmer. Dumped out of southern gardens because it rapidly becomes a pest difficult to control. Spreads by abundant seed as well as by suckering and a candidate for inclusion in the list of plants to become commoner in Britain with global warming.

Rhododendron ponticum subsp. *baeticum* (Iberian Rhododendron). One specimen, apparently not planted, in natural woodland at Poverest, TQ/4.6, W. Kent (v.c. 16), 31/5/97, J.R. Palmer and G. Kitchener. Extent in Britain not known. **Hb. JRP.**

*Romneya coulteri** (California Tree Poppy). Flowering in crack between pavement and foot of high earth retaining wall St Peter Port, Guernsey (v.c. S), 22/6/71, J.R. Palmer. Could have suckered downwards through the ground for at least 3 metres, not beyond the power of this aggressive species.

Romneya coulteri × *R. trichocalyx** (Hybrid California Tree Poppy). For at least 20 years by a footpath near S. Darenth, TQ/5.6, W. Kent (v.c. 16), 1997, J.R. Palmer. From the first parent it derives the ovate flower buds and sepals with apiculate apices. From the second parent it derives peduncles slightly bristly, and leafy up to the flower; and somewhat bristly sepals. **Hb. JRP**.

Setaria pumila (Yellow Bristle-grass). In masony crack outside grain mill, Torrington, SS/508.197, N. Devon (v.c. 4), 18/9/1995, W.H. Tucker.

Sorghum halepense (Johnson-grass). The awnless form on canal bank, Chester, SJ/40.66, Cheshire (v.c. 58), 1996, D.J. Tinston, det. EJC.

Tagetes erecta (African Marigold). Three plants on disturbed roadside, Carrington, SJ/75.93, Cheshire (v.c. 58), 1996, G.M. Kay.

Tagetes patula (French Marigold). Self-sown in cobbles, Sandbach, SJ/75.60, Cheshire (v.c. 58), 1996, J.H. Clarke.

Trifolium aureum (Large Trefoil). Several plants on site of demolished building, Macclesfield, SJ/91.73, Cheshire (v.c. 58), 1996, J.H. Clarke.

Verbascum phlomoides (Orange Mullein). Waste ground, Bideford, SS/455.283, N. Devon (v.c. 4), 7/9/1995, W.H. Tucker.

Veronica gentianoides (a speedwell). Garden throw-out on roadside verge, Rainow, SJ/95.75, Cheshire (v.c. 58), 1997, B.T. Shaw.

Vicia tenuifolia (Fine-leaved Vetch). At least two plants in long grass in forest ride, Roudham, TL/931.884, W. Norfolk (v.c. 28), June 1997, G. & K.A. Beckett, conf. E.J. Clement. The first record of this alien taxon from Norfolk.

SOLIVA PTEROSPERMA ESTABLISHED AT BOURNEMOUTH (v.c. 11 S. HANTS)

On 22nd May 1997 some tiny annual plants were discovered by F.A. Woodhead in a touring caravan park in Bournemouth, Dorset (SZ/107.951). The plants somewhat resembled very dwarfed *Torilis nodosa* (Knotted Hedge-parsley) or a small Mayweed with unscented leaves. The flowers were tiny, greenish and in dense sessile heads at the base of the leaves, and were extremely prickly. Local botanists were puzzled over its identity – indeed even its family (Asteraceae) and eventually it was sent to E.J. Clement for determination.

Meanwhile the area was carefully investigated by FAW. Over 500 plants of Jo-jo (the English name) were found scattered over a distance of at least 100 metres. Plants were mostly concentrated near (and under) the caravans growing in both barer patches of soil and also amongst the dense short turf. The colony must have been present here for many years to be so scattered and established throughout the site, especially in the dense turf. None of the plants exceeded 5 cm in height and few were more than 10 cm across. Half of the area is currently being developed for housing and this has now eliminated about 40% of the plants.

Although a native of southern South America, it is widespread as an established weed, usually in short turf or lawns. It is probably spreading in all its localities. EJC has collected voucher specimens from lawns in public gardens at Ponta Delgada, Sao Miguel (Azores) and in the city of Santiago (Chile) as well as from sandy track sides east of Houston, Texas (USA); it is well known in Spain, Portugal, Australia and New Zealand. In California it was long considered to be native, but this is open to considerable doubt, although California and Chile form a well known phytogeographical unit.

In Britain it has formerly occurred as a casual introduced with wool waste in N. Hants (v.c. 12) and W. Kent (v.c. 16) – see pressed specimens in **E**, **K**, **RNG** and **LIV**. The Hampshire records occurred at Temple and Blackmoor in at least 1960, 1970 and 1971, but it did not become established, even for a short while. It has also occurred in granite chippings and sand on the dockside at Gloucester (v.c. 33) in 1974, when an Iberian origin was suspected. These are the only British records that we can trace, the first published record appearing in 1961. No Irish records appear to be known.

The taxonomy and nomenclature of this small genus of *c.*9 taxa is much confused and open to contrary viewpoints. The segregate name is used herein, but modern opinion tends to favour 'lumping' four of the species (including *S. pterosperma*) into *S. sessilis* Ruiz & Pavón, as was done long ago! The variants breed true, but mixed populations occur with no discernible difference except for the development of the wings (from wingless to the possession of broad and lobed wings) and a variation in pubescence of the achenes. However, all of the achenes examined at Bournemouth have distinctly lobed wings and all the achenes are pubescent on both sides.

The sharp spine, a persistent style in origin, on top of the achene pierces footwear and car tyres (one presumes) and this seems to explain its origin at Bournemouth, perhaps coming to us via tourists from the Iberian peninsula. The site here was formerly (20 years ago) devoted to pig farming, so an introduction with pig food is also a vague possibility although the pigs were apparently fed only on swill from local hotels and a wheat derivative. Wild animals and birds may also disperse the seeds. However, the open grassy lawns and fields immediately next to the site have yielded no specimens to date.

No detailed description seems necessary here as the splendid drawing by Ann Percy on the front cover displays all its characteristics clearly. Further useful references can be found in Clement and Foster, *Alien Plants of the British Isles*, p. 344; the genus is also briefly mentioned in Stace, *New Flora of the British Isles*, ed. 2, p. 672. A voucher specimen will be deposited in **DOR**.

It seems very likely that this plant has been overlooked elsewhere in southern England. Who can find another colony in Britain? Walking on caravan parks, seaside or other short turf in bare feet might be a good method – volunteers are required and, yes, it does puncture human skin!

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URTICA GALEOPSIFOLIA – IS IT UBIQUITOUS?

In the mid 1950s, when things were done properly, a gang of men went along the lanes and paths through my home village (Roos, in East Yorkshire) mowing the verges with scythes and sickles. As a child at that time I can remember one of the men saying to me 'nettles won't sting this year' with the cruel intention of letting me get stung. I can remember him thrashing himself about the forearm and face to demonstrate that *the nettle that he had chosen* did not sting him.

In June 1997 I visited a disused brick-clay pit in Hull that has been set aside as a nature reserve on an industrial site. While pushing through a tangle of miscellaneous willows, *Typha latifolium* and *Solanum dulcamara* on my way to the water's edge, I came upon a patch of tall nettles and noted that they did not sting me. Furthermore I noted that their leaves were elongated to about 3-4 times their width and that the leaves appeared to be glabrous, paper thin, not at all rugose and that the leaf margin had deeply indented, rounded lobes rather than pointed teeth. I then remembered reading something about 'Wicken Fen nettle'.

During July I have found several patches of stingless nettle, all with leaves 3-4 times their width, all about 30-50 cm taller than their stinging neighbours and, to my surprise, not necessarily growing in fen situations. I have found them in woods, wood margins, waysides and on ditch banks in several places throughout SE Yorkshire (v.c. 61). I went to the churchyard at Roos, where I can recall this event taking place all that time ago, and immediately found stingless nettles growing abundantly.

The stature, the colour and density of female flower tassels, and the shape and texture of leaves are so distinctive in stingless nettles that I am now 100% confident that a selected stand of nettle will not sting me. The question is, am I finding true *Urtica galeopsifolia*? Is this taxon ubiquitous and yet unnoticed throughout the country?, or is its widespread distribution here exceptional? It would be nice to map the distribution of the stingless nettle but, unfortunately, *U. galeopsifolia* is not recognised on the Atlas 2000 Mastercard.

The man I knew forty years ago had either developed an 'eye' for the stingless nettle, or he was an example of the classical 'pachydermatous Yorkshireman' in the real sense!

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CHINESE GOOSEBERRY IN W NORFOLK

A seedling of Chinese Gooseberry or Kiwi Fruit (*Actinidia deliciosa* C.S.Liang & A.R.Fergusson (*A. chinensis* Hort. non Planch)) was noticed in a garden at Stow Bardolph, TF/6.0, W. Norfolk (v.c. 28) in 1996 and by June 1997 had grown to some 3 m high.

This species had never been cultivated there, so introduction by birds seems the probable source, especially as the plant is just beneath a gutter on which birds perch. The plant, which is not mentioned in Clement & Foster's *Alien Plants of the British Isles*, was referred to me and determined by K.A. Beckett, who has found the species to be quite hardy in his own Norfolk garden over an 8-10 year period.

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ULMUS LAEVIS – EUROPEAN WHITE-ELM

I was most interested to read Mr A.O. Chater's note on *Ulmus laevis* in Wales in your last issue (*BSBI News* **75**: 63) and in particular his observation that it appears to show resistance to Dutch elm disease (*Ophiostoma ulmi*) (DED).

I have made the same observation here where two large and healthy *U. laevis* of about 150 years are growing on the Cornish bank of the river Tamar at grid refs. SX/446.694 & SX/451.692, close to large Cornish elm (*U. minor* subsp. *angustifolia*) stumps remaining from the 1970s outbreak and adjacent to suckers heavily infected with DED. These trees seed heavily every year and I have both raised a number of seedlings and distributed seed widely in the hope that we may have a resistant elm suited to Britain.

There is evidence from the Continent of *U. laevis* showing resistance to DED and I have referred to this in a paper in the Quarterly Journal of Forestry for April 1996 (Vol. 90, No. 2). It is disappointing though that the Forestry Commission shows no interest in this possibility although I have offered seed and seedlings for trial. They surprisingly rely on a single inoculation trial of 2 year seedlings in 1974 in which *U. laevis* showed a high level of susceptibility to the aggressive strain (*O. novo-ulmi*) of DED. However, accumulating observations in the field challenge this and since my paper was published, four more mature, healthy trees have been notified to me (2 here in the Tamar valley and 2 in Wales), all flowering and producing abundant seed. The only elm that survived at Kew was a *U. laevis* and there are large specimens at Stanmer Park, Brighton. Mr Chater's note provides further welcome evidence.

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CAN *EUPHORBIA ROBBIAE* BE REVIVED?

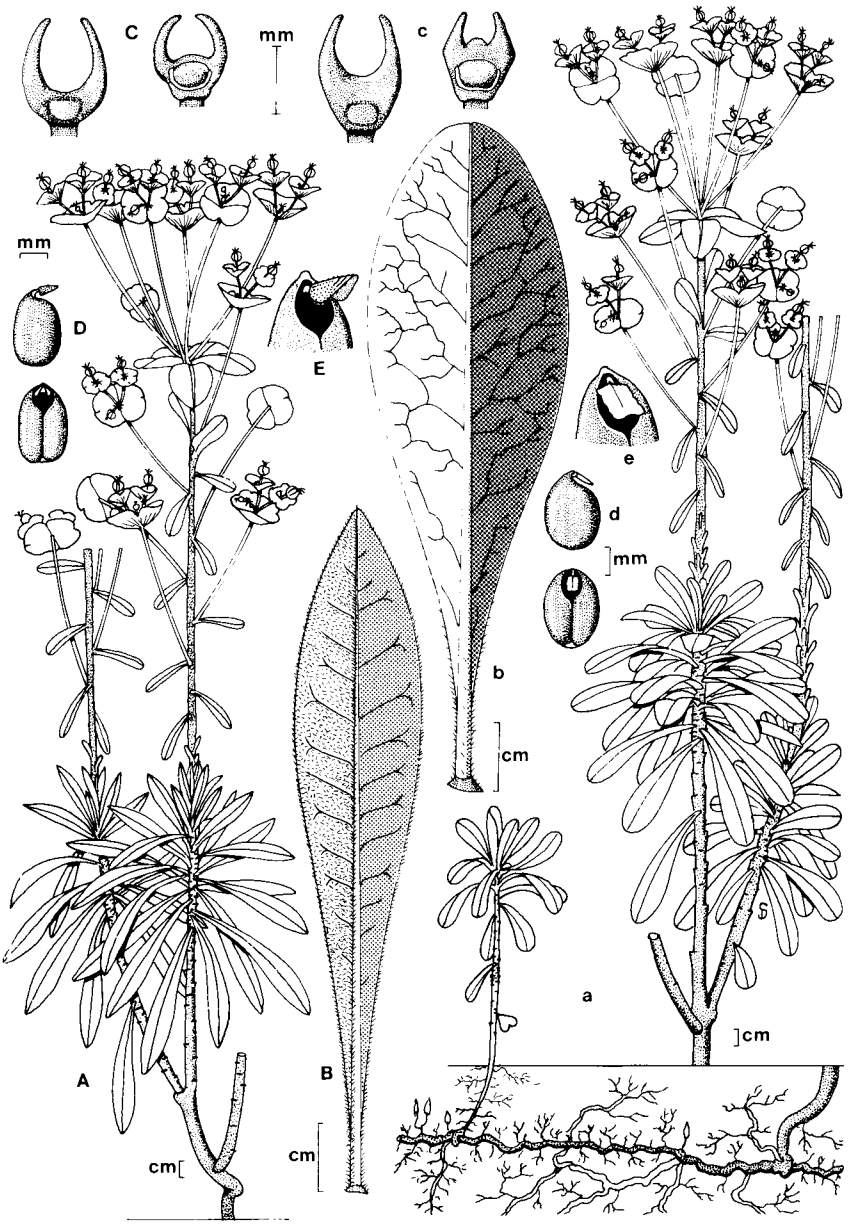
Gardeners and field botanists have recently been reluctantly persuaded into treating the garden plant (and escapee) *E. robbiae* Turrill as a subspecies or variety of our native *E. amygdaloides* L. (Wood Spurge) – e.g. Stace, *New Flora of the British Isles*. *E. robbiae* is an attractive ground-cover plant for sun or shade that flowers in the spring, but spreads much too rapidly for a small garden. It is easily recognised in the garden, but a problem of identity arises in herbaria where material from SE Europe and NW Turkey apparently reveals intermediates, and these prove impossible to name without the diagnostic rootstock.

I suggested to our member, Delf Smith, that he may like to investigate this problem and illustrate his conclusions. His interesting results are detailed below; they are based solely on close scrutiny of live material of the two taxa as they grow in the Portsmouth area (*E. robbiae* being collected from a Gosport garden). The differences are mostly slight and I reluctantly suggest that it is probable that none of them (except presence of long rhizomes) will separate all variants of the variable *E. amygdaloides* from *E. robbiae* across the entire range of the complex (from Ireland to the Caucasus).

My literature searches for other differences revealed little. The type description in *Curtis's Bot. Mag.* **169**: t. 208, claims that *E. robbiae* has larger seeds and fruits, but this is clearly not reliable. J.R. Palmer, in *BSBI News* **40**: 26, states that *E. robbiae* has a bluish-white latex (not milky-white), which I can confirm (but the difference is not pronounced). The chromosome numbers differ – originally recorded as 2n=42 and 2n=18, these have now been superseded by counts given in *Kew Bull.* **30**: 698, where 2n=40 and 2n=20 appear for *E. robbiae* and *E. amygdaloides*, respectively.

As a wild plant, *E. robbiae* seems poorly known. As late as 1964, in *Notes Royal Bot. Gard. Edinburgh* **25**: 140, M.S. Khan could locate no wild-locality specimens! (The type specimen is of a plant cultivated at Kew). In England it can still be seen as an escape at, e.g., Bookham Common (Surrey), 1977-1996.

Maybe, at some later date, DNA analysis can support a claim to the specific rights of *E. robbiae*, which I still continue to prefer (but am unable to justify).



Euphorbia amygdaloides subsp. *amygdaloides* (A-E) & *E. amygdaloides* subsp. *robbiae* (a-e); del. D.P.J. Smith © 1997

A, a, – Habit of plant; B, b, – First year stem leaf of flowering plant; C, c, – Old and young cyathium glands; D, d, – Seeds; E, e, --Detail of seed appendages on pale immature seeds

Appendix

Listing of differences observed between the two subspecies of *E. amygdaloides* by D.P.J. Smith.

subsp. *amygdaloides* – Plant tufted without rhizomes, or if rhizomes present then short. First year stem leaves (on flowering stems) oblanceolate, gradually tapered to a short petiole, leaf tip acutely and narrowly rounded, with the central midrib mucronate and projecting beyond leaf-blade apex. Upper surface mid-green, lower surface pale light-green, pubescent on lower surface and edges, with occasional scattered hairs on upper surface, leaf hairs pale brown to dark reddish-brown. Bracts at base of main rays with broad, rounded, entire tips. Cyathium glands ovate in outline, the horns tapering gradually into a slightly thickened base. Seed appendage rough, bright orange-brown at first (on immature, pale-coloured seeds) becoming pale, suberect from top of seed, triangular in outline, not fully unrolling as seed matures, and therefore becoming half-conical in shape.

subsp. *robbiae* – Plant with long, dark reddish-brown rhizomes bearing buds and leafy shoots at intervals. First year stem leaves (on flowering stems) broadly elliptic, gradually tapered to a short petiole, leaf tip broadly rounded with the central midrib very minutely mucronate and not projecting beyond leaf-blade apex, leaf tip minutely retuse (indented). Upper surface dark green, lower surface glaucous (pale blue-green). Leaf pubescence mainly confined to petiole area, leaf hairs whitish to pale brown. Bracts at base of main rays with broad rounded emarginate tips (indented with an acute to obtuse sinus). Cyathium glands rhomboid in outline (especially noticeable when young) the horns tapering gradually into a much enlarged and thickened base. Seed appendage smooth, whitish, adpressed to top of seed, very quickly fully unrolling at an early stage in seed maturation into a flat, rectangular shape, swelling, and becoming suberect as the seed matures.

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CONYZA BILBAOANA CONFIRMED FROM SURREY

Conyza bilaoana was first reported by Paul Stanley from Southampton as new to Britain (*BSBI News* **73**: 47-49) and then followed Irish records by Sylvia Reynolds (*BSBI News* **74**: 44-46).

Surrey botanists, notably Alan Leslie, Joyce Smith and John Hodge, have in recent years been puzzled by *Conyza* plants occurring along the A3 (Portsmouth-London road), and it is no surprise to learn that they match the Southampton plant (conf. E.J. Clement & P. Stanley). It may, indeed, have spread into Surrey from Hampshire, rather than emanating from the London metropolis, where, so far, it remains unrecorded.

Currently it occurs in Surrey in three hectads (TQ/0.5, 0.6 & 1.6), being abundant at Wisley alongside the A3 and by the M25 intersection, on Wisley and Ockham Commons. Cobham and Fairmile Commons have smaller colonies, as have Brooklands, Weybridge and Byfleet.

Since some doubt had been expressed about the identity of the Surrey plants (e.g. Stace's *New Flora of the British Isles*, ed. 2: 725), a specimen was collected and sent to Dr Frank Almeda, McAllister Curator and Chairman of Botany at the California Academy of Sciences herbarium in San Francisco, USA. He very generously replied at length (15/4/1997), saying that:

> 'I have just compared your specimen with authenticated specimens of *C. bilbaoana* and it is a good match. This species and *C. canadensis* are very close and when a good assemblage of material is examined it is difficult, if not impossible, to separate the two. The latter reportedly consists of polyploid populations (n=9, 18 & 27) and I strongly suspect that when the cytology is better understood these two named species may represent different ploidy levels in this complex.'

A glance at *A Flora of San Francisco, California* (1958): 139-140, shows that seven collections of this South American plant were known before it was confirmed by Dr S.F. Blake. It occurs there on waste ground and in grassland and is described as a plant that:

> '. . . superficially resembles *Erigeron canadensis* but differs in the corollas of the outermost flowers which are ligulate in *E. canadensis* and merely obliquely tubular in the present

species. Whereas *E. canadensis* is strictly annual [as in the British Isles, without exception], the caudex of *C. bilaoana* appears to persist more than one season [true of at least some British plants].'

We are then in alignment with N. American botanists, but a contrary opinion exists in S. America. Oscar Matthei, in *Manual de las malezas que crecen en Chile* (1995): 111, sinks, without comment *C. bilboana* [sic] into *C. floribunda* Kunth.!

I am indebted to Eric Clement for providing information and persuading me to submit this short note.

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ALIENS – HIMALAYAN BALSAM *(IMPATIENS GLANDULIFERA)* & SYCAMORE *(ACER PSEUDOPLATANUS)*

I should like to put forward a different point of view to that of J.R. Charter (*BSBI News* **75**: 51-54).

When are the species 'weeds'?

JRC does not name the species that the Balsam has ousted, except for brambles and nettles. I would suggest that the presence of these plants should not always be preferred to that of the Balsam, which has no stinging or blood-letting parts that discourage people from entering woods and other wild places. Furthermore, the Balsam has attractive flowers, particularly when growing in a mass, that compare, to my mind, with equal merit with those of bramble and much more favourably with the miserable tassels of nettles.

Does the Balsam grow, where crops have been sown or planted? I have not heard of such occurrences, neither have I seen much invasion of arable land by the plant.

I admit that Sycamore can be a weed, due often to its prolific seed production, but it grows in places where very few other trees grow, e.g. in certain upland areas in Northern England, it can be a very beautiful tree, particularly in old age, and it produces valuable timber. Moreover, it is now so 'at home' in many situations, that it should no longer be treated as an alien.

The replacement of Lesser Celandine (*Ranunculus ficaria*), Wood Anemone (*Anemone nemorosa*) and Bluebell (*Hyacinthoides non-scripta*).

I think members would be interested to know if such replacement by the Balsam is occurring. I am hopeful that it will not occur to any great degree because: Celandine and Anemone flower earlier in the season and the leaves of Celandine start dying back soon after the appearance of Balsam leaves. The Bluebell only grows in comparatively deep shade, where I believe that the Balsam would not be vigorous, at best.

In my part of Lancashire, where the climate is generally moist, woodland floors are often covered with Celandine, which one could argue produces a monotonous effect, when not in flower: its substitution by the Balsam would not necessarily be damaging from an aesthetic point-of-view.

Colonisation of Bare Land

The Balsam readily colonises bare silt washed down by streams and deposited on banks and elsewhere. It must therefore have a stabilising effect, which can be good or bad, depending upon circumstances and, in particular, from the land drainage point of view, whether or not the deposits have occurred to obstruct or encourage the flow of the stream.

Effects upon Land and River Drainage

I have been in touch with an officer of the Environment Agency, which is now responsible for River Drainage. She only gave me two instances, when the Balsam causes problems from the Land Drainage point of view:

– it increases the risk of river-bank erosion, when it dies back in the autumn; and

– it creates a potential flood hazard, if dead stems fall into and clog up watercourses.

I am not aware of any particularly bad effects of Sycamore upon land drainage. It does not grow in water-logged land. Insofar as it grows on well-drained riverbanks, its roots will help to stabilise the banks and thereby assist river drainage.

'Control' or not?

For the reasons given above, I do not consider that the Society should actively encourage the control in the wild of either the Balsam or Sycamore at present.

There may be reasons, other than wildlife or nature conservation ones, when control of the species is necessary, but I submit that the Botanical Society should not concern itself with these.

If the Balsam should be proved to be threatening rare or scarce species of vascular plants, then some control methods may have to be adopted. Do the managers of Nature Reserves have any comments?

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THE SPREAD OF JAPANESE KNOTWEED AND HIMALAYAN BALSAM

As an ecologist working within consultancy I am frequently involved in control/eradication programmes for *Fallopia japonica* on development sites around the UK, especially in South Wales. I therefore read with interest Mr J.R. Charter's article on the subject (*BSBI News* **75** April 1997) which summarised most of the pertinent points and gave an insight into the problem in an area of the country with which I am not familiar.

One point with which I must dispute is Mr Charter's interpretation of the current legislation with regard to *Impatiens glandulifera*. His assertion that it is illegal to knowingly plant or spread *F. japonica* or *Heracleum mantegazzianum* in the wild is indeed correct (Wildlife and Countryside Act 1981). To dump soil contaminated with plant material of either of these two species is akin to spreading the plant and is covered under the same regulations. However, the Wildlife and Countryside Act makes no provision whatsoever for the control of *I. glandulifera*.

The assertion that all soil is a controlled waste, although technically correct, is rarely interpreted that way as soil, especially topsoil, is rarely disposed of and is more likely to be regarded as a valuable commodity. 'Vegetable matter' is also referred to in the legislation as a controlled or special waste, but this does not preclude the disposing of such matter as mulch or fertiliser in appropriate situations, provided it is not at odds with the provisions of the Wildlife and Countryside Act. Contrary to Mr Charter's article 'The Environmental Protection (Duty of Care) Regulations' do not require *I. glandulifera* infested soil to be treated as a controlled waste, other than in the sense that all soil is a controlled waste if it is to be disposed of to landfill. Neither my office, two different EA offices or Swansea City Council Waste Division are aware of any terrestrial plant species other than *F. japonica* and *H. mantegazzianum* being specifically named in any waste regulations.

This may seem a minor point but the consequences of treating invasive species can be great. On some of our recent sites, bills for eradicating *F. japonica* have run into tens of thousands of pounds. It is this cost which leads councils to abdicate their responsibilities with regard to *F. japonica*, combined with the great difficulty in carrying out clearance work along roads and rivers in an effective manner. It is not unusual to see roadside stands of *F. japonica* which straddle fence lines to be sprayed on the council owned side and untouched on the private ownership side. Such clearance work is extremely ineffective and you have to question the wisdom of doing it at all. Perhaps what is required are changes to the legislation to give councils automatic rights of access and the power to send landowners the bill for the works. This may sound draconian but a sustained drive, perhaps led by a central agency which provides funds to the councils, is a possible way to address this problem effectively, rather than in the piecemeal fashion with which it is currently handled.

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JAPANESE KNOTWEED – WHAT'S THE PROBLEM?

In response to the recent article slating Japanese Knotweed, *Fallopia japonica* (*BSBI News* **75**) I would like to put an alternative view.

In nature there are no 'good guys' and 'bad guys' only communities of plants and animals interacting in a neutral manner. We are a trading nation, and also a nation of gardeners, so it is inevitable that our flora will contain a high proportion of introduced species. This is our ecological destiny. A dispassionate appraisal of Japanese Knotweed shows that it is starting to play a valuable role in the ecology of urban areas.

A close examination of a stand quickly reveals that it is part of a community that includes climbers like large bindweed, bramble and sometimes wild hop that scramble into the canopy to obtain light. Light is in short supply at ground level during the summer months but the late leaf expansion of Japanese Knotweed provides a spring light phase similar to that on the floor of a native oakwood and long established stands are acquiring a vernal flora recruited straight from our climax vegetation. In Sheffield lesser celandine, bluebell, wood anemone, ramsons, daffodil, dog's mercury, yellow archangel and many other early leafing spring flowers are becoming widespread, particularly in riverside stands. In Germany *Gagea lutea* is a member of this community. So botanically the species is starting to integrate rather well.

Introduced species have a reputation for integrating less well with the native fauna, however here Japanese Knotweed is a bit of a whiz. If flowers late, often not being at its prolific and reliable best until mid-September when it provides an abundant and easily accessible nectar and pollen source for all manner of late insects. Insects feeding on the leaves have not been properly investigated but I have collected larvae of two moths, the brick and the Hebrew character, off its well chewed foliage. The Polygonaceae are mostly highly palatable to lepidopterous larvae, so many more can be expected. In North Wales stands of Japanese Knotweed are among the best places to search for grass snakes, and it has been reported that in South Wales otters are returning to the valleys using is as essential cover.

Ecologists are expected to take a long-term view of situations. Japanese Knotweed is adapting to conditions in the UK and the flora and fauna of the UK is adapting to it; future ecologists will wonder what all the fuss was about.

(Modified from an article that first appeared in *Urban Wildlife News*)

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CONIFER CHECKLIST II

Following my note and Provisional Checklist of Conifers in the last issue of *BSBI News*, I have been sent some corrections and additions as follows:

Abies spectabilis (D.Don) Spach. Surviving (HJMB)
Chamaecyparis thyoides (L.) Britton, Sterns and Poggenburg. Surviving. (HJMB)
Cunninghamia lanceolata (Lamb.) Hook. Surviving. (HJMB)
Juniperus oxycedrus L. Surviving. (HJMB)
Juniperus × *media* Van Melle. Surviving. (HJMB)
Picea abies subsp. *fennica* (Regel) Partenov. Previously *P.* × *fennica*. (FLEUE)
Picea bicolor (Maxim.) Mayr. Surviving. (HJMB)
Picea mariana (Miller) Britton, Sterns and Poggenburg. Surviving. (AOC)
Picea spinulosa (Griffith) Henry. Surviving. (AOC, HJMB)
Pinus ayacahuite Ehrend. Correction to spelling of specific name. (CDP)
Pinus armandii Franchet. Surviving. (HJMB)
Pinus coulteri D.Don. Surviving. (HJMB)

Pinus flexilis James. Surviving. (HJMB)
Pinus halepensis Mill. Surviving. (HJMB)
Pinus jeffreyi Greville & Balfour ex A.Murray. Surviving. (HJMB)
Pinus montezumae Lamb. Surviving. (HJMB)
Pinus parviflora Sieb. & Zucc. Surviving. (HJMB)
Pseudolarix amabilis (Nelson) Rehder. Surviving. (HJMB)
Saxegothea conspicua Lindl. Surviving. (HJMB)
Torreya californica Torr. Surviving. (HJMB)

Sources: AOC – Arthur Chater; CDP – Chris Preston; FLEUE – Flora Europaea – electronic version (RBG Edinburgh Internet site); HJMB – Humphrey Bowen.

It has also been suggested by Rod Stern that I should have pointed out the most commonly planted coniferous species. So here they are:

Abies grandis – frequent
A. procera – frequent
Chamaecyparis lawsoniana – frequent
Larix decidua – common
L. kaempferi – common
L. × *marschlinsii* – common
Picea abies – very common
P. sitchensis – very common
Pinus contorta – very common
P. nigra subsp. *laricia* – common
P. sylvestris – very common
Pseudotsuga menziesii – common
Thuja plicata – frequent
Tsuga hetrophylla – frequent

As before, I would be interested to receive further records of conifers, particularly those which are not yet on the list, confirmation of those which are, or any further comments.

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HYBRIDIZATION OF *OENOTHERA* SUBGENUS *OENOTHERA* IN BRITAIN II

Abstract

This article gives notes on taxonomic and identification difficulties and describes recently discovered natural hybridisation in *Oenothera* subgenus *Oenothera* in South Lancashire and elsewhere in the British Isles between *O. glazioviana* (Large-flowered Evening-primrose), *O. biennis* (Common Evening-primrose) and previously unrecorded *O. cambrica* (Small-flowered Evening-primrose). It describes remarkable plant behaviour in hybrid swarms and speculates on a possible genetic cause. It concludes that the creation and maintenance of the hybrid swarms in which the large majority of British plants grow is due primarily to promiscuous hybridisation and annual backcrossing.

Introduction

Oenothera do not conform to Mendel's Law of Heredity: 'any new combination of chromosomes produces, in effect, a new 'species' (Raven in *Flora Europaea* 1968); individual plants, if isolated, breed true and can perpetuate their exact genetic composition indefinitely.

The reasons for the behaviour are exceedingly complex and in the realm of the specialist cytogeneticist. Much study mostly in Germany and North America to discover 'why' and 'how' these New World plants behave as they do has occupied lifetimes and goes back more than a hundred years. Much has been learnt from cytogenetical analysis and research and cultivation in experimental gardens, but international opinions often remain not only divided but inconsistent and even contradictory, not least in respect of the taxonomy which 'in many ways still proves enigmatic' (pers. comm. W.L. Wagner, Washington, 1996).

In subgenus Oenothera, reciprocal first generation hybrids have different forms and it has been European practice to name the female parent first. But the *List of Vascular Plants of the British Isles* (Kent 1992) makes no provision; and as the parents of the great majority of British hybrids are themselves hybrids many with only vestiges of one or more progenitors, that makes sense.

O. fallax, a stable derivative of female *O. glazioviana* × male *O. biennis*, has now reverted to *O. glazioviana* × *O. biennis* = O.× *fallax* (which includes backcrosses). However, *O.* × *fallax* and *O.* × *britannica* (= *O. glazioviana* × *O. cambrica*) are confusing in that as originally published *O. glazioviana* is designated the female parent (Rostanski 1982). I have therefore not used binary names in this article.

Strains, species and 'collective species'

Because of the exceptional genetic behaviour, British subgenus *Oenothera* species are no more than successful strains: every individual in Britain's large annual crop of hybrids has the same potential. Both hybrids and backcrosses are fully fertile and if isolated will produce progeny 'about as invariant as it is possible for strains to be' (Cleland 1972 p.228); for example, a small (and threatened) homogeneous hybrid colony near Temple Balsall in West Warwickshire where for at least ten years an average of less than a hundred *O. biennis* × *O. cambrica* have had a quality and quantity of indumentum, shape, stance and size of leaves, and slightly pinched ovaries, all clone-like in their similarity (Bowra 1996).

In North America, strains are grouped into 'collective species' each 'comprised of a few to numerous true-breeding phenotypes that share common genetic and certain related phenotypic characteristics' (Dietrich 1991); for example, North American *O. biennis* consists of hundreds if not thousands of strains (Cleland 1972 p.304). There is pressure for Europe to include both *O. biennis* and *O. cambrica* in the collective North American *O. biennis*; but while *O. cambrica* seems likely to be of recent North American origin, European *O. biennis* may be a much earlier strain with different characteristics which came the other way round the globe (Harte 1994, Bowra 1995).

Subgenus *Oenothera* species in Britain (see also Appendix A)

O. biennis: probably the first British species (c.1650) but leaf variations (Bowra 1992) indicate either more than one strain or subsequent minor hybridisation. Once widespread in gardens (where small homogeneous colonies occasionally still survive) it is now rare and becoming rarer, seldom if ever surviving in hybrid swarms. But, as best shown in swarms of two species, it remains generally their most common component.

O. cambrica: the earliest known specimen dates from 1833 (Rostanski 1982); hybrids in South Lancashire were earlier (see below and Appendix B). I have yet to find a homogeneous colony of *O. cambrica* but, unlike *O. biennis* and *O. glazioviana*, plants fitting the description survive in hybrid swarms (up to 20% but usually fewer (Bowra 1992), which may be due to a measure of self-pollination – see below). The species and/or its hybrids may be found anywhere in the British Isles.

O. glazioviana: the most recent (c.1860) and generally less common in hybrid swarms, still grown in gardens and escapes are not infrequent. Individuals remain very true to type. An extensive homogeneous colony exists on and near Burgh Island in South Devon, but the species seldom if ever survives in hybrid swarms.

Origin and distribution of *O. cambrica*

O. cambrica was named by Professor K. Rostanski in 1977 after a visit to South Wales to solve what were described as some nagging identification problems (McClintock 1978). He also found *O. cambrica*-type plants without red bulbous-based hairs which he named var. *impunctata* (Rostanski 1982); but in 1989 he determined similar plants from the same vicinity as *O. biennis* × *O. cambrica* (Bowra 1992; see Appendix C).

Rostanski considered that *O. cambrica* probably came across the Atlantic from North America to a South Wales port in the 18th Century. He also considered it 'confined to Wales, Jersey and Southern England northwards to Llangollen' (Rostanski 1982). But early *O. cambrica* hybrids in South

Lancashire suggests possible introduction through more than one port over a period of time, perhaps of more than one similar strain. However, there is at present no reasonable alternative but to assume that all taxonomic characters of *O. cambrica* found in British hybrids derive from that species.

Identification difficulties

In *Epilobium*, identification difficulties arise by 'the failure of some botanists to examine critically the proven diagnostic characters, notably the quality of the indumentum' (Stace 1975 p.246).

This dictum also applies to *Oenothera* (also in the Onagraceae). But while in *Epilobium* the leaves and the quantity of the indumentum have considerable phenotypic plasticity, this is not so in true-breeding *Oenothera*. As with other genera, plants vary according to site and other conditions but 'they do not exhibit plasticity in the taxonomic characters' (pers. comm. C.A. Stace 1992); neither is there introgression 'looked upon as taking place when the conditions are not conducive to the establishment of hybrid swarms' (Stace 1975 p.49). It follows that mixed taxonomic characters should not be regarded as mutations ('conspicuous by their rarity' (Cleland 1972 p.326)), plasticity or introgression but as evidence of hybridity (which underlines the need for complete mature specimens preferably fresh or with colour notes).

Observations at Emscote and elsewhere have shown that whenever subgenus *Oenothera* species meet they will hybridise. In general, with good specimens, two species hybrids are relatively easy to identify; species and triple hybrids if only because of overlapping characters are much more uncertain.

With only an absence of red bulbous-based hairs as a positive taxonomic character, this applies particularly to *O. biennis*: site helps (never in a hybrid swarm (but as seeds have little natural mobility, perhaps on the fringes)) as does also the absence of all the taxonomic characters of the other two species.

Homogeneous colonies of species or hybrids are rare or very rare, usually small and isolated: close observation during more than one season is needed. Similarly, a selection of specimens from any colony is essential if meaningful results are to be obtained.

***O. cambrica* hybrids in South Lancashire**

Recent examination of herbarium specimens (**LIV** and **MANCH**) has shown beyond reasonable doubt that the abundant subgenus *Oenothera* population of South Lancashire consists almost entirely of old-established hybrid swarms dating back to before 1832, and that they include frequent previously unrecorded hybrids with *O. cambrica* (see Appendix B). Professor C.A. Stace in *Hybridization* (1975 p.265) noted that 'In parts of v.c. 59 all plants which resemble *O. biennis* in fact have many red-based hairs on the stems'. These hairs were almost certainly derived from *O. cambrica*.

Out of 78 specimens (many from the last century), *O. cambrica* appeared in at least 42 hybrids, *O. glazioviana* in 46 and *O. biennis* in 58. There were no 'pure' *O. cambrica* or *O. biennis* but two immature specimens fitted the description of *O. glazioviana*. All 26 plants previously identified as *O. biennis* (except one *O. stricta* (Fragrant Evening-primrose)) were hybrids or possible hybrids with *O. cambrica* and bore little visual resemblance to the true plant found in old gardens or at Emscote in 1979. Nine with a possible further 18 were the triple hybrid *O. glazioviana* × *O. biennis* × *O. cambrica* (= *O.* × *fallax* × *O. cambrica* (Stace 1997)).

All taxonomic characters of *O. cambrica* were seen except the longer than wide petals (but most petals were not measurable). The species was mostly revealed by a scarcity of glandular hairs (34 specimens); 14 had the distinctive leaves (but many specimens lacked stem leaves, particularly the lower ones); and only one had the larger capsules (but many specimens had very immature or no capsules).

In an address to the Cheltenham Natural Science Society in 1915, Charles Bailey described what he considered to be a mutation, the pistil of a plant from St Anne's-on-the-Sea: a 'stigma . . . larger than usual, and its four divisions lay at the base of the corolla, the style being suppressed or nearly suppressed; the anthers stood fully half an inch above the style'. This typical pistil of *O. cambrica* appeared in 14 specimens.

Other recent records

Elsewhere in the British Isles, specimens involving *O. cambrica* have been received from Glasgow and Morayshire in Scotland and dunes at Portmarnock near Dublin. In Wales in 1996, 20 specimens from a small area of the large colony at Harlech comprised two apparently 'pure' *O. cambrica* and 18 *O. biennis* × *O. cambrica*, seven with traces of *O. glazioviana* (see below). Small colonies of *O. biennis* × *O. cambrica* with a few apparently 'pure' *O. cambrica* continue to be found elsewhere in Britain, mostly on or near railways.

'Disappearing characters'

Some hybrids have only traces of a progenitor: for example, near Swansea in South Wales in 1989, a group of six plants among the widespread green-sepalled *O. biennis* × *O. cambrica* on Crymlyn Burrows had red sepals and other redness (see Appendix C) and on Kenfig Burrows a single plant had red sepals. No other *O. glazioviana* characters were noticed elsewhere (Bowra 1992).

In 1996, out of eleven specimens from a small area of a similar large colony at Harlech, eight had hairs on the petal bases of which one also had very large bottom leaves. Nine specimens from an adjacent area had no *O. glazioviana* characters and none were seen elsewhere.

In British subgenus *Oenothera*, red sepals and pilose petals are known only to occur in *O. glazioviana* or its hybrids. Their solitary survival invited speculation as to why other conspicuous characters had disappeared.

Clues from North America

In a monograph (1972), the late R.E. Cleland refers to dominant genes in subgenus *Oenothera* permanently masking the recessives: if a mutation 'is recessive, its existence may never become apparent, since it will be masked by its dominant allele' (p.229); and only 'if a hybrid has' (a particular genetic arrangement) 'will there be a chance for recessive genes to become homozygous in following generations' (p.298).

However, as European *O. biennis* sensu stricto differs from North American *O. biennis* both genetically (Cleland p. 304) and in behaviour (Bowra 1995, 1996), comparisons with North America may be misleading: for example, despite a suitable floral arrangement, for some undetermined reason the British plant rarely if ever self-pollinates, certainly not as in North America where 'Several lines may exist side by side but independently at a single site, each isolated reproductively from the others by reason of its self-pollinating habit' (Cleland p.229).

A possible genetic explanation

All of the three Welsh colonies are away from habitation. Invasions by *O. glazioviana* are therefore more likely to have been small and infrequent than, for example, at Oxwich and Port Eynon dunes in the Gower close to houses where in 1989 there were many *O. glazioviana* hybrids. I can only speculate; but I suspect that the disappearance of characters is due to dominant genes permanently masking the recessives: that when, say, just one or two *O. glazioviana* invade a large freely hybridising colony of *O. biennis* × *O. cambrica*, their outnumbered genes will sooner or later all become recessive and the visible characters permanently disappear.

Such a phenomenon would also account for at least some regional variation and a greater uniformity in old-established swarms; and with only three much-integrated species, the effects could be easier to observe in Britain than in Europe.

I also suspect that homogeneous British colonies (including those of out-crossing *O. glazioviana*) breed true not by self-pollinating, but by transmitting identical sets of dominant genes.

Conclusion

This article is only part of the latest of a succession of periodic attempts by experts and others to solve the problems of British subgenus *Oenothera*. In this instance, rare evidence of how rapidly a hybrid swarm may be created – the transformation within eight years of a new colony at Emscote of *c.*2000 mostly *O. biennis* (with *c.*10% hybrids) into a triple-hybrid swarm of *c.*4300 (with almost no species) (Bowra 1992) – has, with other observations, provided a logical reason for the present British distribution: that it is primarily promiscuous hybridising and annual backcrossing that created and maintains the hybrid swarms in which the large majority of British plants grow.

In *Oenothera*, opinions are seldom undivided. Moreover, there remain at least remnants of a bias against hybrids: 'Perhaps because they are still considered to be somewhat enigmatic or exceptional, hybrids have not been given sufficiently detailed treatment in most taxonomic works' (Stace 1975): for example, promiscuous hybridisation in important *Rosa* has only recently been accepted by professional botanists (Graham & Primavesi 1993 pp. 10-11).

References in Floras to exceptional behaviour in *Oenothera* are sparse: *Flora Europaea* (Raven 1968) has a good account; the only British reference I know is in *The Flora of the British Isles* 3rd ed. (Clapham 1987). The *New Flora* (which follows the species limits opinion of K. Rostanski) (Stace 1991 & 1997) makes no mention and gives the impression that hybrids are no more than occasional. Thus opinions will persist that most of these superficially similar plants should be determined to the nearest species.

This, I suggest, disregards in particular the latent true-breeding potential of each and every individual, and the backcrossing which for the large majority is a regular annual occurrence. To ignore such exceptional behaviour is, in effect, to remove an interesting group from our flora.

Because of unique complexities, there will always be unique taxonomic difficulties; but they should be acknowledged. The reality of the large majority of British plants as 'failed' strains should be recognised. And the principle of 'collective species' should be adopted (Dietrich 1991, Bowra 1996) if only to rationalise minor variations and provide a more authentic taxonomy than one based on three true-breeding strains.

Acknowledgements

My sincere thanks to Gwynn Ellis for support, encouragement and, since 1992, for publishing my articles; and to Miss Lindsey Stables of the Manchester Museum for sending me a copy of Charles Bailey's 1915 paper.

Erratum

Oenothera *in Britain, a guide to identification* (Bowra, January 1996): part of the penultimate paragraph should read '(....red punctulation (very marked in *O. cambrica*, present or absent in *O. glazioviana* and *O. biennis*')).

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Appendix A

British *Oenothera* subgenus *Oenothera* – list of characters (the most useful in **bold**)

	O. glazioviana	O. biennis	O. cambrica
1 Height	To 180 cm	To 150 cm	Not usually exceeding 100 cm
2A Red punctulation	Present or absent	Present or absent	**Marked**
2B Hairs with red bulbous bases	Stem, rhachis, ovaries, capsules	**Absent**	Stem, rhachis, ovaries, capsules
3 Glandular hairs on rhachis	Many	Many, prolific above	**Upper part only**
4 Cauline leaves	Mostly **elliptic**, often twisted, spreading, the **lowest large** (to 25 cm × 5)	**Elliptic to elliptic-lanceolate**, often upswept & twisted	Mostly **lanceolate**, **flat**, spreading, upswept below
5. Colour – top of rhachis	**Reddened**	Green	Green
6 central leaf veins	White, sometimes reddish	Reddish except in shade	Reddish
7 sepals	**Red or reddish**	Green	Green
8 Length – hypanthium	30-**40** mm	28-35 mm	25-35 mm
9 sepal tips	3-**8** mm, 3 mm in autumn	2-3 mm	3-5 mm
10 petals	(30) **35-50** mm, broader than long	15-30 mm, broader than long	20-30 mm **as broad as long or slightly narrower**
11 anthers	10-13 mm	5-10 mm	6-12 (14) mm
12 stigma lobes	6-10 mm	5-15 mm	6-16 mm
13 Styles/filaments	**Style much exceeds filaments**	More or less equal	**Filaments much exceed style**
14 Hairs – petal bases	**Often pilose on bases without**	None	None
15 Glandular hairs on – lowest capsules	Many	Many	**None on lower capsules**
16 – on ovaries; joint	Many; angled points, no swelling	Prolific; swollen	Many; rounded points, no swelling
17 Lower capsules – length; colour	20-30(35) mm; green or **red-striped when young**	20-30(35) mm; green	30-**40(50)** mm, green
18 Capsule teeth – length; shape	To 1 mm; concave to ± obtuse	To 1 mm; obtuse	To **2 mm, longer than wide**; obtuse

Remarks: Red colour fades in low light intensity, e.g. late season and flowers reduce in size after first flowering.
References: Rostanski 1982; Bowra 1988

Appendix B

Lists of characters (see Appendix A): South Lancashire specimens

	463/97 LIV.E13.12.1913.99: sand hills, Crosby, Sept. 1832	454/97 LIV.1987.375.356: Ainsdale dunes, 27-8-56	478/97 LIV.1987.375.359: Hightown v.c. 59, 5.7.68
1 Height	*c.*25 cm regrowth from base	*c.*45 cm (whole plant)	*c.*45 cm (whole plant)
2A Red punctulation	Leaves, ? stem	Stem & leaves, marked	Moderate
2B Hairs with red bulbous bases	None	Sparse; few below, more above	Moderate to prolific
3 Glandular hairs on rhachis	Very sparse below, sparse above	Very sparse below, moderate above	Very sparse
4 Cauline leaves	Lanceolate *c.*5 cm × 1	Lanceolate *c.*8 cm × 2	Lanceolate to *c.*9 cm × 1.3
5 Colour – top of rhachis	?	?	?
6 central leaf veins	?	?	?
7 sepals	Green	?	?
8 Length – hypanthium	To 29 mm	To 39 mm	To 30 mm
9 sepal tips	2-3 mm	4 mm	2 mm
10 petals	*c.*20 mm × ? wide	*c.*40 mm × ? wide	*c.*20 mm × ? wide
11 anthers	6 mm	l0 mm	l0 mm
12 stigma lobes	l0 mm	To 5 mm spread	4 mm closed
13 Styles/filaments	Filaments much exceed style	Style much exceeds filaments	Filaments much exceed style
14 Hairs – petal bases	None	Sparse	Prolific
15 Glandular hairs on lowest capsules	Moderate (very immature)	Many (very immature)	Very few (very immature) – many long hairs
16 – on ovaries; joint	Moderate; ?	Prolific; ?	Sparse, many long hairs; ?
17 Lower capsules – length; colour	12 mm (very immature); ?	14 mm (very immature); ?	14 mm (very immature); ?
18 Capsule teeth – length; shape	*c.* 1 mm; ?	2 mm; ?	2 mm; ?
Remarks	No visible *glazioviana* *biennis* 2B *cambrica* 3,13,?4	*glazioviana* 8,10,13,14 *biennis* 2B *cambrica* 2A,3,4,18	*glazioviana* 14 No visible *biennis* *cambrica* 3,13,15,18,?4
Determined: J.C. Bowra, 1997	*Oenothera biennis* × *O. cambrica*	*O. glazioviana* × *O. biennis* × *O. cambrica*	*O. glazioviana* × *O. cambrica*

Appendix C

Lists of characters (see Appendix A): South Wales specimens

	S/W 11 Oxwich Burrows SS/50.86 or 50.87, 23-8-89	S/W 38 Crymlyn Burrows near Swansea SS/717.932, 23-8-89	S/W 46 Kenfig Burrows SS/78.81/82 24-8-89
1 Height	32 cm	75 cm	24 cm (twin shoots)
2A Red punctulation	Part of stem only	Marked, stem & leaves	Moderate
2B Hairs with red bulbous bases	Only on areas of red punctulation	Many, most of stem to capsules	Stem, rhachis to upper capsules, fairly sparse
3 Glandular hairs on rhachis	None below, sparse above	Sparse below, moderate above	Many, whole rhachis
4 Cauline leaves	Upswept/twisted 5 cm × 1½	Elliptic *c.*12 cm × 3	Narrow elliptic *c.*5½ cm × 1½
5 Colour: top of rhachis	Green	Red	Green
6 central leaf veins	Slightly reddish	Reddish	Slightly reddish & green
7 sepals	Green	Red-striped	Green
8 Length hypanthium	34 mm	30 mm	27 mm
9 sepal tips	Less than 1 mm	Almost none	1 mm
10 petals	21 mm × 21 wide, 20 × 21	17 mm × 18 wide	25 mm × 28 wide
11 anthers	6 mm	4 mm	5 mm
12 stigma lobes	7 mm	6 mm	6 mm
13 Styles/filaments	Filaments exceed style	Filaments = style	Filaments = style
14 Hairs – petal bases	None	None	None
15 Glandular hairs – lowest capsules	Many	Many	Moderate overall
16 – ovaries; joint	Prolific; no swelling	Many; markedly swollen	Prolific; swollen
17 Lower capsules , length: colour	22 mm; green	30 mm; red-striped & green	20 mm; green
18 Capsule teeth, length; shape	2 mm, very narrow; abscised	*c.*1 mm; ± abscised	< 1 mm; ± abscised
Remarks	No visible *glazioviana* *biennis* 2B,4,9,15,16,17 *cambrica* 2B,3,4,10,18	*glazioviana* 5,7,17 No visible *biennis* *cambrica* 2A,3,16	No visible *glazioviana* *biennis* 3,9,10,15,17,18 *cambrica* 2B,4,16
Determined: J.C. Bowra, 1989	*O. biennis* × *O. cambrica*	*O. glazioviana* × *O. cambrica*	*O. biennis* × *O. cambrica*
Confirmed: K. Rostanski 1990	(3 of 49 specimens in **NMW** (National Museum of Wales, Cardiff))		

COMPUTER BYTES

A COMPARATIVE REVIEW OF TWO BOTANICAL RECORDING PROGRAMS

BSBI members seeking a more modern alternative to JNCC's *Recorder* program have a choice of two products currently available to them – *AditSite* and *BioBase*. This review examines and compares them.

Both products are for IBM-compatible personal computers and use the Microsoft Windows operating software. This gives them a graphical user interface and the ability for control through a mouse. They are also both based, in whole or in part, on the Microsoft *Access* database program. This is a widely-used product and is compatible with other software, such as plotting or mapping packages. It is also relatively easily to customise for users with programming abilities.

There are three other important points of similarity. *AditSite* and *BioBase* both come supplied with the full Atlas 2000 species list. Species recording is therefore mainly a process of selection rather than of 'keyboard bashing'. Also, both can output results in a format consistent with Recorder and acceptable to the BRC for Atlas 2000 work. This data includes Biological Record Centre species number, grid reference, vice-county, date, recorder, distribution status and locality. Finally, both can input data to Dr Alan Morton's DMAP mapping program.

AditSite Version 3.4

Background

AditSite is one of several software packages for biologists from Adit Ltd. The company was set up in 1988 by Paul Griffiths and his brother, and presently employs five people. There are currently 88 corporate and individual users of AditSite, including Forest Enterprise (its original user), The Environment Agency, several universities and various county and district councils.

The product costs £135.00, plus VAT, to the unsubsidised user. (There are special prices for vice-county recorders and their nominees; these should be discussed with Cameron Crook (address on page 2)). Upgrades, which are usually annual, typically cost between £10 to £15. Maintenance is free. *AditSite* can be obtained from Adit Limited, Tyn Rardd, Dwyran, Anglesey LL61 6AJ.
Tel: 01248 430075; fax: 01248 430771; e-mail: adit@compuserve.com
World Wide Web: http://ourworld.compuserve.com/homepages/adit).

The Software

AditSite comes on two floppy discs and is simply loaded. It works with Windows 3.1, 3.11, 95 and NT and on virtually any computer that can run one of these. Paul Griffiths recommends a minimum machine specification of Intel 486 processor, 8 Mbytes of RAM and a display resolution of at least 800×600 pixels. (*AditSite* is usable, but awkwardly, with a 640×480 pixel display.)

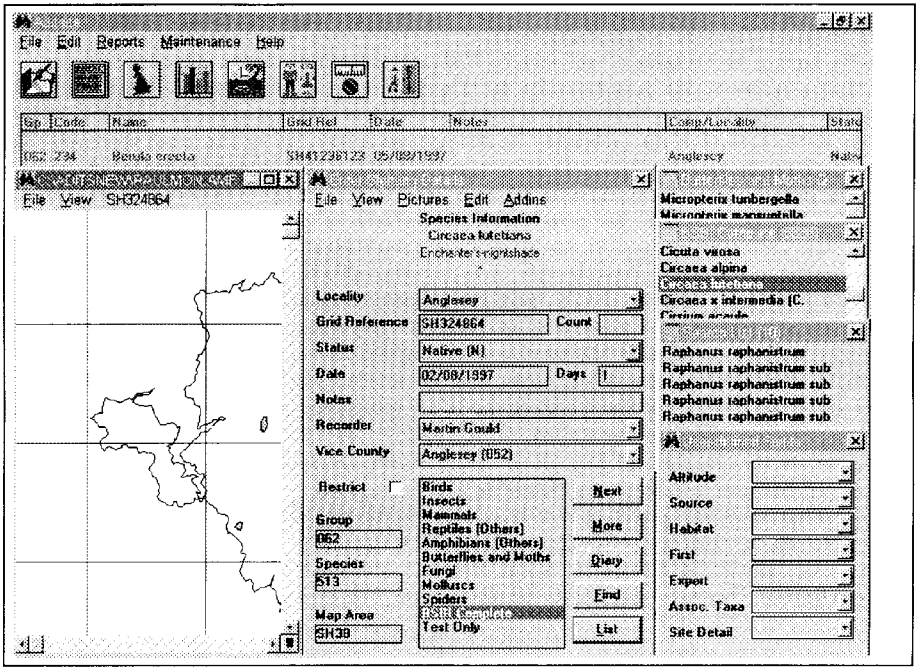
This is a 'multi-group' product, coming supplied with lists for birds, insects, mammals, reptiles, 'amphibians' (twenty assorted aquatic creatures, including leeches), butterflies and moths, fungi, molluscs, spiders and plants (the Atlas 2000 list). It can display maps, diagrams and photographs of sites or specimens. It will also link with a CD-ROM of birds, not supplied by Adit, to play video clips.

In Use

The picture below shows a typical record entry session in progress (working at 800×600 resolution). The central window is the input screen. It is summoned either by pressing the left hand icon at the top of the page or an 'Add' button at the bottom of it (concealed by the map).

This data entry window contains details of recurring information for that set of sightings, such as vice-county, site name ('Locality'), map reference, recorder and date. The date is automatically set to that of the session but can be entered directly.

The 'Count' field is for frequency of occurrence, and accepts single-digit inputs on the DAFOR and Domin scales. 'Status' is for the distribution status for the locality ('plant status nomenclature', in Atlas 2000-speak) and is entered afresh for each species. 'Days' is for sightings meant to apply over a period and is useful for time-based graphs and plots.



AditSite main entry window

Additional recurrent details can be entered in the optional window shown at bottom right, which is activated by the 'More' button. The 'Diary' button opens a small window for free-form notes, should the notes field on the central window not be capacious enough.

The left hand window shows a map of the area being worked on. This can be zoomed in and out of and can have differently-sized grids overlaid on it (the 10 km grid is shown). Clicking on the map's cursor enters that map reference on the central window, in a choice of codings, including DINTY. (References can also be input directly and can be mixed within a data entry session.) This window can also show pictures or photographs, or can be kept closed.

The uppermost two right-hand windows are showing the lepidoptera list and the BSBI list. Users can have as many of these lists open as they need. Any one of the groups can be made an automatic selection at start up.

Species' names can be shown in Latin or in English and in alphabetical or code number order. A quirk of the sorting method means that the sequence of the latter is 10, 100, 1000 – 1999, 2000 – 2999 and so on. A more usual sequence (1, 2, 3, 4, etc.) will be incorporated in a future release of the product.

The simplest way to select by name is to scroll down the species list, clicking the mouse button when the cursor is in the right place. At that point, the name appears near the top of the central window, in Latin and, if available, in English. The species number appears in the box on the left side of the central window.

Alternatively, the user can have the software search for the species, in one of two ways. 'Find' highlights on the species list the first species matching the search term, which can be all or part of an English or Latin name or BRC number. Further occurrences are found by repeated presses of the F3 key, in the usual Windows fashion.

The other method is to 'List' search results (the next button down from the 'Find' button). These appear in a separate window, shown on the right in the diagram. The user then selects from that window, instead of from the complete species list.

Direct entry of BRC numbers is not possible. The user must use the find or list utilities for this.

Adding a record to the cumulative list for a session requires only that the 'Next' button be pressed. The program first validates some of the inputs, such as date and grid reference. It then adds that entry to the bottom of the cumulative list that appears behind the various small windows. (The headings for it can be seen near the top of the screen. The width of each column is adjustable).

As the picture shows, having several windows open at this display resolution can obscure the session list. The short manual that comes with the software (a printed version of the clear and logically-organised help file) suggests moving or closing some windows to enable the list to be seen. Another possibility, being considered by Adit, is to have the software indicate to users when a duplicate entry is being made, allowing them to make that a deliberate choice.

Once the user has checked the session list, and made any additions, modifications or deletions, filing it takes a single mouse click. (Changes to an existing file can be made as easily.) Reports, plots or graphs of the results are simple and pretty well foolproof to produce. Exporting to DMAP first requires the setting up of a link file, specifying the 10 km squares to be used. This is fiddly to do, but needs doing only once for a vice-county, say.

Exports are also possible in BSBI, tab delimited, comma delimited and flat file formats, to the Windows clipboard and to other copies of *AditSite*.

AditSite's analysis and output options are extensive and sophisticated. It can, for example, do pattern matching, in which it searches for combinations of species to find sites with possibly similar habitats. It can also do 'drill down' of report data, through to individual species or sightings. The results can be output in a variety of graphs and plots.

BioBase Version 7.5

Background

BioBase is produced by Mike Thurner, of Thurner Automation, who will be familiar to many BSBI members as a *Recorder* instructor. His original intention, last year, was to write an easy to use front end to *Recorder*. The project 'just growed' into a piece of software, *BioBase*, that can be run on its own as well.

Since launching it last June, Mike has sold about a hundred copies of the package to numerous individuals and organisations. It has been adopted as the standard for county recorders by the Mammal Society, the Bat Conservation Trust, the British Dragonfly Society, and the Bees, Wasps and Ants Recording Scheme. It is also approved by the BSBI.

BioBase costs £75.00, plus VAT, for unsubsidised users. Discounts apply for BSBI vice-county recorders and their helpers (details from Cameron Crook). They also apply for members of the other bodies mentioned above. Telephone help is free for three months after purchase. Upgrades to copies bought through the BSBI are distributed through it. BioBase can be obtained from Thurner Automation, Littleton Farmhouse, Littleton, Guildford, Surrey GU3 1HW (tel/fax: 01483 304949; email: MikeTAuto@aol.com).

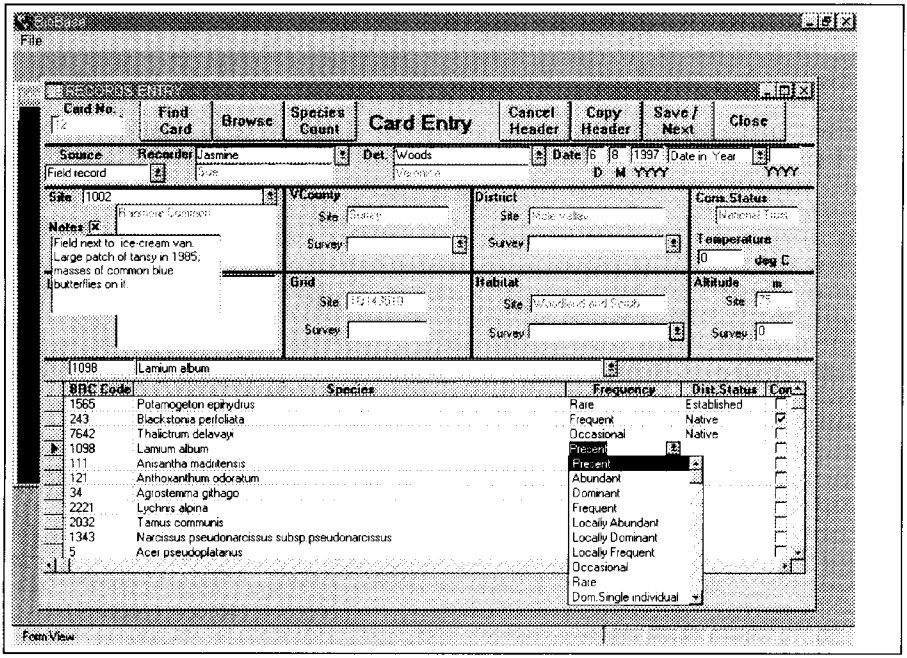
The Software

The software comes on four floppy discs, with a choice of simple loading processes, depending on which version of Windows is being used. BioBase runs on Windows 3.1, 3.11 and 95, with an additional Windows 95 version for users of Microsoft Access 97. Mike Thurner recommends a machine with, at least, a 486DX 66 chip, 8 Mbytes of RAM and 10 Mbytes spare on the hard disk. *BioBase* needs an 800×600 display as a minimum; trying to use it on anything less is awkward.

This is a 'single-group' product, with variants for the needs of workers in different groups. So far as is possible, the BSBI version of *BioBase* uses the same nomenclature as Recorder. This has a checklist of 6,090 species, combining the older BRC plant list with that for Atlas 2000. It comes with sample data, which can be replaced once the user is familiar with the system (typically by working through a useful short tutorial provided).

In Use

A typical recording session is shown in progress in the picture below (at 800×600 resolution). The entry screen closely mimics a record card. It is summoned from one of seven menus on the opening page, which is not visible at this stage. *BioBase* does not presently use icons, which would improve this aspect of using the package.



BioBase main entry window

The entry screen opens at the next empty 'card'. At this point, the user can begin entering data or can retrieve an existing card to work on. These can be selected either from the 'Find Card' button, if the card number is known, or from the 'Browse' button. The latter method allows selection by various criteria and offers a range of cards to choose from. Leaving the selection fields blank presents all the cards for inspection and, if needed, editing.

The other buttons along the top of the card are as labelled. 'Species Count' tallies the number of species for that card, which is useful when the list is too long to display. 'Copy Header' allows repetitive information to be carried over to a new card, from the current or an earlier session. 'Cancel Header' obliterates it.

The 'Save/Next' button files the completed card and brings up a fresh one. 'Close' closes the entry card window, without saving the card being worked on.

The small window labelled 'Source', upper left, automatically shows the basis for the entries as being a field record. The other selectable possibilities are literature references, such as floras, and herbaria. Next to that window are the fields for the names of the recorder and the 'determiner', who confirms the record when needed.

All these fields use drop-down lists ('combo boxes', in programming parlance), as do several other fields on the form. With the exception of the species list, the details on all these drop down lists can be entered or edited by the user. This is done as a separate operation, either from the 'File' menu, at top left of this screen, or via the menus on the first screen the user sees.

The design of the date fields (upper right) is chosen to ensure accuracy, somewhat at the expense of convenience. There is no default date automatically entered, for instance, except when header details are being carried over. Also, abbreviated entries, such as '3/8/97', are impossible. (*AditSite* accepts truncated day/month/year dates, automatically turning them into the full date string.)

Vague dates, such as the year alone or month and year, are accepted (by both packages) but only *BioBase* bars future dates. It handles date ranges well. The default setting is 'date in year' (that is, contemporaneous) but it can also deal with dates before and after the current year, year ranges and, for literature, year of publication.

The fields in the next block down are also mostly self explanatory. The 'Notes' field has room for a 100-character entry, like that shown, which is concealed when the X-box above it is clicked empty. The 'Survey' fields underneath the entries for vice-county, district and so on is for sightings made outside formally defined zones. The place these were made can be described in a boxed labelled 'Location', presently concealed by the Notes entry. (If several visits are made to any location, it can easily be turned into a site.)

Map references can be entered in various ways, including orthodox alpha-numeric, numeric, tetrads, Irish form and UTM. (A separate record card must be filled out for each map reference and for each human recorder). 'Habitat' offers 108 possibilities; 'Cons[ervation] Status' offers 62. The temperature and altitude entries are optional.

The bottom block of fields is where species selection is made and recorded. Entries can be made by BRC code (at the point where the number '1098' appears) or alphabetically. Numerical entry is fast and efficient when working from a field card, for example.

Alphabetical entry can be done in two ways. One is to begin typing the species name on the entry line (where '*Lamium album*' appears in the picture). The program fills in the rest of the name once the user begins typing it in. As more letters are typed in, so the number of possibilities diminishes until the required species is displayed.

An advantage of this method, and the use of BRC numbers, is that species entry can be done solely from the keyboard. This is faster than having to combine keyboard and mouse use, as is necessary with *AditSite*. (Most of the fields on *BioBase* can be reached, in sequence, just by pressing the tab or 'Enter' keys.)

Mouse use is necessary in the alternative alphabetical method for *BioBase*. Clicking on the arrow at the end of the name entry line lowers a species list. This shows the scientific name of each species, and whether it is in the Atlas 2000 list, an alien, is scarce or rare, or any combination of these. It also shows the BRC number.

Common or colloquial names are not shown, even though they are in the underlying database (and are displayed in all the other versions of *BioBase*). This is a pity. English names can be a secondary, almost subliminal, check on the correctness of an entry and could usefully be incorporated here.

Once the correct species is selected, it is recorded by pressing the computer's 'Enter' key. (A warning message appears when a duplicate species entry is about to be made.) The entry then appears in the scrollable list at the bottom of the card (shown in the picture, with a rather improbable selection of species). Each addition usually appears at the top of the list but this does not happen every time, for some reason. The width of the columns in the list can be altered.

Once in the list, each entry can have its frequency and distribution status noted, using the combo boxes as demonstrated in the picture. Frequency indicators include DAFOR, Domin and Braun-Blanquet systems, as defined by the BSBI data transfer standard. A tick box for confirming each record is provided for subsequent use.

At the end of a session, the card is filed away. The program checks on the validity and completeness of certain entries, such as date and grid reference, before permitting this.

Reports can then be made by selecting from the main menus on the initial screen (not shown). Although these are less advanced than those for *AditSite*, they are adequate for routine use and easily produced. There are no charting or plotting options available but *BioBase* can link directly to DMAP for the latter. It can transfer data into and from other *BioBase* systems and *Recorder*, and can export in BRC format. (*AditSite* cannot import from *Recorder* directly.)

BioBase can also export data as ASCII text and in Microsoft *Excel* and rich text formats. It comes with an open system interface (*BioExt*) for Microsoft *Access* users, allowing bespoke queries, reports and analysis, including access to English name of species.

Summary

A short review like this cannot do justice to the range of features of either of these products. I have concentrated here on their data entry capabilities, which is where the average user will mostly be engaged when doing Atlas 2000 work. *AditSite* and *BioBase* both represent a considerable improvement over *Recorder* in this aspect alone and would present few difficulties to the computer novice, either in learning or in use. The expert would get even more out of either of these products.

It is also clear that neither product is wholly superior to the other; each has its strengths and weaknesses. Which the potential user should choose is very much, as the cliché has it, 'horses for courses'.

BioBase is better suited to the user who wants mainly to do species recording in a single group. Its data entry methods are generally slicker and it can record more aspects of a survey as standard. Acceptance of herbarium and literary sources is a bonus, as its compatibility with *Recorder*. Being a single-group product, it makes fewer demands on the computer's power. It is much the cheaper of the two to the unsubsidised user.

AditSite, by contrast, is a program designed to aid analysis as much as to automate species recording. (Paul Griffiths has found the emphasis among users of it to be swinging towards recording and highlighting indicators of species diversity.) Its graphing, plotting and reporting features are excellent and many users will find these alone make it worth the extra cost. Its ability to incorporate graphical material is another distinguishing feature. Because it is a multi-group product, it needs a more powerful machine to get the best speed of operation.

In addition to these, relatively objective, aspects, there is the user's subjective response to take into account. This is always an individual matter. In the case of these two products, it will largely depend on how the intending purchaser reacts to each product's design 'philosophy'. Some people find electronic versions of record cards restricting and rigid, while others find icons and pictures 'flashy'. I have tried in this review to give at least an inkling of the 'look and feel' of these products.

A better way to understand their working styles is to try them out, either using a colleague's copy or by getting an evaluation copy from their suppliers. Either company would be willing to do this (within reasonable limits).

One further matter should be borne in mind. Adit and Thurner Automation are not outposts of American multinational operations, neither are they answerable to committees. Both are small, independent and responsive companies, receptive to suggestions and liberal with assistance. As experienced computer users will know, the sort of customer relationship this makes possible is invaluable. The package you buy from either company includes this, free.

My grateful thanks go to Paul Griffiths and Mike Thurner for their help with their respective products and my questions about them, and to Cameron Crook, Trevor Dines, Gwynn Ellis, Alan Morton and Joyce Smith for acting as sage sounding boards.

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

DEVELOPMENT OF A BSBI WEB SITE

A BSBI World Wide Web site is currently under development by the authors. The site will contain the following elements:

A general introductory page containing links to:

- A section of membership information including an application form and Society Rules
- A Publications section, including Society publications and ordering information.
- A Field Meetings section, including a map of field meetings from which information about each meeting can be displayed by a mouse click on the site.

- A Records section. Another interactive map of the British Isles showing the vice-counties which allows information about each vice-county to be displayed. This will include vice-county recorders (subject to approval) and local floras.
- A Conservation section with links to matters of conservation interest (Code of Conduct, Use of Wildflower seed, etc).
- BSBI Bequest Fund.
- BSBI Database.
- A list of books recommended for beginners.
- Useful addresses (from *BSBI Year Book 1997*).
- Other links of interest to botanists.

We would be delighted to have any comments or suggestions for further content. Phone the editor for details of the WWW address.

MARK ATKINSON, 3 Spruce House, 80 Chapel Ash, Wolverhampton, WV3 0TT.
Tel: 01902 772040; e-mail: matkinson@mercianet.co.uk
GWYNN ELLIS, Hon. General Secretary

NOTICES (BSBI)

BSBI FIELD EXCURSION IN NORTHERN CYPRUS
25 March – 5 April 1998

This excursion will be led by Deryck Viney, a BSBI member who lives there, and who has recently published a 2-volume Flora. It will be based at the Dome Hotel, Kyrenia for the first week and then move to Bogaz on the south coast so that the eastern end of Cyprus, the 'pan-handle', can be explored. The price is £700 per head with a single room supplement of only £25, and includes flights, transport, 11 nights B & B, one dinner at the Dome and one at Bogaz.

For more details and a booking form please write to:

FRANKLYN PERRING, Green Acre, Wood Lane, Oundle, Peterborough PE8 5TP. Tel: 01832 273388; Fax: 01832 274568

BSBI POSTCARDS

A reminder that these are still available – 16 superb different postcards of plants from Britain and Ireland produced on high quality card, and promoting the Society.

Please send £2.50 plus 50p p&p for a set, or £4.75 for 2 sets to (and cheque payable to):

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

NOTICES (NON BSBI)

SENSORAMA AT THE ROYAL BOTANIC GARDEN EDINBURGH

'Sensorama', is the first hands-on botany exhibition to be targeted specifically at children and offers a feast for all the senses. Speaking about Sensorama, Dr Tan Darwin Edwards, Head of Public Education, said: 'We know that children do not only learn by sight and sound and the Sensorama programme will involve all the senses in a project which will introduce young people to some basic biological concepts such as pollination and seed dispersal. The original exhibition is quite small but we believe it will be very popular, especially with families. It is our intention to expand the Sensorama project as funds become available'.

Start-up funds for Sensorama, which is a permanent exhibit, came from a Royal Society of London COPUS development grant for the public understanding of science. The TSB Foundation for Scotland also contributed funds for the setting up of two new microscope benches designed for easy access by children and wheelchair users.
For further information contact:

ANGELA KILDAY (Press Officer), RBG, 20 Inverleith Row, Edinburgh EH3 5LR.
Tel.: 0131 552 7171 ext. 427; Fax: 0131 552 0382

FUTURE CONFERENCES AND SYMPOSIA

JOHN RAY AND HIS SUCCESSORS: THE CLERGYMAN AS BIOLOGIST

Thursday 18 March to Sunday 21 March 1999

A joint conference of the John Ray Trust, the Institute of Biology's History Committee and the Society for the History of Natural History

John Ray (1627-1705) was one of the most important biologists in the history of the subject and this conference will celebrate all aspects of his life and work. He was ordained and his religious beliefs informed his work and were widely influential. The conference will go on to consider the British clergy (or their families) who were biologists and their distinctive contributions to both church and science. This would include theology, social roles and individual biographies. The third focus of the conference will be the current experience of people who are both clerics and biologists. Keynote addresses will be given on each of these three themes.

The conference will be held in Braintree, Essex – Ray's home town – coinciding with the town's 800th anniversary celebrations. Braintree has a train service from London, is close to the A12 and the M11, and is in easy reach of Stansted Airport.

Call for papers: Conference participants are invited to present papers. Please send an abstract (250 words) by 1 March 1998 to Nigel Cooper at the address below.

Register your interest to receive further details by sending your contact details to Nigel Cooper.

Rev NIGEL COOPER, The Rectory, 40 Church Road, Rivenhall, Witham, Essex, CM8 3PQ, UK.
Tel.: (+44) (0)1376 511161. E-mail: please leave messages for Nigel Cooper's attention on cgw23@cam.ac.uk

PS. With reference to the note by Frank Penfold in *BSBI News* **75**: 14, Braintree D.C. did more than celebrate John Ray in 1986, it formed the John Ray Trust. This Trust administers scholarships and bursaries for budding naturalists, though as yet few are available. The Trust also promotes Ray and the causes he believed in in other ways, such as the above conference.

NEW DIRECTIONS IN SYSTEMATICS: HERSÓNISOS, CRETE

15-18 October 1997

The final Workshop being organised by the European Science Foundation's Network in Systematic Biology will be on *New Directions in Systematics* and will take place between 15-18 October at Hersónisos, Crete. The Worksop will have the important objective of developing the framework for a proposed programme in Systematic Biology, which it is hoped will be funded by the European Science Foundation.
For further details please contact:

NICOLA DONLON, Science Policy Coordinator, The Natural History Museum, Cromwell Road, London, SW7 5BD. Tel.: 0171 938 9399; Fax: 0171 938 9506

XVI INTERNATIONAL BOTANICAL CONGRESS
SAINT LOUIS, MISSOURI, USA
26 September to 7 August 1999

The XVI International Botanical Congress, Saint Louis, USA, will provide a forum for presentation and discussion of the latest advances in the plant sciences among botanists worldwide.

An person interested in plant biology is invited to attend. The full registration fee will allow attendees admittance to all scientific sessions and receptions. There will be reduced fees for students and associated members. The Nomenclature Section runs from 26-30 July and the Congress proper from 1-7 August.

If you are interested in attending, or want further details, please contact:

Secretary General, XVI IBC, c/o Missouri Botanical Garden, P.O. Box 299, St Louis, MO 63166-0299 USA. Fax: (01) 314 577 9589; E-mail: ibc16@monbot.org; Web site: http://www.ibc99.org

REQUESTS

CONTACTS WITH RUSSIAN BOTANISTS

I am currently researching Soviet and post-Soviet government policy on wildlife conservation, particularly of botanically significant sites. This includes the past and present management of the special reserves (the so-called zapovedniki). I would welcome the opportunity to discuss such matters with any Russian botanists knowledgeable on the subject, and request contact with any known to members. I am able to read Russian (especially with my volume of Smirnitsky to hand) but in the time-honoured manner peculiar to Englishmen am less clever at speaking it. However, where there's a will . . .

RODNEY L. COLE, Elizabeth Cottage, Bells Hill Road, Vange, Basildon, Essex, SS16 5JT

FLOWER DEVELOPMENT

The John Innes Centre is examining the molecular and genetic basis of variation in flower development and wishes to locate current examples of the following:

1. Peloric (radially symmetrical) forms of Common Toadflax (*Linaria vulgaris*).
2. Mixed or adjacent populations of Wild Carrot (*Daucus carota*) that show variation in the presence or absence of the enlarged pigmented central flower.
3. Mixed or adjacent populations of Lesser Knapweed (*Centaurea nigra*) that show variation in the presence or absence of ray florets.

Dr E. Coen, John Innes Centre, Norwich Research Park, Colney, Norwich NR4 7UH would be delighted to hear from any members who have information on suitable plant populations. Those who can help should write to the above address or FAX him on 01603-456844

DAVID J. McCOSH, Baconsthorpe Old Rectory, Holt, Norfolk NR25 6LU

COVERED WALKS

The Tourist Office of La Reid (Belgium) is currently setting up an inventory of covered walks in Europe (especially hornbeam covered walks). They would greatly appreciate details of any covered walks known to members or the addresses of any organisation or individual which might be able to help.

Please send all information to:

La Reid Tourist Office, attn. Michael Mathieu, 848, Basse-Desnié, B-4910 La Reid, Belgium. Tel.: & Fax: +32 87 37 63 28

BOOK NOTES

BSBI HANDBOOKS

No 2 *Umbellifers of the British Isles* by T.G. Tutin (1980)

Because of delays in the revision of this Handbook, it has just been reprinted. Copies are available at £10.00 (inc. p. & p.) from BSBI Publications, Green Acre, Wood Lane, Oundle, Peterborough PE8 5TP (Tel. 01832 273388; Fax 01832 274892). A substantial amount of work has been done by the authors of the planned new edition (with distribution maps), Stephen Jury, Sabina Knees and Mervyn Southam, and I hope to announce the expected date of publication in *BSBI News* before long.

No 8 *Pondweeds of Great Britain and Ireland* by C.D. Preston (1995)

In the 1996 reprint the following minor corrections were made. They are given here for the benefit of members who have a copy of the original printing (which lacks 'Reprinted 1996' on the back of the title page).

Page 8,	line 13:	'Lyall' for 'Lyell'.
Page 22,	line 20:	'Potamogetons' for 'Pondweeds'.
Page 28,	last line:	'obsolete' for 'obselete'.
Page 107,	line 10:	'South Africa' for 'East Africa'.
Page 127,	line 5 up:	'16' for '6' (for option 4b).
Page 135,	line 2 up:	'Lyall' for 'Lyell'.
Page 222,	line 14:	'acute' for 'acuminate' (but 'acuminate' remains in line 16).
Page 228,	line 2 up:	'25' deleted.
Page 278,	left of 'E':	smudges deleted.

No 9 *Dandelions of Great Britain and Ireland* by A.A. Dudman & A.J. Richards (1997)

Just as this Handbook was going to press, Peter Sell gave me the correct date and place of publication for **Taraxacum parnassicum** Dahlst. (*T. silesiacum* Dahlst. ex Hagl. of D.H. Kent's (1992) *List of Vascular Plants of the British Isles*). It was still possible to correct the date of publication of this species but not to incorporate the relevant reference. The following corrections are required.

Page 53,	line 1:	'Dahlst. (1929a)' for 'Dahlst. (1929)' (for **3 T. argutum**).
Page 57,	line 1:	'Dahlst. (1929b)' for 'Dahlst. (1929)' (for **5a T. parnassicum**).
Page 329,	line 18:	'DAHLSTEDT, H. 1929a.' for 'DAHLSTEDT, H. 1929.'.
Page 329,	after line 21:	Addition of 'DAHLSTEDT, H. 1929b. Über einige orientalische *Taraxacum*- Arten. *Acta Horti bergiani*, **9**: 1-36, 2 pp. of plates.'.

Andrew Dudman tells me that he has prepared a document listing the provenance of the herbarium specimens used for the silhouettes which illustrate this Handbook. He would be happy to provide a copy to anyone who would find this useful. His address is Holebeck House, Cleator Moor, Cumbria CA25 5HD (Tel. 01946 810430; e-mail adudman@aol.com).

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

Editors note: If any member has a BSBI handbook that they no longer need; or needs a handbook that is our of print, please let me know. I will try and put the two together.

DANDELION HANDBOOK LAUNCH

The new BSBI handbook *Dandelions of Great Britain and Ireland* was successfully launched at the Linnean Society, London on May 22nd. A talk on 'The interest of British and Irish dandelions' by one of the authors, John Richards, was followed by a wine and buffet lunch in the library and a short talk by the second author, Andrew Dudman on 'The making of the book'. This delightful occasion was enhanced by the presence of Mrs Bertha Haworth, the widow of Chris Haworth to whom the book is dedicated with the words:

'. . . to the memory of CHRIS HAWORTH,
who would, but for his untimely death,
have been one of the authors of this book,
and without whose pioneering work
its treatment would have been much less complete.'

Andrew Dudman, Bertha Haworth and John Richards at the launch, 22nd May 1997
Photo © B. Haworth, 1997

EDITOR

PUBLICATIONS FROM THE ROYAL BOTANIC GARDEN EDINBURGH

A new catalogue is now available which gives details of the varied publications available from the RBGE. To obtain a copy, please contact:

Print and Publications Section, Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh EH3 5LR. Tel.: 0131 552 7171; Fax: 0131 552 0382; e-mail: pps@rbge.org.uk

REPORTS OF FIELD MEETINGS — 1996

Reports of Field Meetings are edited by, and should be sent to, Dr Alan Showler who has replaced Dr Brian Rushton. Alan's address is 12 Wedgewood Drive, Hughenden Valley, High Wycombe, Bucks, HP14 4PA, Tel.: 01494 562082. For reasons of space, four reports are being held over until the next issue.

BSBI EXCURSION TO WENGEN, SWITZERLAND, 1996

June 19th – July 3rd

The weather did not co-operate! After more than 20 years of botanical visits to Wengen in June and July, in 1996 we had the most difficult weather conditions that I have known on those dates. Following unusually warm weather in May – and earlier – in 1996 there was an early snow melt and the spring alpines had mostly flowered by May at the 1,300 m Wengen height. Normally we would then have explored higher on the mountains, but soon after we arrived, clouds blotted out the promised spectacular views of the peaks, and for ten days rain, hail, blizzard and snow kept us at lower levels. However at last the snow peaks of the famous Eiger, Mönch, Jungfrau, Breithorn and Tschingelhorn skyline reappeared shining in the sun, and the meeting ended as it should have begun.

In spite of these restrictions, this BSBI group added an amazing 87 new plants to the list which had been built up over the visits of past years. This was largely due to the unflagging enthusiasm of Trevor Evans and his special interest in grasses, as well as the sharp eyes and keen interest of all members of the group. The localities that we visited in the two weeks included: Wengernalp & Biglenalp, Eigergletscher, Mannlichen & Kleine Schiedegg, Schynige Platte, Lake Thun and the Stechelberg Nature Reserve. The Bernese Oberland in the central Alps has a good basic alpine flora, including many of the traditionally favourite alpine flowers as well as plants of local and special interest. The Tumpet Gentian, *Gentiana acaulis*, for which the Wengen area is famed were mostly in fruit at 1,300-2,200 m at the time of our visit, but were found in flower when we were able to climb higher.

The ten species of gentian seen in flower also included *G. brachyphylla* and *G. bavarica*. We were only just in time (in this unusual season) to see *Cypripedium calceolus* (Lady's-slipper Orchid) in flower, and also saw *Epipactis microphylla* and *Cephalanthera rubra*, the Red Helleborine (the flowers are pink!) and *Listera cordata* (Lesser Twayblade).

Highlight plants of the holiday included:

Carex curvula, *Kobresia simpliciuscula*, *Eleocharis uniglumis*, *Bromus benekenii*, *Saxifraga bryoides*, *Lathyrus laevigatus*, *Androsace helvetica*, *Aquilegia alpina*. Also *Primula auricula*, *P. hirsuta*, *P. integrifolia* and the hybrids *P.* × *heerii* (*P. hirsuta* × *P. integrifolia*) and *P.* × *pubescens* (*P. auricula* × *P. hirsuta*) – identified for us here by the late Dick David. And *Hypericum maculatum* subsp. *maculatum* (later det. for us by Norman Robson as the subspecies very rare in Britain, with scattered records in Central Scotland only and possibly introduced in England). Also *Galium megalospermum* (Swiss Bedstraw), *Laserpitum siler* (Surmountain), *Bartsia alpina*, *Viola cenisia* (Mt Cenis Pansy), *Monesis uniflora* – and the white alpine lilies, *Anthericum liliago* (St Bernard's Lily) and *Paradisea liliastrum* (St Bruno's or Paradise Lily).

In view of the grand total of plants new to the list, the reward for new additions rashly offered at the start of the holiday had to be amended to a more communal celebration on the last evening! It was a pleasure to take this group whose enthusiasm, interest (undeterred by the weather) and philosophical cheerfulness, made this a very enjoyable BSBI meeting.

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

Summer botanising, Wengen 1996. Photo © M. Briggs, 1996

ADVERTISEMENTS

WALKS WITH CRETE'S SPRING FLOWERS

Five-day walks at two different locations in the extreme South West of Crete. Four separate weeks commencing Tuesdays 14th April – 5th May; during this last week we walk from Crocus at the snow line through Cyclamen and Peonies, to Oleander flowering at the coast.

Further information from:

JEFF COLLMAN, 21 Beechwood Avenue, Milber, Newton Abbot, Devon. TQ12 4LJ. Tel.: 01626 68318.

STOP PRESS

A NATURAL HISTORY OF SUTTON PARK PART 1: THE VASCULAR PLANTS

As promised in *BSBI News* 75: 26, I now inform members that a second and updated edition of this booklet has been printed. Copies are available from BSBI Publications, Green Acre, Wood Lane, Oundle, Peterborough, PE8 5TP (01832 273388) at £4.00 including p.& p.

HAROLD H. FOWKES, 21 Tudor Grove, Streetly, Sutton Coldfield, B74 2LL

NATIVE STOCK OF *ANTHEMIS ARVENSIS* WANTED

We are desperately trying to obtain a few grams of truly native *Anthemis arvensis* (Corn Chamomile) for growing on so that it can be circulated around seed merchants for inclusion within wildflower seed mixtures. The seed presently available appears to be the very similar but alien *A. austriaca* and it is this that is included in most seed mixes.

If any member can help we would be very grateful.

DAVID JENKINS, Wildflower Officer, Johnsons Seeds, London Road, Boston, Lincs. PE21 8AD. Tel: 01205 365051

ORCHIS MILITARIS AND *O. SIMIA*

We are collecting old records of *Orchis militaris* and *O. simia* and having found many interesting and unpublished records in several of the major British herbaria, are wondering how many other 'unknown' specimens and localities exist in the smaller herbaria in Britain and Ireland.

If any member knows of such specimens we would be most grateful for details.

BILL HAVERS & ROD D'AYALA, Countryside, Abbotsbrook, Bourne End, Bucks. SL8 5QS

The Editor Gwynn Ellis can be contacted by phone or fax on 01222-496042 or e-mail: bsbihgs@aol.com

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The Hon. General Secretary, c/o Dept. of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD. Tel: 0171 938 8701

Contents (continued from back cover)

NB The party girl on page 4 was, of course, Ann Conolly!

STOP PRESS The BSBI's Web site address is http://members.aol.com/bsbihgs

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