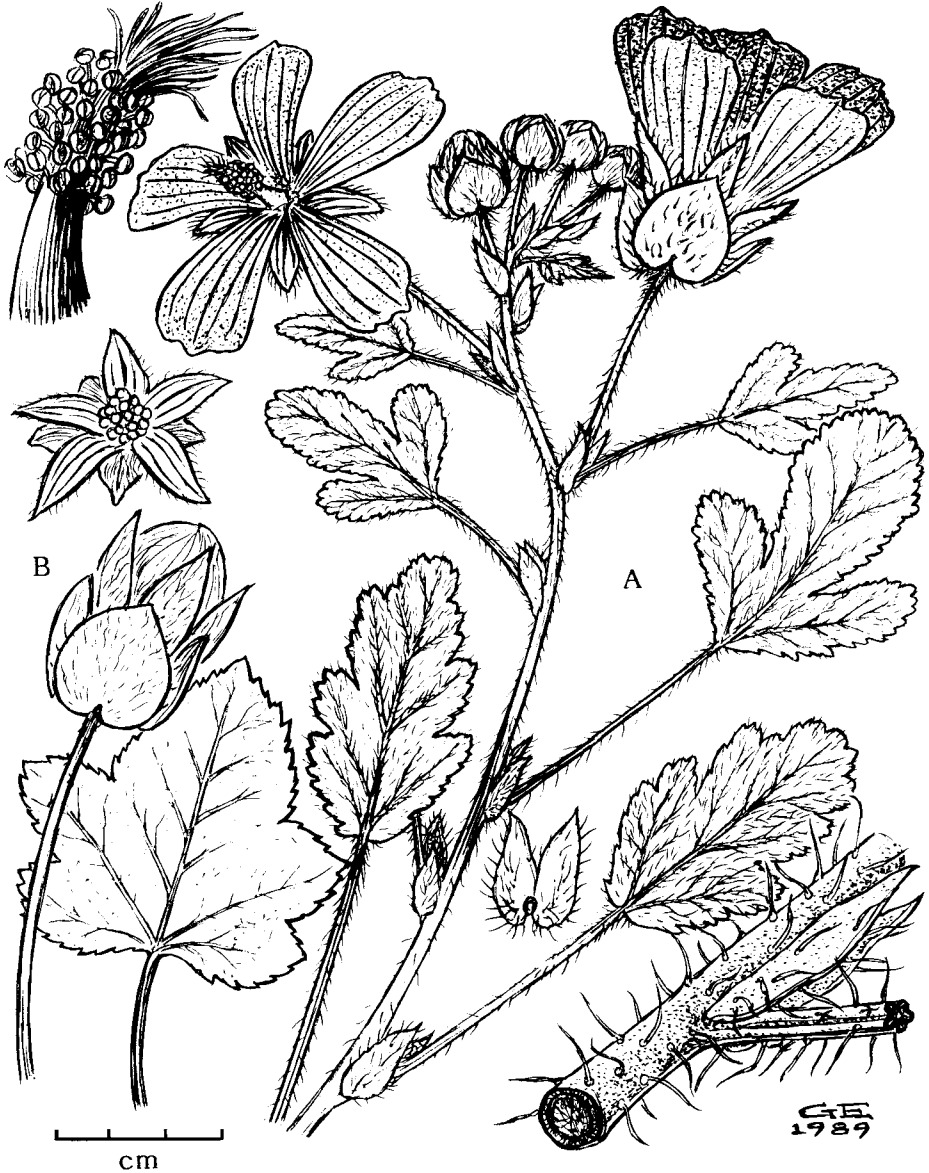


Edited by R. Gwynn Ellis

No. 53

Dept. of Botany, National Museum of Wales

Cardiff CF1 3NP



(A) *Malope malacoides* L. (B) *Malope trifida* Cav. del. G.M.S. Easy © 1989

ADMINISTRATION

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9 Arun Prospect, PULBOROUGH, West Sussex RH20 1AL

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(Please quote membership number on correspondence concerning membership or subscriptions  
- your membership number is on the address label of your mailings).

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PERMANENT WORKING COMMITTEES FOR 1989-1990

CO-ORDINATING: J.F.M. Cannon (Hon. Sec.), A.O. Chater, A.J. Byfield, Mrs A. Lee,  
D.J. McCosh.

CONSERVATION: A.J. Byfield (Hon. Sec.), D.R. Donald, Miss I.F. Gravestock,  
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D.A. Wells, C.D. Preston, R.M. Burton, Dr G. Halliday, Dr T.C.G. Rich,  
Miss E. Nic Lughada (Ireland), A.J. Worland (British Pteridological  
Society).

The President, Hon. Treasurer and Hon. General Secretary are ex officio members of all the  
above committees.

**NOTICE TO MEMBERS**

Nominations for vacancies on Council, in writing, signed by two members of the Society and accompanied by the written consent of the candidate to serve, if elected, should be sent to the Hon. General Secretary, 9 Arun Prospect, Pulborough, West Sussex RH20 1AL, to arrive BEFORE FEBRUARY 1st 1990. (See BSBI News 52: 2 (1989) for the list of present members on Council.)

MARY BRIGGS  
Hon. General Secretary

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**CONTRIBUTIONS INTENDED FOR**

**BSBI NEWS 54**

should reach the Editor before

**28th FEBRUARY 1990**

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**DIARY**

**N.B.** These dates are supplementary to those in the 1990 Calendar.

**1990**

- January
  - 20 : Deadline for views on advertising in News (see page 4)
- February
  - : Watsonia 18(1) due (not January) (see page 6)
  - 1 : Deadline for nominations to Council (see above)
  - 1 : Deadline for applications for grants from the Oleg Polunin Memorial Fund (see page 40)
  - 14 : Deadline for corrections to Panel of Referees and Specialists (see page 7)
  - 28 : Deadline for contributions to News 54
- May
  - 27 : Field Trips to the Pyrenees (see page 41)

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**EDITORIAL**

I feel I must record my thanks to my sons Carl and Paul for much needed help with this issue. Paul typed a lot of the first draft, while Carl prepared the title page, other lettering, and the field meeting map.

**Mrs Irene M. Vaughan**

It is not often that we are able to celebrate the 100th birthday of a fellow member; knowing the centenarian personally makes it even more special and I add my best wishes to those of Mary Briggs (see page 5).

**Weil's Disease**

David Archer's note on Weil's disease proved of interest to many members and there have been several requests for permission to reprint it other Journals, permission which David and I have been only to willing to give.

As a footnote to his article, David writes: 'I was interested to hear on an early morning farming programme recently that a golfer had contracted the disease by licking his

golf ball prior to polishing it on his trousers. The same programme suggested that some mice are now carrying the *Leptospierea* bacteria and that another symptom in humans can be conjunctivitis.'

### What's a fruit

Carrots and sweet potatoes are soon to be officially classed as FRUITS, at least in Scotland. The Scottish Office, with no taxonomist in sight, are to add carrots and sweet potatoes to their official definition of fruits. These root vegetables are apparently already used in the manufacture of certain JAMS and the change is considered necessary to remove 'several ambiguities from the current legislation'. England, Ireland, and Wales are not covered by these changes.

### The Archers

The changes proposed for the NCC in the UK are having an effect in Ambridge, or at least in Lower Loxley. Nigel Pargeter was hoping to get a grant from the NCC and the Forestry Commission to establish a nature trail in his old woodland, which contains such interesting plants as Spurge Laurel, Herb-Paris and Field Maple, but now, who knows? To be continued ...

## BOOKS FOR SALE

In the last issue I published a short note setting out the Society's position on advertising books for sale in BSBI News.

The response from members, especially John Holden and Malcolm Ogilvie, encouraged me to raise the matter again at a recent meeting of the Publications Committee. It was agreed that the whole subject would be re-examined at the February meeting of the Committee, and that in the meantime the entire membership be invited to give an opinion.

So now's your chance to help formulate policy on advertising in News. Would you like to see members surplus second-hand books advertised for sale in a special section in News, do you think that all advertisements involving the commercial interests of members should be banned, or do you have other suggestions?

**Please DO write in with your views.** These can range from a simple yes or no to advertising, to longer contributions discussing such problems as, should adverts, if allowed, be limited in some way?; should they be free or charged for? etc., etc. All views will be welcome, but to be of real use **must be received by January 20th**. So get to it and write NOW!

EDITOR

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## CHANGE AT THE BRITISH MUSEUM (NATURAL HISTORY)

Following from the transfer some years ago of the Geological Museum from the British Geological Survey to the Trustees of the British Museum (Natural History), it has been decided that The Natural History Museum will be adopted as the corporate title for all the museums under the care of the Trustees (the Zoological Museum, Tring, which houses the bird collections is also involved). The prime intention is to foster corporate identity, now that the staffing and administration have been completely unified, and to simplify relations with the general public and kindred organisations throughout the world. The old name inevitably resulted in some confusion with the British Museum at Bloomsbury, the home of the national collections of archaeology. Occasional visiting botanists have arrived at the wrong address, only to find themselves confronted by mummies rather than the dinosaurs they had expected. The BM(NH) has always been known to the inhabitants of London and SE England as 'The Natural History Museum', rather than its rather awkward official title, and the acronym **BM** will, of course, be retained for the botanical collections. While the postal services will be aware of the change, it will be helpful if correspondents will in future use the correct new address. The Museum is the official address of the BSBI, so this is a matter of immediate importance for members. The correct form for the Society is now : **Botanical Society of the British Isles, c/o The Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD.**

I shall be retiring as Keeper of Botany in April 1990, when Stephen Blackmore - the Head of our Palynology Section and Coordinator of the Division of Cell Biology, will take over the post. Coincidentally, Peter James, the Deputy Keeper, will also retire at the same time and will be replaced by David Sutton - the Coordinator of the Division of Vascular Plants. I have every confidence that the Department will maintain the very close links with the BSBI that it has enjoyed for many years past.

JOHN CANNON, Department of Botany, The Natural History Museum, Cromwell Road, LONDON SW7 5BD

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### HON. GENERAL SECRETARY'S NOTES

#### **Congratulations**

...to Mrs Irene. M. Vaughan, MBE, FLS, a member since 1952 and Honorary member since 1979/1980, past Vice-President of the Society, Chairman of the Committee for Wales, Welsh representative on Council, and Rosa Referee, who celebrated her one hundredth birthday on November 20th 1989. Cards were sent from Council, Committee for Wales and, also, from members in general who were invited to sign a card at the Exhibition Meeting. Six BSBI members were privileged to join the celebration birthday lunch at Seckford Hall in Suffolk on November 20th, invited by Irene's family who organised this happy occasion. A particularly interesting selection of captioned photographs highlighted some of the activities of Irene's very fulfilled and eventful 'century'. Also the many greetings and goodwill messages, which included the Telemessage from H.M. The Queen, greetings from Pope John-Paul II, letters from the Ministry of Defence and the Council for the Preservation of Rural Wales, and cards from the Department of Botany, National Museum of Wales and from the BSBI were on display. The Committee for Wales commemorated the occasion by publishing a special issue of the Welsh Bulletin (no. 48, Winter 1989) containing several papers and photographs of Mrs Vaughan's activities during her long residence in Carmarthenshire (copies available from the Editor of BSBI News for 50p incl. p.& p.).

### ***100 TODAY!***



***November 20th, 1989***

Mrs Irene M. Vaughan on her 100th Birthday  
Photo (by MB) as displayed at our Exhibition Meeting

...to Professor Gren Ll. Lucas, OBE, made a visiting Professor of the University of Reading. The University citation reads:

'He is a distinguished plant scientist who created the Plant Conservation Unit at Kew, has undertaken a major contribution towards conservation and to the protection of endangered plant species, and helps our teaching and research in plant systematics and taxonomy'.

A member since 1960, and Keeper of the Herbarium, Royal Botanic Gardens, Kew, Gren has been a good supporter of BSBI, as are many of our members who are his colleagues at RBG, Kew.

### Help welcomed

When we are needing assistance for the varied tasks which members with skills and special interests undertake for the Society we are aware that there must be members with skills and special interests who would be willing to help, but who are unknown to us. If this applies to you do please write and introduce yourself. We cannot guarantee an instant project for all volunteers, but we do at times need members for various projects: secretarial, filing of records or archives, and tasks related to publications; also from time to time new vice-county Recorders and Referees for special groups, and there are regular vacancies on Council (see page 2) and all committees. There may be members within easy travelling distance of The Natural History Museum who would like to give occasional (or regular) help with BSBI tasks at the Department of Botany? If you would like to volunteer please write to the Hon. General Secretary, giving your interests and experience. It would be invaluable to the Society to have a pool of potential helpers on whom the Secretaries can call as the needs arise.

### Careers Booklet

The Institute of Biology has published a new edition of Careers with Biology - a Guide for school leavers, 1989, £2.60 incl. p.& p. The unrevised but updated 1981 edition is also available at £1.50 - Both from: The Institute of Biology, 20 Queensberry Place, LONDON SW7 2DZ.

The BSBI Information sheet on careers in botany will be updated by the end of 1989.

### Enquiry replies

We frequently liaise over more unusual enquiries received by the Department of Botany, The Natural History Museum and by the BSBI - and the Hon. General Secretary is very grateful for constant help and expertise from the BM botanists. There was general discussion following a recent enquiry to the BM from a young schoolgirl on behalf of her class collecting fruits and seeds to study dispersal. She said 'we have a whopping conker and this has stumped us. How were conkers dispersed before there were boys?' Mary Chorley offered a conker to a London park squirrel on her way home from work - it tried (unsuccessfully) to eat it, then buried it under a nearby tree. A reference in W.J. Bean states 'I have noticed the deer in Bushey Park, at the time the nuts are falling, race eagerly for them as they drop to the ground', but conkers eaten by deer would not be available for germination!). Discussing the reply, John Edmondson, who was visiting that day, suggested that in forests of *Aesculus hippocastanum* native in N. Greece and Albania, natural dispersal could be by 'raging scardic torrents of melting snow'. Roy Vickery in his folklore research heard from Professor Vilmos Voight of Budapest that although the game that we know as 'conkers' was unknown in Hungary, the local children did use the chestnuts in their play.

A recent request to the Department for identification was a young seedling brought from Japan and thought, hopefully, to be a Japanese maple. When told that it was in fact a cotton plant, *Gossypium* spp., the enquirer commented that she had 'wondered why she had had a lot of trouble unwrapping the seeds from the cotton-wool in which they were packed!' This clue, had it been passed on with the specimen, would have speeded the identification.

### Reminder

Watsonia has a new scheduled date for publication - now due in February (and August). Please do not write thinking that yours has been missed when it does not arrive in January.

MARY BRIGGS, Hon. General Secretary

PUZZLE PICTURE I



Guess who? - All will be revealed in the next issue.

If you have any suitable before and after photos for this spot, why not send them to me?

EDITOR

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RECORDERS AND RECORDING

**Field Recording Cards**

Ordinary field recording cards, for all regions, are still readily available from Chris Preston at the Biological Records Centre, Monks Wood, Abbots Ripton, Huntingdon PE17 2LS, please state region and quantity required when writing.

**Panel of Referees and Specialists**

An updated Panel of Referees and Specialists will be published in March 1990, for distribution to all members with BSBI News 54 in April. The Hon. General Secretary will be pleased to hear of any changes of address, specimen requirements or other amendments not already published in Supplements to the 'Panel' nos 1-6 in BSBI News 44, 45, 47, 48, 49 & 51 - or sent to her since no. 6, before **February 14th, 1990.**

**Amendment No. 4 to Vice-county Recorders, September 1988**

There are five resignations to announce:

- v.c. 3 S. Devon - Maureen Turner
- v.c. 58 Cheshire - Alan Newton
- v.c. 70 Cumberland - Derek Ratcliffe
- v.c. 92 S. Aberdeen - Una Urquhart
- v.c. H9 Co. Clare - Peter Jackson

to all we send our sincere thanks, with a special note of recognition to Maureen Turner who has been Recorder for S. Devon since 1964, and Alan Newton who has been Recorder for Cheshire since 1965.

## Recorders and Recording

We welcome four new appointments:

- v.c. 58 Cheshire - Mr Graeme M. Kay, B.Sc., 4 Geneva Road, Bramhall, STOCKPORT, Cheshire SK7 3HT
- v.c. 70 Cumberland - Dr Geoffrey Halliday, Department of Biological Sciences, University of Lancaster, Bailrigg, LANCASTER.
- v.c. 101 Kintyre - Dr Marion G.B. Hughes, NCC, Cairnbaan, Lochgilphead, Argyll PA31 8SQ
- v.c. H9 Co. Clare - Miss Catriona Brady, 66 Templeville Drive, Templeogue, DUBLIN 6, Ireland
  
- v.c. H13 Co. Carlow - Miss Nesta Tirard, Coolnabrune, BORRIS, Co. Kilkenny (joint Recorder with Eimear Nic Lughadha whose address is given below).

Changes of address - or spelling:

- v.c. 2 E. Cornwall - Miss R.J. Murphy.
- v.c. 9 Dorset - Dr Humphrey J.M. Bowen, West Down, West Street, WINTERBOURNE KINGSTON, Blandford, Dorset DT11 9AT
- v.c. H1 S. Kerry - Miss E. Caroline Mhic Daeid, 'Avondale', Moynalty, KELLS, Co. Meath, Ireland.
- v.c. H13 Co. Carlow - Miss Eimear Nic Lughadha, The Herbarium, Royal Botanic Gardens, Kew, RICHMOND, Surrey TW9 3AE

MARY BRIGGS, Hon. General Secretary

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### PLANT IMPORT REGULATIONS

The Ministry of Agriculture Fisheries and Food has published a revised leaflet on Plant Imports, which goes some way to clearing the confusion as to whether the Concessions for Travellers apply to plants in the wild, or to cultivated plants purchased from bulb growers, nurseries or florists when abroad. Although the portion which outlines the Plant Health Concessions is now well distant from the CITES notice, owing to the different concerns of Plant Health, and the Protection of wild plants through the Department of the Environment, the concession for a traveller to bring home 2 kilograms of tubers, bulbs and corms from countries within the European/Mediterranean area, still appears in print - without making it clear that this is a Plant Health Concession only, and not a directive taking conservation into consideration, nor stating that such tubers, bulbs and corms should be from cultivation.

BSBI members will know that to take 2kgms of lightweight corms or bulbs - even once - from a small wild population could push a rare species into extinction, and even apparently locally common populations will be threatened by a succession of collectors taking tubers, bulbs or corms. One bulb should be sufficient for identification, two - or three at most - for propagation.

We hope that further editions of the leaflet will emphasise that collection in quantity is a plant health concession but not a conservation guideline. Meanwhile we trust that all BSBI members travelling abroad will put the survival of the species in the wild first in their personal code of practice.

For a copy of Travellers Guide to Bringing plants back from abroad (including wild plants); Guide for Importers; further details, or applications for import licences, including requests for wild plant licences and details of licence fees, contact: Plant Health Division, Ministry of Agriculture, Fisheries and Food, Room 504, Ergon House, c/o Nobel House, Smith Square, LONDON SW1P 3HX. Tel. 01-238 6477 or 6479; switchboard 01-238 3000

MARY BRIGGS, Hon. General Secretary

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ALOPECURUS x PLETTKEI IN N. LINCS. V.C. 54

In August 1989 W.G. Earnshaw recorded a bulbous *Alopecurus* from two sites on the Humber Bank in v.c. 54, N. Lincs. As *A. bulbosus* had previously been found at Barton on Humber (1893 Firbank, 1949 LNU meeting R. Good), but not seen since the area was ploughed up in the 1970s and presumed to be extinct in the County, the material was suspected to be *A. bulbosus* at new sites. A visit on 20th September 1989 to both sites revealed that the populations varied considerably and it was suspected that the material could be a hybrid. P.J.O. Trist has very kindly identified the material as being *Alopecurus* x *plettkei* Mattfeld (*A. bulbosus* x *A. geniculatus*) new to v.c. 54.

Further investigations along the saltmarsh from Winterringham to Whitton will be made in 1990 to search for *A. bulbosus*. The initial site of the hybrid, G.R. SE/931.233, was found to be just over the sea-wall, in damper depressions in the grazed marsh. Associated species included *Agrostis stolonifera*, *Juncus gerardi*, *Aster tripolium*, and both *Triglochin maritimum* and *T. palustris*. *Phragmites* was found between the area and the sea-wall. The second site, G.R. SE/923.244, was mown. The hybrid was located here in wet depressions over quite a large area and the dominant species was *Agrostis stolonifera* with *Festuca rubra*, a little *Aster tripolium*, and again both species of *Triglochin*.

Since the publication of notes on the hybrid by P.J.O. Trist and M.J. Wilkinson, and Lady Rosemary FitzGerald in 1989 (*Watsonia* 17), the discovery of *A. x plettkei* in N. Lincs. extends the known range of the hybrid to the post-1930 northerly limit for one of the parent species, *A. bulbosus*.

IRENE WESTON, Lindhris, Riseholme Lane, RISEHOLME, Lincoln LN2 2LD

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AN EXPERTS APPROACH TO THE SALICORNIA PROBLEM

The genus *Salicornia* has a fully deserved reputation for taxonomic intractability - acting as a continued stimulus for academic research, but scarcely assisting the field botanist who needs names for the things he sees. The BSBI lecture and field meeting near Chichester on 30 September 1989 allowed us to explore some of the problems.

The perennial glassworts (now put in the genus *Sarcocornia*) are distinct enough in the British Isles, being the only species with reproductive and vegetative branches together at maturity. The rest are all annual, with every branch producing flowers (insignificant though they may be). The annuals fall into two groups distinguished cytologically by chromosome number, and morphologically by certain characters (such as pollen and stomatal guard cell size which are, as so often, linked to ploidy level), by branching habit, by the shape of the mature fertile segments (more cylindrical in tetraploids), by the colour of the plant at maturity (tetraploids are much less likely to be coloured by red betacyanins), and by various biometrical ratios (e.g. fertile/sterile segment numbers on the main axis). Using a number of these characters together, the ploidy level can be assessed with some reliability.

The most distinct diploid in Britain is *S. pusilla* (short stubby branches, which fall off at maturity with the seeds inside, flowers in 1-flowered cymes, and habitat being a narrow strip at the extreme top of the salt-marsh). Another (but very little understood) diploid is *S. obscura*, with simple branches curving upwards, cleistogamous flowers and a dull texture due to minute corrugations in the cuticle (seen with a microscope after staining). This species may still occur on Hayling Island, but its type locality has been overwhelmed by the Northney yachting marina. The remaining diploids form a difficult complex, possibly separable into *S. ramosissima* and *S. europaea* with the help of some rather ill-defined characters. In some places other diploids exist which seem to me to be as distinct morphologically as these two (as for instance the small hard bushy plants that grow on wave-washed mud surfaces), but which have no published names. Some may be no more than local populations of wider-ranging 'species' with their own unique characteristics.

In East Anglia at least, the most distinct tetraploid is *S. nitens*, a usually small plant with a shiny surface, barrel-shaped fertile segments, sparse simple branches curving upwards, and a distinct reddish flush over the whole plant (this flush being paler and not so restricted to the flowers as is the more purple-red of *S. ramosissima*). The majority of tetraploids form extensive colonies at lower levels on salt-marshes and along the sides of

creeks. Erect forms may be called *S. fragilis* or *S. lutescens* (according to spike length and branching proportions), whilst those with very long spikes which are decumbent at maturity are named as *S. dolichostachya*. It is, alas, very easy to find plants which cannot be matched against any published descriptions.

Why do we have these problems with *Salicornia*, even after 300 years of study? Well, firstly the genus is remarkably plastic phenotypically, with this plasticity having been shown experimentally to affect the majority of the characters used by taxonomists. Secondly it is not realistic to base a taxonomic framework on the evidence of cultivated material when such cultured plants almost always differ significantly in form from those grown in the field. Thirdly, the extreme morphological specialisation seen in *Salicornia* (no free leaves, petals or sepals, flowers immersed in the stem tissues, no more than one seed per flower etc.) reduce the taxonomist's choice very seriously. We have little left but stems to examine, and most taxonomists know rather little about stems from the taxonomic viewpoint. In most other genera, flowers and foliage are important for discrimination at the species level, with stems being of only secondary value. Finally the small and usually self-pollinated flowers could lead to the formation of local populations through leading to inbreeding. Isozyme analysis does not support this view, but in my opinion studies using this technique with British material are far from being definitive.

What is the field botanist to do? First, it should always be possible to separate annual from perennial species, and, for much of the summer and autumn, *S. pusilla* is usually distinct. Assuming that the plants are mature (or nearly so, with ripening seeds) the ploidy level can be assessed for pure stands (but beware of mixed colonies, which may occur in recently disturbed locations). According to *Flora Europaea*, the names for the diploids and tetraploids are the *S. europaea* and *S. procumbens* groups. Within these two however (apart perhaps from *S. obscura* and *S. nitens*), it is largely a voyage into the unknown. I find it hard to see how names can be meaningfully given when plants simply do not match descriptions - the very real experience of most workers faced with *Salicornia* in the flesh. We must always remember that the glassworts themselves have no problems - they just go on growing. We are the ones who worry, and it may be that we come to grief because we try to impose some rigid systematic framework on to plants whose variation patterns do not show recognisable breaks or discontinuities. Apart from the more distinct entities mentioned above, we may even be wrong in seeking species at all - a philosophy decidedly unhelpful to our field botanist, who has to adopt a working classification determined by experience, time and equipment available.

*Salicornia* - a working list for British species, September 1989

Perennial species - *Sarcocornia* A.J. Scott

*S. perennis* (Miller) A.J. Scott (*Salicornia perennis* Miller, *Arthrocnemum perenne* (Miller) Moss)

Annual species - *Salicornia* L.

Diploid species

*S. pusilla* Woods, *S. ramosissima* Woods, *S. europaea* L., *S. obscura* P.W. Ball & Tutin

Tetraploid species

*S. dolichostachya* Moss (incl. *S. fragilis* P.W. Ball & Tutin, *S. lutescens* P.W. Ball & Tutin), *S. nitens* P.W. Ball & Tutin.

There are probably additional tetraploid species of similar status to those listed above (especially in SE England); if additional taxa are recognised amongst the diploids they are likely to be of lower rank than the species recognised here.

Species from the European mainland may include some of the above, but others may also be present.

KERY DALBY, 132 Gordon Road, CHAMBERLEY, Surrey GU15 2JQ

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A NON-EXPERTS APPROACH TO THE SALICORNIA PROBLEM

The prime requirement for the recognition of species is that there should be discontinuities in the spectra of variation between taxa. Many annual species of *Salicornia* have been described but until recently little evidence has been presented to confirm the existence of any discontinuities. As a result the naming of variants sampled from nature is at best an approximate process. Biochemical markers have been identified between the species *S. ramosissima* J. Woods and *S. europaea* L. (Jeffries & Gottlieb, 1982) and yet to make such biochemical comparisons plants have to be assigned initially to morphologically defined groups which can be done in only a very arbitrary way applicable to a small geographical area or single marsh (Ingrouille & Pearson, 1987).

Two well established morphological discontinuities do exist. One separates *S. pusilla* Woods with its one-flowered cymes from all other variants which have three-flowered cymes. The other discontinuity has been correlated to a difference between the diploid and tetraploid ploidy levels. Plants of different ploidy levels differ in a number of morphological features such as the shape of the spike-segment and the length of the terminal spike so that they can in practice be separated with some confidence. Multivariate analysis clearly distinguishes them. Koutstaal, Schat & Elenbaas (1987) have demonstrated that anther length is a single non-overlapping diagnostic characteristic in Dutch populations. Within each ploidy level considerable difficulty is experienced in trying to identify species or to correlate taxa between sites, although within any one site a number of different variants may be clearly distinguished. As a result it is difficult to establish an ecological or geographical distribution for many of the species.

We have shown (Ingrouille & Pearson, 1987) by multivariate analysis that the difficulty in the diploid *S. europaea* group in the British Isles arises from the presence of a continuous spectrum of variation without discontinuities and even without obvious variants other than minor variants confined to a single site. We have tried to eliminate any subjective bias in the search for discontinuities between taxa by using techniques such as cluster analysis. We have scored many plants from five geographically distant salt-marshes in from W. Sussex to Norfolk (the four reported in our 1987 paper plus Blakeney Point in Norfolk) with the idea that the usefulness of any recognised *Salicornia* species would be enhanced if such species are not confined to a single small geographical area or marsh.

The tetraploids exhibit a different pattern of variation from the diploids. There is less evidence for the existence of purely local variants. Conversely there is more evidence for the existence of variants which can be identified in different marshes, though there is a broad overlap in the spectrum of variation between such variants. The characteristics of three clusters obtained may be loosely identified with the three named taxa, *S. fragilis*, *S. dolichostachya*, and *S. lutescens* but there are important differences from the published descriptions. *S. nitens* did not appear to be present in our sampled marshes.

Of the sampled sites the '*S. fragilis*' variant may be absent from Itchenor and the well branched, '*S. dolichostachya*' variant may be absent from Tollesbury or were only present at a very low frequency in the sampled area. Of the three variants, the '*S. fragilis*' one is probably the easiest to distinguish. In part this is due to the best diagnostic characteristics being spike characters. It is tall, weakly branched with mainly primary branches and with a long stout terminal spike. The importance of overall height and fertile segment diameter has not previously been recognised. Their use will give a high probability of correct identification at least in the sampled marshes.

The '*S. dolichostachya*' and '*S. lutescens*' variants in which vegetative characters are important as diagnostics are poorly distinguished with a broad overlap of individuals.

There is only one character which potentially may be easier to use to distinguish variants, the colour of the plant in autumn. It is certainly true that on many marshes one can distinguish groups of plants with a particular pattern of colouration, yellow, yellow-green, reddish and others. We have found that colouration correlates only poorly with other characters. More evidence is required to validate its use as a diagnostic. It is a character of restricted value, being utilisable for only one short period of the year.

It is interesting that Ball & Tutin (1959) and Ferguson (1964) note that diploids may or may not exert their stamens while tetraploids always exert theirs. Tetraploids may then outbreed to a greater extent than the diploids reducing the potential for the development of local inbreeding variants so that geographically widespread variants may be more obvious. The existence of more widespread variants makes the recognition of separate

taxa in the tetraploids more worthwhile than in the diploids. However only five marshes in the south and east of England have been studied so far.

No progress to the solution of the *Salicornia* problem will be achieved until a widespread survey of *Salicornia* variation is carried out. Marshes in the Netherlands and western France must be included as well as more sites in the British Isles. Until that happens it is impossible to know whether *S. brachystachya* in the Netherlands (Huiskes et al., 1985) or *S. emerici* in France (Lahondère, 1985) are different taxa or not to the British ones. Confirmation of the existence of taxonomic variants must be established by work not just within the narrow confines of a small geographical area. In the meantime it would be better to use an aggregate name such as *S. dolichostachya* agg. when referring to the tetraploid group. This might be accompanied by an informal description such as 'the poorly branched variant with stout spikes from Blakeney' for increased accuracy when necessary. We suggest that at present it is wise to only give formal taxonomic recognition to four species of *Salicornia* in Britain, namely *Salicornia* (*Sarcocornia*) *perennis* Mill., *S. europaea* L. agg., *S. pusilla* Woods and *S. dolichostachya* agg.

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**KEY TO ANNUAL *SALICORNIA* SPECIES OF SOUTH ENGLAND AND NORTH FRANCE**  
 (modified from a key by Prof. Géhu (1979) by Dr F. Rose with some additional material)

The genus *Salicornia* is one of particular difficulty. Even when plants are in the fresh state in the field, botanists who study them are not in any agreement about the limits of the species, or, indeed, how many species we have. This situation is made even worse by the impossibility of producing satisfactory specimens for the herbarium. If dried in the ordinary way, they lose their form, and as they contain so much salt, remain hygroscopic; thus they tend to absorb water in a humid atmosphere. If boiled to remove the salt, all colour and form disappears. Good photographs (as with orchids) form perhaps the only satisfactory method of permanent record.

The characters used in the separation of the species are of a nature different from those used with most other plant groups, as is evident from the key.

I have studied them in the field for years, particularly in company with my friend Prof. J.-M. Géhu from France. He has produced a key which at least enables determination into a number of separate taxa. I have made some small modifications to this key, to adapt it to British material in the light of my own experience. It is given below. Whether the taxa included are truly valid, we must leave to users to decide for themselves, but it does seem to work with the majority of populations in southern England at least!

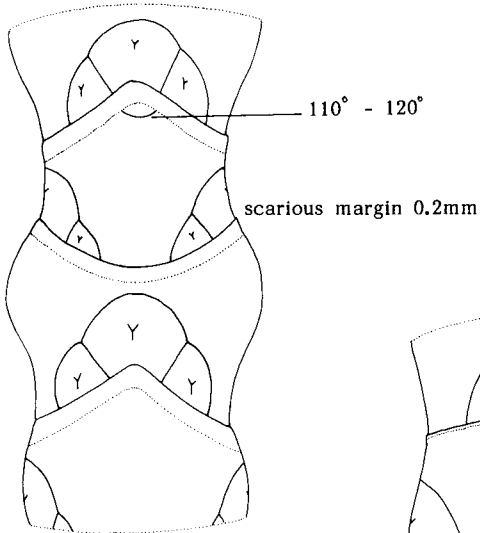
Far more experimental work is needed, particularly by way of experimental cultivation of the plants from seed under various environmental conditions.

*Salicornia emerici* includes the plants hitherto known in Britain as *S. nitens*. The varieties of *S. dolichostachya* appear distinct in the field but may be habitat modifications rather than truly genetic in basis; only cultivation can solve this problem.

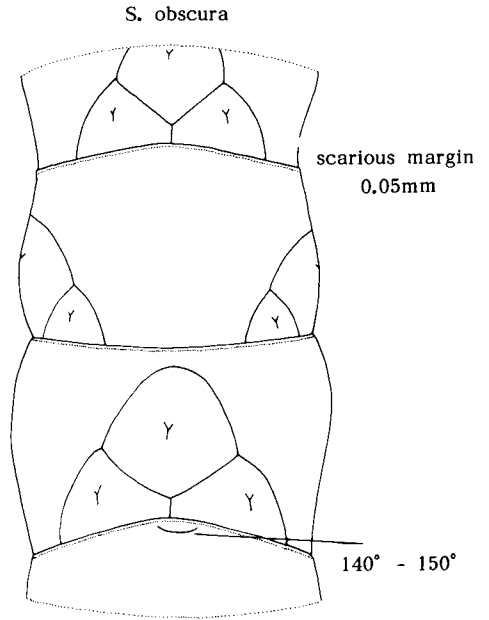
The Key

1. Cymes composed (normally) of 1 flower (sometimes a few 2- or 3-fl'd cymes present . . . 2  
Cymes always composed of 3 flowers . . . . . 3
2. Cymes always with only 1 flower; spikes short, or at most 15mm long, of 2-4 swollen segments breaking apart at maturity; habit erect or decumbent, reddening or yellowing; important populations in the highest part of saltmarshes . . . . . *S. pusilla*  
Cymes with 1, 2 or 3 flowers, habit prostrate or erect, yellowing or reddening; as individuals  $\pm$  numerous in the higher parts of saltmarshes . *S. pusilla* x *S. ramosissima*
3. Fertile segments cylindrical, not swollen nor with 'waists' between them, but sometimes with a slight narrowing below their scarious borders after anthesis; flowers subequal - (tetraploid sp.) . . . . . 4  
Fertile segments swollen at their centres or in their upper halves, sometimes strongly beaded; flowers mostly very unequal in size in each triad, especially in the mid-part of the terminal spikelet - (diploid species) . . . . . 7
4. Plants becoming yellowish or brown (but never reddish) and colonizing the lower levels of the saltmarshes, often on bare mud - (*S. dolichostachya* agg.) . . . . . 5  
Plants becoming rosy or reddish and colonizing the more middle parts of the saltmarshes (upper pans, sandy beaches) - (*S. emerici* agg.) . . . . . 6
5. Primary branches rarely exceeding half the length of the main stem; plants erect, not bushy; becoming strongly yellowed rather early before turning brownish; populations often dense on mud plateaux; terminal spike short, with (4)8-16(20) fertile segments . . . . . *S. dolichostachya* var. *fragilis*  
Primary branches almost as long as the main stem; plants very bushy, much branched, the main axis  $\pm$  decumbent at its base; becoming yellow rather later, just before browning; terminal spikes very long, with (8)12-25(32) fertile segments; scattered on mud at the lower limit of the last and flowering rather later . . . . . *S. dolichostachya* var. *dolichostachya*
6. Plant reddening intensely in the course of the summer, and in populations colonizing the upper pans or edges of non-tidal salt flats; erect or prostrate, with narrow margin to segments . . . . . *S. emerici* (typical)  
(also a non-British form, with broad segment margins, in Lorraine)  
Plant reddening or becoming rosy very lightly only, generally as scattered individuals only . . . . . *S. emerici* x *S. dolichostachya*
7. Plant deep shining green, becoming  $\pm$  reddish-purple or even deep rich red; fruiting segments strongly beaded with strong 'waists' between; scarious margin at apex of each segment broad (c.0.2mm) and clearly visible; angle made within apex of segment obtuse, 110°-120°, apex of margin obtuse. Very polymorphic, usually much branched, erect to prostrate or decumbent in non-tidal saline areas; mainly in the closed communities of the middle and upper saltmarshes . . . . . *S. ramosissima*\*  
Plant of a lighter, hardly glossy green, remaining that tint or sometimes reddening a little; fruiting segments only moderately swollen and not beaded or waisted; scarious margin at segment apex very narrow and not very obvious, only to 0.1mm broad . . . . . 8
8. Plant glaucous green, matt, never reddening (except sometimes a little around the flowers; erect, primary branches short, scarcely exceeding half the length of the main stem, little branched, never with tertiary branches; flowers not strongly unequal in size. On mud or sandy soil in open communities in lower parts of saltmarshes, below the *Puccinellia maritima* zone; scarious margins at apex of segments very narrow (0.05mm) rounded, not forming a cusp; angle made (if any) within apex of segment very obtuse, 140°-150° . . . . . *S. obscura*  
Plant clear light green, not glaucous, becoming somewhat yellowish-orange, rosy or red with age; erect or  $\pm$  prostrate, primary branches often as long as the main stem; sometimes with tertiary branches; flowers very unequal in size. On mud or sand, or in wet depressions between dunes, mostly in the upper part of the saltmarshes with *S. ramosissima* and in the *Puccinellia maritima* zone; scarious margin at apex of segment moderately broad (0.1mm) forming a definite acute cusped point; angle within apex of segment  $\leq$  90° or less . . . . . *S. europaea*

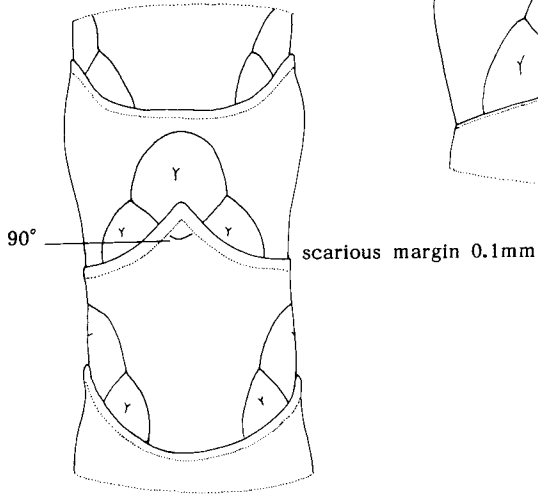
Recorders and Recording



*S. ramossissima*

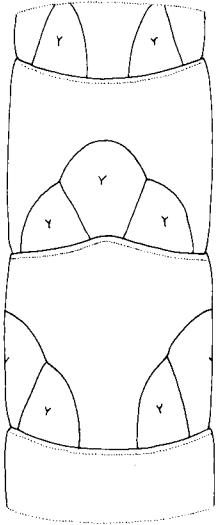


*S. obscura*

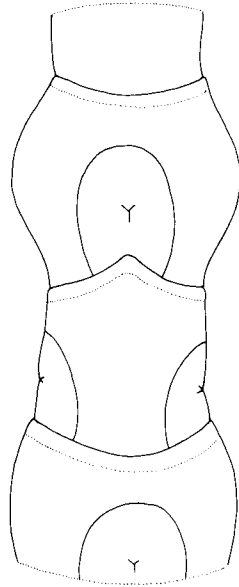


*S. europaea*

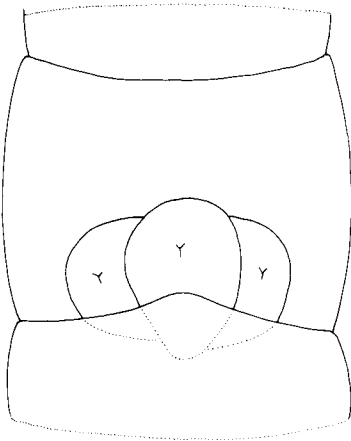
Drawings of fertile segments of *Salicornia* species



*S. dolichostachya*



*S. pusilla*



*S. perennis*

\**Salicornia ramosissima* is very polymorphic and, apart from erect tidal marsh forms of yellow, brownish or purplish suffusion, includes prostrate to decumbent, bright-red forms of saline mud or sand in non-tidal areas behind sea walls. So far there is no agreement on how to divide-up *S. ramosissima*; names proposed for the British plants (e.g. *adpressa*, *prostrata*, *smithiana*) appear to be invalid and to refer to plants from elsewhere in Europe. More experimental work is needed to see if the various forms have any genetic basis, or are merely environmental modifications; personally I suspect that there is a genetic basis for at least some of the forms.

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### AN ECOLOGICAL FLORA OF THE BRITISH ISLES

Most botanists must have experienced the frustration of needing ecological or biological information on some British plant and finding it impossible to obtain. Usually one is sure that someone somewhere has this information, but knowing who and where requires luck or the right contacts. For example, one might want to discover the germination requirements of a plant that has just appeared in a new habitat, or the pollination biology of an endangered species. All is well if the species in question is one of the 180 or so for which a Biological Flora account exists in the Journal of Ecology. If not, then a time-consuming search through the literature may be necessary and may in the end be fruitless.

In an attempt to solve this problem, we have started a project to produce a comprehensive account of the ecology of all the species of British vascular plants. The project is funded jointly by the British Ecological Society and the Natural Environment Research Council and will run for five years. It will involve gathering a wide range of ecological and biological information, both that already in published form, which can be located by computer searching, and that which exists in the files or minds of other botanists and ecologists, which is much less accessible. We hope to obtain this 'hidden' information by correspondence with and, if necessary, visits to fellow botanists and ecologists, both amateur and professional.

This information will be stored on a database, which ultimately will be made available to all ecologists and botanists. The project will also lead to the publication of a book containing standardised information on the ecology of all members of the British flora. Headings will include habitat information; geographical data (including whether increasing or declining); life history and phenology; flowering behaviour (including breeding behaviour and pollinators); seed and germination characteristics; biotic associations (symbionts, specialist parasites, etc); and historical data. The book will inevitably contain only selected information, but the full data set will be available in the database. The book will be written by an Editorial Board of distinguished botanists and ecologists, which will help to oversee the project. There will also be considerable scope for analysing the database, to investigate relationships between ecological characteristics.

The project will involve collaboration with several outside bodies, such as the Nature Conservancy Council, the Institute for Terrestrial Ecology, and the Unit of Comparative Plant Ecology at Sheffield University, as well as with individual ecologists and botanists. The purpose of this note is to appeal for assistance from BSBI members, many of whom must possess valuable data about the British flora. If you do have such information, we should be delighted to hear from you. Copies of the complete list of categories under which we are seeking information are available, and once the project is well underway, I would hope to be able to publish lists of species about which very little is known, or types of information which seem not to have been gathered in the past.

There are bound to be many bits of information which are simply not available, either in the literature or in unpublished form. In an attempt to persuade people to go out and record this information, I have compiled a list of protocols for recording around 25 standardised characters, such as stomatal density, root radius and seed production. Many



of these require no specialised equipment and can be recorded by enthusiasts anywhere. Others require microscopes or other basic laboratory equipment, and would be more suited to schools or colleges as projects. If anyone would like to help in this, I would be delighted to send a copy of the protocols and to offer any other assistance possible.

The Ecological Flora project will only be a success if it involves as wide as possible a spectrum of the botanical and ecological worlds. Your assistance will be greatly appreciated.

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THE FLOWERING PLANTS, FERNS AND RUSTS  
OF THE LANCASTER CANAL IN THE LANCASTER DISTRICT

During 1988 my wife and I botanized some 23 miles of the Lancaster Canal recording plants and rust fungi of the towpath and the canal itself.

The recording was from bridge to bridge, effectively dividing the length covered into 71 sections.

An account was written under the title The Flowering Plants, Ferns and Rusts of the Lancaster Canal in the Lancaster District, and a limited number of copies prepared by the British Waterways Board. No copies are available for sale but, for reference purposes, copies have been deposited in the following libraries:

Royal Botanic Gardens, Kew  
Natural History Museum, London  
Lancaster University, Lancaster  
Lancaster City, Lancaster  
Lancashire County Council, Preston

LEN & PAT LIVERMORE, 8 Durham Avenue, Scotforth, LANCASTER, Lancs. LA1 4ED

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CAREX APPROPINQUATA IN PEMBS., v.c. 45  
A MISIDENTIFICATION FOR C. DIANDRA

During a BSBI Field Meeting on 15th June 1963, the late Tommie Warren Davis collected a specimen of a tussock sedge from Dowrog Common, near St David's, in Pembrokeshire at G.R. 12/769.268. The sedge was described as similar in general appearance and habit to *C. paniculata* but much smaller. A specimen was lodged in the herbarium of the National Museum of Wales (NMW) in September 1963 and determined by B. Seddon in April 1965 as *C. appropinquata*. Dr A. Melderis confirmed the determination but did comment that plants with mature fruit would be desirable. Seddon and Davis (1965) published a full note on its discovery and a similar contribution went into Nature in Wales (10, 1966). More mature specimens were collected by T.A.W. Davis from Dowrog Common on 3rd July 1969 from 'dense tussocks in fruit, spreading to ca.120 cms. diameter' and dispatched to the British Museum (Natural History) (BM) as well as NMW. Davis also remarked that the plant 'has increased enormously, now occupies 3-4 acres abundantly'.

*Carex appropinquata* was subsequently regarded as a treasured element of the Pembrokeshire flora especially as it was not known from elsewhere in Wales. The author was responsible for extending the number of localities for it within the original 10km square when he found stands at Caerfarchell, G.R. 12/788.262, in September 1981 and at Pwll Trefeiddan, G.R. 12/734.252, in July 1984; he should perhaps have been more cautious about their identity, as when he showed the Caerfarchell population to Dr B. Wheeler of Sheffield University in September 1983, Dr Wheeler said he was unhappy with its appearance. Although fruits were collected for growing on at Sheffield, these, unbeknown to the author, failed to germinate. In June 1983, a visiting botanist, R.E. Smith, made the first record of *C. diandra* at Dowrog Common 'at about G.R. 12/768.268 with *C. appropinquata*'. The specimen of *C. diandra* was determined by A.O. Chater and A.C. Jermy but no specimen of *C. appropinquata* was taken for determination. Dr Francis Rose also found the *C. diandra* in July of that year but did not locate *C. appropinquata*!

In June 1989, R.W. David journeyed specially to Pembrokeshire to map the extent of the *C. appropinquata* populations. Accompanied by the author, visits were made to the three stations and to the author's embarrassment it soon became obvious that there was no *C. appropinquata* but abundant *C. diandra*. Tussocks of *C. diandra* often with panicked heads were growing in *Potentillo-Caricetum* on the margins of shallow winter pools or meres at each site. Other more typical *C. diandra* was present at Dowrog. It would seem that the occurrence of the form of *C. diandra* with tussock growth and branched inflorescences led to the original misidentification. The reference work used by Seddon and Davis in 1963 and 1965 was Clapham, Tutin and Warburg (1962). The *Carex* key on Page 1082 splits *C. diandra* from *paniculata/appropinquata* on the basis of 'spikes sessile' against 'at least the lowest spike stalked'. Moreover the line for *C. diandra* says 'not tufted'. Neither T.A.W. Davis nor the author were familiar with *C. diandra* which now seems to be spreading in the fens around St David's.

A.O. Chater and R.W. David have examined all the Pembrokeshire specimens of *C. appropinquata* in NMW and they have now been correctly identified as *C. diandra*.

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### THE HISTORY OF THE RECORDING OF *SPIRANTHES ROMANZOFFIANA* IN BRITAIN

Outside North America, *Spiranthes romanzoffiana* Cham. is only known from the British Isles. It was first discovered here in 1809 or 1810 in south-west Ireland. One of the two specimens found is in the herbarium of Sir James E. Smith at the Linnean Society (Wilmott, 1927). Wilmott (1927) and Harron (1986) describe the discovery of *S. romanzoffiana* in north-east and the north of Ireland. It was first discovered in the United Kingdom, in Northern Ireland, in 1892. Harding (1959) describes her discovery of the plant in western Ireland as recently as 1958. This article describes its discovery in Britain as far as known to the author.

In *Nature* for 1923, there is an interesting correspondence about *Spiranthes autumnalis* L.C.M. Richard (*S. spiralis* (L.) Chevall) in Scotland. John B. Simpson of Edinburgh reported its presence on the Isle of Coll in the Inner Hebrides in August (author's emphasis) 1921 when some half-dozen specimens were found. In *Nature* of March 3, 1923, he writes 'These, though undoubtedly of the genus *Spiranthes*, did not tally exactly with the description of *S. autumnalis* as given in Hooker's flora, ...' On enquiring of Simpson, Druce (1923) was told that the plants grew 'in peaty soil overlooking beach deposits in part, but sometimes only on gneiss. But the soil may be limey, as there is a good deal of marble in the rocks near.' Druce (1923) concluded 'There is just a chance of the Coll plant proving to be *S. romanzoffiana*, ... The matter deserves further investigation not only in Coll, but in Easternness.' How right Druce was about Coll!

*S. spiralis* has never been recognised from Scotland, and the other orchids recorded from Coll with which *S. romanzoffiana* might be confused are over by August. Further, *S. romanzoffiana* grows in peaty soil on gneiss. Given all the subsequent discoveries of *S. romanzoffiana* on Coll, the author is satisfied that Simpson's 1921 record is the first for that species from Britain.

In 1930, Wilmott (1930) received a 'water colour sketch and the inflorescence drawn, sent by the Lady Strathcona for identification' from the Isle of Colonsay, also in the Inner Hebrides. He identified the plant as *Spiranthes stricta* (Rydb.) Nels., now treated as a synonym for *S. romanzoffiana*. The drawing of the inflorescence is in BM and is dated August 1930. Interestingly, the drawing is annotated '*Spiranthes Spiralis* or *Habenaria Albida*?' Attached to this same sheet at BM is also a letter from Lady Strathcona's father, Lord Strathcona and Mount Royal, dated 1 September 1930, pointing out that cattle had access to the site where this single specimen was found. Given John Raven's later observations on *S. romanzoffiana* thriving in sites grazed by cattle during the winter, this comment is of particular interest.

Loder (1935) credits this Colonsay discovery to Lady Strathcona and A.N. Skelton M.P., in July 1930. He further notes 'A space near the scene of the original field was fenced off and about 10 plants flowered in it in 1931'.

There can be little doubt that the crofters, tending their cattle, knew the plant, especially given its smell of hawthorn. One is reminded of the bringing to notice of *Gentiana verna* L. in Upper Teesdale in 1797, new to Britain. In *English Botany*, Sir James E. Smith (t. 493) states that the Rev. John Harriman was 'the first botanist who has ascertained it in England, though the inhabitants of the forest know it well by the name of Spring Violet ...'

Heslop-Harrison (1941) reported the discovery of *S. romanzoffiana* on Coll in 1939 by his son, John, with a party of students; the author had the pleasure of finding six plants at this same site in 1989. Heslop-Harrison (1941) stated that the plant may be expected anywhere on damp moorlands on Coll; the author's experience in 1989 bears this out.

In the chronology of discovery of *S. romanzoffiana* in Britain, there follows John Raven's notable discovery of the plant on the British mainland in Ardnamurchan in western Scotland. After strenuous efforts to determine the date, it is the author's understanding that Raven made no written record of this discovery; he would be very happy to be proved wrong! It is, however, his firm impression that the record was made in the early 1950s. It was certainly made prior to 1957 (see below), as is evidenced by a record (not in Raven's name) at the Biological Records Centre. At Raven's original site, Francis Rose found about 100 flowering spikes in 1966 or 1967.

On the same day in August 1964, Raven discovered two further populations, in Morvern. One of the populations contained 68 flowering plants. It was with some pleasure that the author learnt that immediately on making these discoveries, Raven reported them to Miss A. Horsman!

On 8 July 1957, Mr & Mrs P.C. Hall and Mrs B. Welch were botanizing in south Devon for the Atlas project. Astonishingly, they found *S. romanzoffiana*, new to England (Anon., 1958). It is of interest that it should be found in England in 1957 and in western Ireland the following year. Having surveyed *S. romanzoffiana* on Coll and Colonsay in 1989, partly funded by a grant from the Welch Bequest Fund, it gives the author particular pleasure to remind members of this first English discovery.

Cunningham and Kenneth (1979) refer to a dubious record for *S. romanzoffiana* in the Kilberry area of Knapdale, based on a specimen collected by Iain Campbell around 1960 and determined at Glasgow University. There is certainly suitable habitat for the plant in the Kilberry area.

James Robarts, an expert ornithologist, waited from 1967 until 1979 before having his first record of *S. romanzoffiana* from the Outer Hebrides, on the Isle of Barra, identified by Roger Waterston. He had found it in visiting the site to see *Platanthera bifolia* (L.) L.C.M. Richard. In 1979 he had a second Barra site verified and noted in his diary 'Spiranthes Romanzoffiana (Autumn Tresses) [sic]. 1.9.79. Group of 2-3 doz. on heathland in [details withheld]!'

In 1971, D.G. Chelmick found a single plant on Islay, and in 1977 the Rev. R. Henderson-Begg found the plant on Benbecula. Miss P.M. Chorley also found a single plant on Vatersay in 1983.

Undoubtedly, further sites await discovery. It is suggested that the islands of Islay, Jura, Mull, Tiree and Skye should be searched, together with some of the smaller Hebridean islands. Mid-August until the end of the first week in September is normally the best time, that is when most botanists have gone home!

The author is studying this plant primarily as a member of the small North American element in the flora of the British Isles; he would be delighted to hear of any further discoveries.

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### OENOTHERA L. IN SOUTH WALES

On 22-24 August 1989 I visited 4 areas of sand-dunes in South Wales:

1. At Oxwich Burrows and Port Eynon in Gower there is strong colonization by O. erythrosepala Borbás and its hybrids and both dunes had large expanses of yellow, visible from a distance and reflecting the long and intensive flowering season of this species.

Plants having the appearance of O. novae-scotiae Gates were also widespread but mostly no longer flowering.

2. In contrast, no such expanses of colour were seen on Crymlyn Burrows and Kenfig Burrows east of Swansea.

The only obvious traces found of O. erythrosepala were about 6 hybridized plants in a small group at Crymlyn and a similar single plant at Kenfig; both had red-striped sepals and very small flowers. It was as if very small colonizations had been overwhelmed.

There were many plants having the appearance of O. novae-scotiae but detailed examination of 24 specimens revealed that one plant from Crymlyn had all but one (minor) character of O. biennis L. and that all the others were hybrids or probable hybrids with O. biennis.

#### Conclusion

A. Contrary to belief therefore, many hybrids with O. biennis are present in South Wales, not only at Crymlyn and Kenfig but also probably at Oxwich and Port Eynon where the traces of O. biennis are more difficult to prove because of the widespread O. erythrosepala.

B. At both Jersey Marine (?Crymlyn?) and Oxwich, plants with the characters of O. novae-scotiae but lacking hairs with red bulbous bases on their stems have been designated O. cambrica Rostański (O. novae-scotiae) var. impunctata Rostański. It follows that these plants could have been hybrids with O. biennis which raises doubts on the status of the variety.

A full report of this survey and similar work in 1988 on the hybrid swarm of more than 5000 plants at Emscote, Warwick, is in preparation.

#### References

Rostański, K. (1982). The Species of Oenothera L. in Britain. Watsonia 14: 1-34.

Rostański, K. and R.G. Ellis (1979). Evening Primroses (Oenothera L.) in Wales. Nature in Wales 16: 238-249.

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### GAUDINIA FRAGILIS IN DORSET

Notes have appeared in both Watsonia and BSBI News on the permanence of this grass in Britain (McClintock (1972); Clement (1978)). It has been recorded in Dorset in old damp pasture at Chickerell, near Weymouth (Watsonia 13: 343 (1981)). In early June 1989 Miss Anne Horsfall found specimens at a favourite green lane site in Marshwood Vale in West Dorset.

On visiting the site the following day Gaudinia was found to be abundant in a stretch of lane for just over a kilometre. For most of this distance there are grassy verges on one side of the road or the other, some of them up to two metres deep, with a rich grass flora and other plants characteristic of old grassland on the W. Dorset Lower Lias earths.

Grasses: Festuca rubra, F. pratensis, Cynosurus cristatus, Dactylis glomerata, Briza media, Anthoxanthum odoratum, Lolium perenne, Trisetum flavescens, Poa trivialis, Bromus hordeaceus, B. commutatus, Holcus lanatus.

Others: *Oenanthe pimpinelloides*, *Genista tinctoria*, *Ononis spinosa*, *Lathyrus nissolia*, and a good *Carex* flora.

The verge is cut in July and interestingly the *Gaudinia* is almost confined to the half-metre adjoining the road - i.e. where it is cut. The same applies where there is no verge - that is where it grows in the steep hedgebank, this is also trimmed at the same time. The adjoining fields had been cut for silage, but *Gaudinia* was found in two of these, amongst grass left against the hedge. Its abundance over such a small area might suggest an introduction. However, it has also been found in old pasture on a similar soil a few miles away in South Somerset (Clement, 1978).

John Keylock tells me that since that record he has discovered it at several other sites in S. Somerset, within ten miles of the Dorset site. In all these sites it is in permanent pasture.

Although it is a distinctive grass when one has one's eye in for it, the inflorescence very quickly breaks up at maturity. The Dorset specimens are densely pubescent.

**References**

McClintock, D. (1972). *Gaudinia fragilis*. *Watsonia* 9: 143.  
 Clement, E.J. (1978). *Adventive News* 12. *BSBI News* 20: 9.

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# B.S.B.I. MONITORING SCHEME

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**PROGRESS**

The analysis of the Monitoring Scheme data continues at a pace - the maps are particularly interesting. The computer can produce about 500 maps in one day, compared to only 3 maps a day 30 years ago for the *Atlas*. The full results will be published, hopefully as a cheap, softback book, sometime after Easter 1990 (watch *BSBI News* for details). In the meantime, here are a few draft maps (page 22) to whet your appetite.

The symbols used on the maps are as follow:

- Atlas records only (1930-1960 for Britain, all records to 1960 for Ireland).
- ⊕ Monitoring Scheme records only (1987-1988)
- Recorded for both Atlas (dates as above) and the Monitoring Scheme.

***Trifolium repens***

This is one of our commonest species, and shows that virtually the whole country has been covered for the Scheme. The two inland squares in Ireland with open circles are squares for which no records were received. The new records around the coast are from squares with only a small area of land which were not recorded for the Atlas.

***Reynoutria japonica***

This species has spread enormously during the last 50-100 years. Some of the apparent increase may be due to under-recording during the Atlas when less attention was paid to garden escapes. Although there has been little change in the extent of its range in Britain and Ireland, it has certainly become more common within the range.

## Monitoring Scheme

There are three 10km square records for *R. japonica* x *R. sachalinensis* from Surrey and Sussex, and some of the records for *R. japonica* may be referable to the hybrid which is probably overlooked (e.g. all *Reynoutria* plants seen in Galway this Summer were hybrids and not pure *R. japonica*).

### **Primula elator**

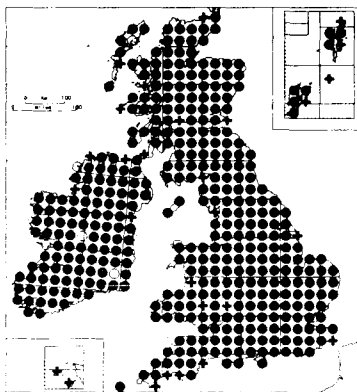
There appears to be no change in distribution or abundance of Oxlips at the 10km square level.

### **Potamogeton praelongus**

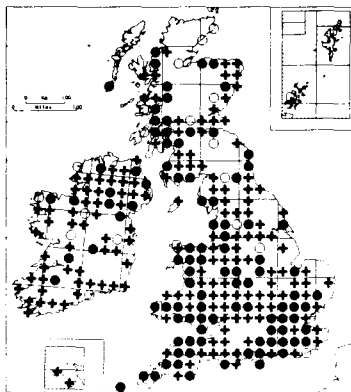
This species was not found at all in England during the Scheme, and has probably declined as a result of water eutrophication. Elsewhere, there are probably inadequate data to draw firm conclusions.

TIM RICH, Monitoring Scheme Organiser.

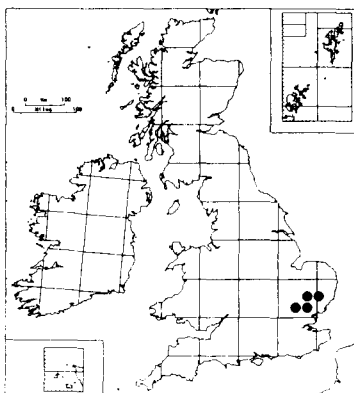
### TRIFOLIUM REPENS



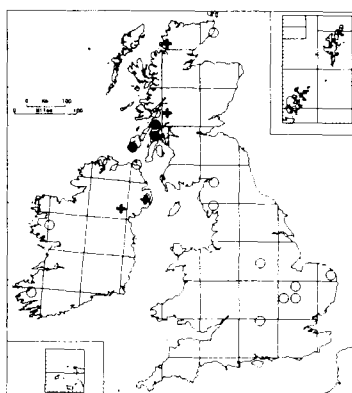
### REYNOUTRIA JAPONICA



### PRIMULA ELATOR



### POTAMOGETON PRAELONGUS



Draft maps from the Monitoring Scheme

## NOTES AND ARTICLES

GERMINATION OF LONG-BURIED SEED, ESPECIALLY HYOSCYAMUS NIGER  
- A CORRECTION

Larch Garrad's comment about *Hyoscyamus niger* growing on spoil from archaeological excavations in York must, I'm afraid, be corrected. In the 12 years that I have been responsible for palaeobotanical analyses of archaeological deposits in York - during which time I have made more or less weekly visits to the 'digs' - I have never observed this plant! (It does occur in the archaeological deposits themselves, though I would describe it as 'frequent' - present in almost all layers with good waterlogged preservation, though never in very large numbers).

Hemlock, *Conium maculatum*, by contrast, has been abundant at some sites, notably on the spoil heap for the excavations of Roman and medieval levels at The Bedern in about 1978-81. This plant was often abundant in the macrofossil record from Roman deposits at this site, though I would not suggest that the 'seed' has lain dormant for as long as 2000 years! Another plant that occurs regularly on spoil heaps is red goosefoot, *Chenopodium rubrum*, well known for its habit of appearing at the edge of ponds in dry summers (and likely, therefore, to have quite long-lived seed).

If I may be permitted to add my 'two penn'orth' to the discussion of plants of newly disturbed soils, I would like to mention that I have on several occasions observed weld, *Reseda luteola*, on the University of York campus - and, indeed, on one occasion within the city itself - where building works have been undertaken. These, I feel certain, are instances of germination of long-buried seed, though the seed need not have been in the ground more than a decade or two. A spectacular instance of weld appearing where soil was disturbed was recorded by Rev. G.E. Rees, writing to The Times from Bagendon Rectory, Cirencester. In the edition for August 2nd 1932, he states:

'Nearly 50 years ago a load of gravel, dug close to entrenchments of first-century date in this parish produced a big crop of Dyer's Rocket ... never observed here before. Four years ago a portion of the vallum was removed to widen the road; a similar result ensued. Two years ago at a different spot the vallum was again disturbed ... with the same result. In the first two cases the seeds, though viable, seemed deficient in vitality - the colony did not survive; it is probable that in the third instance this will also be the case. The interesting side issue is the suggestion that the ancient Briton depended for his war paint upon this Reseda and not the Isatis!'

Leaving aside the separate question of the use of either *Reseda* or *Isatis* for body painting by Iron Age Britons, the inference that this is 2000 year-old seed can probably be refuted. As in the case of other reports of plants 'not seen in this area', the chances are that they grew there a generation or two before and have simply been forgotten.

There are two mechanisms that come to mind that could have provided (probably) short-lived disturbances during which seed could become buried in the soils at the Roman earthworks at Cirencester. This summer I noted a fine stand of weld on a prehistoric circular bank (Thornborough Henge, near Ripon, N. Yorks.), growing on soil disturbed by burrowing rabbits. If the rabbit population disappeared, a closed turf would soon become re-established but a large amount of seed would have become incorporated into the underlying soil. Likewise, weld was grown in parts of southern England as a field crop (apparently as a mixed crop with barley) for the dyeing industry as late as the early 19th century. This would represent a huge seed source if, as most authors suggest, the plant is harvested when the flower spikes are ripening. I should be interested to know of instances of weld appearing suddenly in arable fields - in the same way that *Papaver* species often flourish in the season following deep-ploughing.

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## HENBANE, WELD AND DYER'S GREENWEED

Having been allowed to see Allan Hall's note (see above), I wish to add that Henbane was observed on St Patrick's Isle, Peel in 1866, 1872, 1878, 1887, 1920, 1930, 1937, 1947, and 1984 so this must be seed bank intermittently renewed. Unfortunately it is a plant that

will often have been ignored as an obvious relic of cultivation, but have others observed it as a town weed of disturbance?

With regard to Weld, it is a common weed of disturbance in the Isle of Man and can frequently be found on building rubble, whether dumped or on site, perhaps because it affords a more favourable habitat than the generally acid Manx soils.

The other Dyer's Greenweed, *Genista tinctoria*, has one main stronghold north of Ramsey where it seems to be a relic of cultivation as a dye source. From time to time it appears elsewhere in the north of the Isle of Man suggesting that it was formerly grown more widely.

There is some information relating to dyeing in the Isle of Man after about 1750 and fustic was then the preferred source of yellow, while *Genista tinctoria* is another plant present in the York archaeological record.

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### FLORA OF KENT'S CAVERN, DEVON

Having seen the short note 'Germination of Dormant Seed' by Elizabeth Rich in BSBI News 52: 28, I decided to visit Kent's Cavern (a limestone formation) that same day, Sept. 20.

Kent's Cavern in Torquay, Devon, has some large specimens of *Asplenium scolopendrium* growing close to electric lamps that are left alight during the day when the cavern is open to visitors. Other lamps that are switched on and off as visitors pass through have no ferns near them. The *A. scolopendrium* plants have fronds up to about 40cm long and are interesting in that, apart from being a rather pale green and somewhat lax are also highly bent and twisted as a result of phototropism; the lamps being beside or slightly below the level of the ferns. In addition to *A. scolopendrium* there was one frond of what I believe to be *Athyrium filix-femina* but being on an unreachable ledge about 3 metres above my head I was not able to study it closely. There was just a single frond, about 15cm long and 1-2cm wide and the subdivisions of the pinnae could just be distinguished. In addition there was some luxuriant growth of mosses in the water seepage over the limestone near the lamps. Here *Eucladium verticillatum* formed low cushions about 1cm high and there were a few minute plants of *Fissidens taxifolius* subsp. *taxifolius* just 6-10mm long on a moist vertical surface. I also found patches of a tiny dull-green branching hair-like moss with minute triangular leaves wide-spread on the stem which I have tentatively identified (because A.J. Smith quotes it as rare!) as *Platydictya confervoides*.

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### GERMINATION OF LONG-BURIED SEED

In his book The Common Ground (Hutchinson, 1980), Richard Mabey writes, in the chapter 'Woodlands and Forestry': "Research by the Institute of Terrestrial Ecology ... suggests that seeds of herbaceous flowers and shrubs can remain viable for up to fourteen years under the accumulating layers of toxic pine litter, but that after that period their chance of germinating falls rapidly."

This statement and the interesting accounts of the germination of long-buried seed in past issues of BSBI News, prompt me to offer a few observations made during the present survey of the flora of Ditchley Park in West Oxfordshire.

On this large estate devoted principally to farming and forestry, 1,000 acres of 'beech-with-conifers' have been planted over the past thirty-six years on deciduous woodland sites which date back to the time, centuries ago, when Ditchley lay within the northern boundary of Wychwood Forest. Among the coniferous nurse trees introduced with the beech are *Chamaecyparis lawsoniana*, *Larix decidua*, *Picea abies*, *Pinus nigra*, *P. sylvestris* and *Pseudotsuga menziesii*. The planting sequence is three rows of beech, then three rows of conifer. Thinning takes place after about fifteen years, the practice being to remove the first and third rows of each conifer belt, usually after the young beech has been lightly pruned. During the survey it was noticed that thinning operations are having interesting consequences for plant life.



In March 1989, along a 275 metre ride running east-west between two compartments of a 1971 plantation, three rows of *Pinus nigra* were felled from one side and three rows of *Pseudotsuga menziesii* from the other. This increased the width of the ride from about six to eighteen metres. The trees were extracted straight away and the trimmings burnt. In August it was observed that plant regeneration on the *Pinus nigra* side was poor, the soil being thickly littered with dead needles. On the other side, where the finer leaves of *Pseudotsuga menziesii* were more thinly spread and the soil more bare, I recorded 150 vegetative plants of *Atropa belladonna*, 83 of *Verbascum thapsus*, and an uncountable mass, in one area, of four or five species of *Cirsium* and *Carduus*. Most surprising were four *Datura stramonium* plants (one 1.32m high x 1.68m wide), three of which had arisen, phoenix-like, from the ashes of the foresters' bonfires. (It is interesting that in Virginia USA, the Thorn-apple is known as Fireweed from its habit of appearing after fires.) The head forester, who has known the estate for over forty years, had never seen this plant before.

In a 1962 plantation, thinning of the *Picea abies* in 1986 was followed by the uprooting of more trees in gales in March 1987. In one of the wind-gaps *Aquilegia vulgaris* flowered the following spring (1988) where none had been seen before. *Aquilegia* occurs in a few rides elsewhere on the estate and is one of the Ditchley plants recorded by Druce in *The Flora of Oxfordshire* (1886). Elsewhere, following the thinning in 1987 of *Pinus sylvestris* from a 1964 plantation, there was a vigorous growth in May and June 1988 of *Ajuga reptans*, *Lamium galeobdolon* and *Vicia sylvatica*. The *Vicia* was an astonishing sight - rambling over piles of dead brushwood or, taking a grip on the rough bark of the pines, climbing vertically, in one case to a height of three metres. And in a 1955 plantation where *Pseudotsuga menziesii* has been more heavily thinned at intervals over several years, there was a spectacular show of bluebells this spring.

Increased light and moderate-to-light soil disturbance are assumed to have been the influences involved in all these cases.

Although the survey is not yet finished, the species list shows that at this stage in the long transition from deciduous woodland to 'beech-with-conifers' and - eventually - pure beech, the Ditchley flora is resilient and still remarkably rich. In the case of pure conifer plantations the story would no doubt be different.

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#### GERMINATION OF LONG-BURIED SEEDS

I have been most interested in the correspondence concerning seed viability in recent numbers of *BSEI News*. To keep matters 'on the boil', so to speak, I thought members might be interested in a few of my own observations.

In the 1960s and 1970s I became puzzled by the unpredictable way in which *Digitalis purpurea* appeared and disappeared in Ryton Woods, Warwickshire. The soil is a very sandy loam and mostly dry, much favoured by rabbits when they were not suffering from myxomatosis. Unlike West Wales, where I live now, *Digitalis* in the midlands was more or less confined to woods. Eventually it became obvious that in that particular situation *Digitalis* only flowered two years after disturbance of the ground by burrowing or scraping rabbits (or badgers). Artificial 'scrapes' produced the same effect. Also interesting was the enormous wastage of seedlings which I was able to show photographically. Thousands of seedlings produced dozens of first year plants, but eventually only about half a dozen flowering plants growing from the sides or 'spoil heaps' of deserted burrows. And the absolutely ideal situation arose when a rabbit colony was devastated by myxomatosis.

In my own garden in West Wales I produced *Verbascum thapsus* from sown seed during the summer of 1988, expecting to be battling with an 'overkill' of seedlings in the summer of 1989. But this never happened. Not one appeared. Why not? Similarly I have been surprised by the absence of germination of seeds of a prostrate form of *Cytisus scoparius* in my garden after sowing them several summers ago. This form grows well here and there along the cliff tops of the Pembrokeshire coast. I would have expected, even with my amateurish approach to gardening, to have produced at least one plant by now, although in this instance it may be due to the recent mild winters which did not produce the usual frost hazard such seeds may require.

The case of *Hyoscyamus niger* was altogether more embarrassing. This species was reported as growing on the golflinks behind whitesands Bay, a popular beach near St.

David's, Pembrokeshire, in 1986, by some friends of mine who are also members of the BSBI. So naturally, come the summer of 1987, I could'nt wait to find a plant which even Collins' flora describes as a 'stout, evil-looking, evil-smelling biennial', especially as it is a legendary plant which I had never seen. After three visits, the first two on my own, and the third with the good lady - a very able botanist who had originally recorded it, I drew a blank, but at the third visit I was forced to conclude the unthinkable, namely that she was mistaking first year **Arctium** leaves for those of **Hyoscyamus**. Naturally I kept this thought to myself and when eventually she came to the same conclusion I displayed proper restraint but felt even greater embarrassment - this time for her. Fortunately there was a happy ending and honour was satisfied when in the summer of 1988 several flowering specimens of **Hyoscyamus** reappeared. Indeed the groundsman of the golf links was most cooperative by continually turning over new sites and also showing interest himself. What a relief! To have questioned this lady botanist would have been like suggesting to Margaret Thatcher that she had no idea what Arthur Scargill looked like!

Sadly, however, I never did get down to serious study of seed dormancy. The intention had been to lift stones etc., perhaps even gravestones, to collect the soil and see what could be germinated from it. Providing one knows the date the stone was put down, such a study would be full of promise. But now my interest in gravestones is of a more personal and immediate nature!

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#### LONG-BURIED SEEDS - A POSTSCRIPT

I should like to convey my thanks to all those who wrote to me personally, or to BSBI News, in reply to my request for their observations on the subject of long-buried seeds. Some of the letters have raised more questions than they have answered - but that's what science is about anyway.

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[Mr F. Fincher, in a P.S. to his note on Yorkshire Fog (see page 36), writes: 'I have another note relating to long-buried seed. A site near Ombersley, in Worcs., had been opened up for archaeological purposes and the low ridges of soil surrounding this were covered with many plants of **Datura stramonium**, otherwise an uncommon casual in N. Worcs.; the date was 29-7-1974'. Ed.]

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#### A LADY'S SLIPPER - PUTTING A FOOT IN IT?

'Nature lovers from all over Britain will soon be paying close attention to the rural area around Cupar'. So ran the first sentence of an article in the Dundee Courier of 7.11.88. As I count myself in that category I read on - 'it was revealed at the weekend that an extremely rare orchid, a Lady's Slipper, had been discovered on a site only a few miles from the town'. That evening I had a phone call from one of the NCC Fife wardens, and Douglas McKean of the Royal Botanic Garden, Edinburgh, sent a copy of the cutting, but there were no other enquiries so I concluded that the paper must have a rather limited circulation among BSBI members.

Another young orchid lover subsequently informed me that the finder had made several extravagant claims, including the discovery of over 1,000 spikes of **Dactylorhiza fuchsii** subsp. **okellyi** on the Fife coast!

I understand that a photograph [of the lady's-slipper] has been examined at the B.M.(NH) and the plant confirmed as a continental variety of **Cypripedium calceolus** - clearly of cultivated origin. The latest development is that the finder is writing a book about orchids. If this ever appears, please remember that it had nothing to do with me!

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[This note first appeared in the BSBI Scottish Newsletter No. 11 (1989), and is reproduced here by kind permission of the Editor, Peter Macpherson and the author. Ed.]

## NOTES ON THE HORTICULTURE OF UMBELLIFERS IN THE SOUTH OF ENGLAND

In 1974, when I began raising a few bird-seed aliens and some less-common natives, such as *Petroselinum segetum* and *Peucedanum officinale*, I did not anticipate that the horticulture of umbellifers would come to occupy very much of my time. But, 150 european species later, the activity must be considered ingrained!

To put the 150 in context, it is the number of species raised to an adult stage, out of around 200 sown; 130 have flowered. This 150 is roughly a third of the umbellifers listed in *Flora Europaea*. Probably a further 100 species could have been attempted but, due to size, familiarity or general dullness have not taken my fancy. At least 50 non-european species have also flowered but the specimens gathered, and information gained, from these are very much 'on the back burner' in most cases.

There are several benefits from growing specialist plants at home:

- 1) Botany becomes a year-round occupation, next year's sowing occurring immediately after the flowering season.
- 2) The plant can be studied in all its stages, not just in the short time spent on its native ground.
- 3) More comprehensive specimens are produced, having features often absent from collections made in hot and arid habitats.
- 4) Seed and specimens of rarities can be raised with little harm to the wild population.

Set against these benefits is the variable, but usually small, risk of atypicality.

Seed is obtained mainly from three sources:

- 1) My own trips into Europe usually yield several fresh species, and in recent years have produced some very obscure plants, such as *Seseli tomentosum*, *Hladnikia pastinacifolia* and *Peucedanum achaicum*.
- 2) Interested friends often bring me some seed from their overseas trips, such as *Seseli peucedanoides*, *Peucedanum oligophyllum* and *P. hispanicum*. These are a great help.
- 3) Many institutions circulate seed-lists and Dr Stephen Jury of Reading University has kindly obtained numerous species for me. This has been especially helpful with the more obscure *Seseli* species of Eastern Europe, such as *S. sibiricum*, *S. lehmannii* and *S. dichotomum*.

It should be noted that botanic gardens are prone to erroneous namings, often due to 'migration' of plants in order beds. One European institution appears to have *Cnidium silaifolium* growing under three or four labels.

So, having assembled some seed, when and how should we sow it? I always sow in September whatever is to hand. If I sow again, and I have always done so in recent years, it is because seed from friends often arrives around the time of the BSBI Exhibition Meeting and from overseas institutions in the spring. I have successfully sown *Seseli* species as late as April 10, but would have sown them in September had they been available then, in order to cater for the time-requirement of every species. It may well be that *Seseli*, a genus which flowers and sets fruit very late in the year, is unusually well adapted to germination in spring.

Sowing is done in tomato boxes, using best available loam with about 5% of crushed limestone stirred in. Eight drills about 2" apart take 16 species in half-rows. I end up with three or four boxes by March/April. Drying-out should be avoided, and a well-shaded shelf in a conservatory or greenhouse is a location to choose. Newspaper is an aid to prevention of drying-out, but has to be removed when the first seedlings become erect. The combination of the lime, warmth and frequent watering causes soil crustaceans to multiply and the mixture becomes very fertile by spring. It would probably be ideal for the next season's sowing were it not for the likelihood of confusing strays. Sterilising the mixture would dispose of the strays, but would also destroy the crustaceans. I have never yet stratified seed, though I plan to do so this year. In species which normally experience low winter temperatures, a few individuals usually germinate without treatment, especially if under-ripe, and I have always managed by this means. As to sowing indoors, or in pots, these may be needful for tender subjects, or if very few seeds are

obtained. I have a large plant of *Eryngium amorginum*, from only two full seeds obtained on Crete in 1982, and was successful with a single mericarp of *Pimpinella anagodendron*, from Tenerife this year. Both were raised in small pots indoors, kept moist by a piece of glass.

Peaks of germination occur at around 12, 20 and 25 days, and there is just one 'window' in many species. The 12-day period is the most distinct. If a much coveted species fails to show, it is worth stirring through the row in the hope of provoking germination. If no seedlings appear within a further five days, sow again. Always keep some seed in reserve if possible. A few species, such as *Caucalis platycarpus* and *Orlaya* spp. appear in dribs and drabs over a period of months. Obviously it would require planned systematic sowings over a period of years to establish patterns of specific germination. But I do know that after every cold snap in the course of a winter, a fresh burst of germination occurs, usually on the day the warmer weather arrives. The sum of all these considerations averages a success rate of 70% by species, success being taken to mean the appearance of one or more seedlings.

No doubt some of the failures are due to unsuitable conditions being provided, and particularly to non-stratification of well-ripe seed of alpine species. However, I am sure that many more are due to age of seed coming from some of the institutions, where it is apparently not realised that umbellifer seed is short-lived. A few institutions also gather their material very under-ripe and then probably dry it in the sun. This is a recipe for disaster and unripe seed should remain on the ray, and preferably on the umbel, and be allowed to dry slowly in a well-shaded place.

With aquatic species, notably *Apium inundatum*, plants may be raised by dropping seeds into a jar of water with an inch of soil on the bottom. A pond is really needed, though, to give the resulting plants a fair chance. Most *Oenanthe* species, however, do well in quite dry situations, except *O. fluviatilis*, which is more or less impossible to maintain in still water either, being prey to just about every pond animal.

The number of seeds sown per species averages 20, and the number of seedlings I can cope with, depending on size, hardiness and desirability, is from 3-6. There are few people to whom the surplus can be given, when there is one. I've had a large number of single germinations in recent years, however. When the young plant's volume above soil is 1 cubic inch, it goes into a pot and thence on to the limestone rockery, of which more later, at 24 cubic inches around March. A few species, besides annuals, will oblige with flowers that same season, but a further year's wait is much more likely. Large subjects will have the back row, of course, and others will be placed in the best position available, with regard to light, aspect and drainage. As with garden Parsley, so with many of these wild umbellifers, if they are once pot-bound their subsequent growth will be tight and mean, they will be programmed to constriction.

If the pots in the greenhouse, containing the young plants, are standing on a mix of soil and perlite, and this medium is kept damp, the roots soon emerge and stifling is avoided. Potting-on thereafter is traumatic but for small and medium subjects I am now simply enlarging the base holes of the pot and placing the whole thing in a soil-and-limestone-filled crevice in the rockery. Recent flowering of *Eryngium glaciale* and *Seseli malyi* under this regime has encouraged me.

The rockery is intended as suitable habitat for the many umbellifers native to the limestone of Southern Europe. It is 21x10' at the moment but subject to further enlargement. Plants are raised by from 6" to 2' above the surrounding lawn. The aspect is southerly, with a thick hedge and a shed on the north side. Underlying material is mainly rubble, topped by a generous layer of Cotswold limestone, laid flat. There are enough soil-filled crevices to accommodate 90 plants, from the little caespitose *Bolax* spp. to the large *Seselis*, *Seseli globiferum*, *S. rhodopeum* and *S. campestre*, with the emphasis on perennials. All the plants which once occupied large pots are now on this patch of limestone.

Most cultivated subjects have their pests and keeping them in check may be troublesome and time-consuming. Umbellifers cannot be raised where there are numerous slugs and snails. I dislike using poisons and instead I go 'slugging' nightly, one hour after dark. By this time they have nearly all arrived at their intended feeding stations for the night but have not yet done too much damage. A firm clip with a trowel, sufficient to propel the mollusc a couple of yards, but not to break it, does the trick. I have thus reduced the population here from massive to minute, and it took about a year. All other methods fail sometimes, pellets, grit, sand-faced cylinders or whatever. I have even seen a large slug lying fakir-like across a gorse stem, eating my valued *Seseli peucedanoides*. The larger

brutes, which certainly do not subsist on algae here, are too much for our toads, but I have recently been joined by a good Song Thrush with an appetite for snails.

It is well known that alpine and similar plants suffer from damp winter conditions when grown in England. The answer would seem to be a large roof of clear corrugated PVC on stout posts. Unfortunately this turns the rockery into mouse-city, as they dislike wet winters too. And they do eat plants, being especially partial to the genus *Athamanta*. So individual glass sheets work best.

The most sinister threats are plant diseases, neckrot and black wilt being the most common. The loss of a plant which has taken some years to raise is very trying. A plant with neckrot looks a little below par one day, and comes away in your hand the next, an orange-coloured decay-condition having spread across the main root just below the soil. I lost several species this year, notably *Pimpinella bicknellii* and *Portenschlagiella ramosissima*, to an outbreak caused, I believe, by the inclusion of too much clay in their soil. When things are going well it is so easy to become careless. Black wilt, a condition in which the inflorescence goes black and collapses, while the lower parts usually remain intact, is rare here, but it troubled me in the Chilterns and I have seen it at Kew. *Peucedanum coriaceum*, *Laser trilobum* and *Torilis arvensis* subsp. *neglecta* are very subject to this affliction.

Drought can hurt plants, as we have seen this summer. Obviously *Oenanthe*, *Apium*, *Silaum* and the like are at risk, but the plant which languished most noticeably here was the little *Endressia pyrenaica*, which presumably likes the cool side of the mountain at home. With a habitat designed to keep their feet dry in wet summers, you just have to give water in one like 1989. Frosts are of no concern to plants from the mountains provided they have no inflorescence. I covered a prematurely-flowering *Johrenia distans* with an upturned tea-chest on a nightly basis in March. Perhaps, like me, you thought the South Coast was frost-free. In the mild 1988-89 winter we had five frosts of -4 deg. C and one of -5 (17/3/89), two miles from the Solent.

It is good to have a percentage of reliable perennials, and it would be heavy going to maintain a succession of short-lived species sufficient to fill 90 places. A lot of attractive and interesting umbellifers are monocarpic, though, including the big *Seseli* species, of which I am very fond. Many *Eryngium* and *Peucedanum* species are long-lived, as are quite a few of the 55 monotypic European genera. I also like to raise a few annuals for early greenhouse or indoor flowering, such as *Scandix australis* subsp. *grandiflora*, *Tordylium officinale*, *Turgenia latifolia* and *Orlaya daucorlaya*. The *Scandix* is especially striking, having been given specific rank by Boissier et al. All these subjects need a moderately hard regime if they are to remain compact.

An annual under good conditions may flower three months after germination, the big perennials need three years, sometimes more. In some cases, though, such as *Peucedanum officinale* or *Opopanax chironium*, they flower annually thereafter for many years. *Oenanthe* spp., despite their complex root structure, usually flower in the first summer after germination, as does *Crithmum maritimum* - a good subject for coastal rockeries, with delightfully-scented flowers. Species of the Mediterranean basin, if they are not yet mature, frequently aestivate. All *Smyrniun* species, for instance, disappear in May and re-appear at the end of August, and are also monocarpic.

One puzzle is the ease with which one can raise species which are extremely restricted in the wild. *Seseli tomentosum*, *S. malyi* and *S. vandasii* germinate well, and set good seed. *Peucedanum achaicum*, my most recent extreme endemic, will probably do the same. Another question, largely unanswered for lack of subjects, is whether chasmophytes should be provided with the north side of a limestone wall, or whether they need all they can get of the English sun.

A few plants here have been raised from root-pieces rather than seed. The pieces should always be from non-flowering plants, and a gravel-based medium is best. It may be worth taking a modest amount of this on expeditions as it is hard to come by in the mountains.

Many umbellifers are known to be poisonous. It is probably wise to regard them all as risks unless known to be safe. I had a sobering experience this autumn, when collecting a stem-branch and a leaf of *Seseli globiferum* to press for a friend. As I walked through the kitchen our large cat, who was waiting for his supper, reached forward to sniff the juicy stump. I let him sample the leaf too, his nose not quite touching either piece. In about a minute all thought of food was gone as he staggered about the room foaming at the mouth. It was quite a relief an hour later when he was fit to resume normal living.

Since the production of specimens is a primary objective of all this work, the incision has ultimately to be made, but I sometimes find it hard to do. Seen in retrospect though,



Part of the rockery dominated by *Seseli globiferum* Vis.



t) and *Seseli rhodopeum* Velen. (Right) del. C. Hogg



C. Hogg

*Scandix australis* L. subsp. *grandiflora* (L.) Thell. del. C. Hogg



these hort. sheets are very satisfying and without them my experience of umbellifers would be much reduced.

Finally, may I confess to being an habitual 'talker-to-plants', something which seems to have done my 'lads' no harm whatsoever.

MERVYN SOUTHAM, 72 Fareham Road, GOSPORT Hants. PO13 0AG

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### DOUBLE TAKE AT MARKS & SPENCER

There are times when botanizing occurs at rather unexpected moments, and one such happened to me the other day when my wife and I were at the pay desk at our local Marks & Spencer. My idle eye was caught by the various horticultural specimens up for sale, and, on the lowest shelf there was much greenery in the form of some very fine-leaved grassy-looking stuff. I vaguely wondered why anyone should want to buy pots full of grass, even though it was bright emerald green, and thought perhaps some flower arranger might make such a purchase if needing to disguise the base of some arrangement, or perhaps one might buy it for the cat! It was with some astonishment that I suddenly realised what the plant was - *Isolepis cernua*. Not really believing that it could be so, I inspected the label and it was named *Scirpus cernuus*, and it really was, even if the Marks & Spencer taxonomists had not yet caught up with the changes in nomenclature.

So where had it come from? I suspect a Continental origin and not the New Forest where I know it as one of Britain's rarer plants and encourage various friends to spot it while on their hands and knees.

The method of growing seems to be to use a 4" pot, fit it with a plastic loo roll tube sticking up the middle, and the plants shoot up the centre of this to emerge as a massive explosion of bright green leaves and flowering stems, each bearing the small bractless silvery heads of doubtful decorative value. The greenery has to be seen to be believed as it is lush and may well last for a considerable time. I have never seen the like in the New Forest, but the ponies and the summer drought may well cause the dwarf specimens which I usually see.

I was considering the wiliness of Continental nurserymen in producing such an eye-catching bit of greenery when I suddenly realised that in another pot, this time containing bunches of *Chrysanthemums* each with some sprigs of what appeared to be another rare species. Strangely enough there was a label on one sprig which named it *Bupleurum*. I did not measure up the shape of the bracteoles or inspect the fruit in front of the public, but I thought it was *B. rotundifolium*. Perhaps I should always carry W. & G.'s 'Guide' or the 'Plant Crib' whenever I go shopping.

Thompson & Morgan's seed catalogue, which I have just received, lists *Bupleurum rotundifolium* and suggests it is 'more like a *Euphorbia* than a *Euphorbia* in flower, yet it has leaves like a *Eucalyptus*' - you live and learn!

G.H. FORSTER, "The Whyte House", 37 High Street, SELSEY, nr Chichester, Sussex PO20 0RB

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### THE SAME ONLY DIFFERENT

I have for long been aware of the 'pair' of species named *Aquilegia thalictrifolia* and *Thalictrum aquilegifolium*, but have recently discovered that the similar pair *Achillea tanacetifolia* and *Tanacetum achilleifolium* is accompanied by several other brain-teasers. For example there is *A. millefolium* and *T. millefolium*, and *A. macrophylla* and *T. macrophyllum*, as well as *A. grandifolia*. All the above names represent totally separate species.

A plant that has been naturalized in Yorkshire since about 1912, and is present elsewhere too, has been variously recorded and named as *Achillea grandifolia*, *A. macrophylla* and *Tanacetum macrophyllum*. The last name is correct. It looks rather like a large yarrow with tansy leaves. Needless to say, it is totally different from *T. microphyllum*, which looks like a small tansy with yarrow leaves.

CLIVE STACE, Cringlee, Claybrooke Road, ULLESTHORPE, Lutterworth, Leics.

## A JAPANESE KNOTWEED ... BY ANY OTHER NAME ...

The scene - the House of Lords, the date - Tuesday, 4th July 1989, the time - 'half-past two of the clock: The LORD CHANCELLOR on the Woolsack', the subject Japanese Knotweed, yes JAPANESE KNOTWEED! At least that was the name used first by Baroness Sharples when she asked the Government if they had found a means of combating the spread of the plant. But the short exchange that followed was to be remarkable not so much for the Governments reply (by The Earl of Caithness: '... control by a combination of rigorous cutting and grazing has proved successful at one site. More generally, however, chemical control is likely to offer the best chance of success.'), but for the number of different colloquial names used.

I thought the Latin names were bad enough, in the good old days we had *Polygonum cuspidatum*, then *Flora Europaea* decreed it should be *Reynoutria japonica*, then, when we had all got used to that, John Akeroyd comes along and tells us that it has all been a mistake and we should now be calling it *Fallopia japonica*, but only if we are 'botanists' (Ronse-Decraene & Akeroyd, 1988); if we are 'gardeners', it's about turn and back to *Polygonum cuspidatum* (Walters *et al.*, 1989).

To return to the House of Lords, Baroness Sharples then stated 'I believe that everybody is slightly bewildered by the Question. ['ear, 'ear] Is my noble friend aware that this Japanese Himalayan and giant knotweed grows to nine feet in height?' What started out as one English name has now become three, but more was to follow. Lord Mowbray and Stourton asked if the Minister could inform him 'whether or not this Japanese knotweed is a cousin of our old friend sticky willie, from which I suffer?'. Not to be outdone by this name dropping, The Earl of Caithness replied 'My Lords, I am afraid that my knowledge of weeds and grasses is perhaps not as good as it should be. ['ear, 'ear again!] However, I know that in the 1930s it was known as Hancock's curse'. We now have five English names for this plant and I for one have never before heard it referred to as 'sticky willie' or 'Hancock's curse', perhaps other members have?

The debate was concluded by Baroness Strange who announced to the House '... I have just discovered from my noble friend Lady Sharples what Japanese knotweed is? It is a most revolting weed which has flourished extremely well in our garden for the last 20 years or so. I am always trying to get rid of it. When it is burnt it makes a noise like a pistol shot'. Presumably one can conclude from this that arson is not an effective method of control.

I am indebted to John Bennett for sending the page from Hansard from which the above has been extracted.

## References

Ronse-Decraene, L.-P. & Akeroyd, J.R., (1988). Generic limits in *Polygonum* and related genera (Polygonaceae) on the basis of floral characters. Bot. J. Linn. Soc. **98**: 321-371

Walters, S.M. *et al.* (Eds.) (1989). European Garden Flora. [*Polygonum* by J.R. Akeroyd, pp. 125-128].

GWYNN ELLIS, EDITOR

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## WHY YORKSHIRE FOG?

Like Mr V.A. Johnstone's original note on the germination of long-buried seed, Ron Payne's query about the derivation of the name 'Yorkshire Fog' for the grass *Holcus lanatus*, has stimulated a number of replies and several are printed below. Ed

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## WHY YORKSHIRE FOG? - BECAUSE ... I

The Readers Digest Universal Dictionary, 1987 gives the following definition:

- fog<sup>2</sup> n. 1. A second growth of grass on a field which has been mown or grazed. 2. Tall, thick grass left standing after cutting or grazing. (Middle English, fogge or fog, perhaps from Scandinavia).

This gives a possible ancestry for the Fog of Yorkshire Fog. It is interesting to note that under "fog"<sup>1</sup>n (meaning condensed water vapour) this dictionary suggests that the common usage of the word derives from FOG = rank grass rather than vice versa.

No doubt the late flowering (6-9) of *H. lanatus* as compared with that of many of the common constituents of meadows (6 or 6-7 in most cases) would explain why it was a noticeable component of meadow grassland after cutting or grazing. Added to this I suggest the possibility that the flowering period may in fact be dependent in Britain on latitude and that Northern communities may tend to flower later than those in the south - hence a tentative explanation of Yorkshire in the name.

But if this does not satisfy Mr Payne, I would simply point out that Fogs are no more a monopoly of Yorkshire than Ducks are of Bombay!

It would be interesting perhaps to discover the source of the information in the Dictionary quoted above. I doubt whether it came directly from a botanist. Under 'Yorkshire Fog' in the same dictionary we find the following entry:

"A common tufted grass, *Holcus lanatus* having downy stems and leaves. (From the foggy impression made by its leaves and from its prevalence in Yorkshire)."

It seems very clear that the Editors did not cross check this reference with that under 'Fog' or they would have seen the inconsistency. Mr Payne would certainly be right to challenge this entry and I find it totally unconvincing myself.

GUY MESSENGER, 5 Wheatley Avenue, UPPINGHAM, Rutland, Leics. LE15 9SN

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#### WHY YORKSHIRE FOG? - BECAUSE ... II

I work for Oxford University Press, and am one of a team helping to prepare a new edition of the Shorter Oxford English Dictionary. I have the task of writing all the botanical entries for this - an uncomfortably wide remit - and in this connection had occasion to consider the name Yorkshire Fog quite recently.

Like Mr Payne, I was struck by the comparative lateness of the name. I could only trace it back a year or two further than he; it appears in J.C. Morton's Cyclopaedia of Agriculture (1855), vol. 2 p. 38/2, s.v. *Holcus*, where *Holcus lanatus* is named 'Woolly Soft Grass, Meadow Soft Grass or Yorkshire Fog'. Morton then gives an account of the origin of the name in a way that rather agrees with Margaret Plues (who I think must have got her information from him):

'The name Yorkshire Fog is applied to this grass in consequence of its having been extensively cultivated in that county at an early period in the history of 'natural grass' culture. Marshall, in his Rural Economy of Yorkshire, published in 1788, states that "White or Meadow soft-grass was formerly in high esteem, being cultivated separately, and thrashed like corn for its seeds, but it is far from being an eligible grass for cultivation, the growers of the seeds being the only persons who profit thereby - eighty bushels of seed having been produced per acre." Certainly sheep, and especially horses, can only be induced to eat the grass or hay of the Yorkshire Fog when stinted of more agreeable food.'

That Morton's explanation is the right one seems proved by a footnote I came across in William Curtis's Practical Observations on the British Grasses (3rd ed., 1798 - I haven't managed to find an earlier edition), p. 4: 'We have indeed been informed that the seeds of the *Holcus Lanatus*, or Meadow Soft-grass, gathered in great quantities in some parts of Yorkshire, is [sic] sold in several of the London shops under the name of Yorkshire Grass.' (Curtis is complaining about the great scarcity of commercially available seed of meadow or pasture grasses other than rye-grass.)

How did Yorkshire Fog come to establish itself as the standard name of this grass? If 'fog' in this name originally was the dialect word fog meaning coarse grass or spongy plant, I personally feel that the grey appearance of the inflorescence must have caused the name Yorkshire Fog to be associated in the popular mind with fog in its common sense of 'condensed vapour', and enabled the name to catch on. Perhaps even the name was the invention of some seedsman, deliberately chosen for its ambiguity.

RICHARD PALMER, 11 Fleet Way, DIDCOT, Oxon OX11 8BZ

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WHY YORKSHIRE FOG? - BECAUSE ... III

Before coming to live in Worcestershire, my home was in South Staffordshire, and I was familiar with the word FEG as a term for rough grass in general, similar to the definition given by Mr Payne in his article, quoting the Shorter Oxford English Dictionary. This is so close to FOG that it suggests a common derivation. I thought perhaps this might be of interest as it sounds as though the term may be general among older country people.

F. FINCHER, Eventide, Woodcote Lane, BROMSGROVE, Worcs. B61 9EG

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WHY YORKSHIRE FOG? - BECAUSE ... IV

Once, I had a lovely, smart lawn, with a good turf of fine-leaved grasses, then it got invaded! Creeping up just like a true 'Yorkshire fog' came the grass *Holcus lanatus*. I did not see it coming, then it was all over my lawn. However the name was derived, it is very apt indeed!

D. HORNE, 26 Hathaway Drive, LEEDS, Yorkshire

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THE SUNFLOWER CAMPAIGN

Collections of biological material such as herbarium specimens are currently at serious risk of neglect, decay and destruction in many of Britain's publicly funded museums. These startling facts were revealed by a survey initiated by the Biology Curators' Group, the results of which (the 'Williams Report') were published last year by the Museums Association.

The Sunflower Campaign is one of the ways in which the Biology Curators' Group is responding to the report, written by Dr Bernice Williams when she was based at the National Museum of Wales. The campaign is being directed at government agencies, Museums' governing bodies and senior managers of provincial museums (few of whom are natural historians) with the aim of alerting them to the plight of their unique collections and proposing ways to tackle the problems associated with their upkeep. It follows an earlier campaign, known as 'Beetle-Down' which helped to draw the attention of the general public to the wealth of natural history material kept in local Museums.

The campaign is deliberately hard-hitting, as the natural reticence of curators to publicise their Museums' shortcomings has contributed to the acceptance of abysmal standards of storage, staffing and conservation which would be unthinkable for material such as fine art collections with a high monetary value.

The choice of a 'Sunflowers' theme highlights the fact that in 1987 a single painting by Van Gogh made £25,000,000 at auction. It helps put into perspective the relatively modest sums required to start rehousing, conserving, disinfecting and documenting the country's neglected biological collections. We know from the Williams Report (to be reviewed in Watsonia vol. 18 part 1) that there are over 190 museums with natural history collections requiring urgent attention.

Free leaflets describing the Campaign in more detail, and containing a check-list of what **you** can do, are available from: B.C.G., City Museum, Sheffield S10 2TP: please enclose SAE. A tape-slide pack is also available.

JOHN EDMONDSON, Botany Dept., Liverpool Museum, William Brown St, LIVERPOOL L3 8EN

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**Bromus madritensis** L. var. **ciliatus** Guss. del. G.M.S. Easy © 1989

COMPUTERS

DMAP - AN UPDATE

DMAP is a computer program for Distribution Mapping which runs on IBM-compatible micro-computers (e.g. Amstrad PCs). The program has been described in earlier issues of BSBI News (e.g. no. 50, Dec. 1988), and the purpose of this note is to mention some of the enhancements made recently. These include : the ability to 'export' maps in a form suitable for many Desk-top Publishing packages; The screen display of maps is now in colour (on EGA and VGA monitors); a simple database program is supplied with DMAP which accepts standard BRC codes for species.

For further details write to the address below.

ALAN MORTON, Imperial College, Silwood Park, ASCOT, Berks. SL5 7PY

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ALIENS AND ADVENTIVES

Recent British records of both **Malope malacoides** L. and **M. trifida** Cav., the subjects of G.M.S. Easy's cover illustration, will appear in Adventive News 41 in the next issue.

Graham Easy has also kindly drawn the grass **Bromus madritensis** L. var. **ciliatus** Guss., a variety with hairy spikelets, which he gathered at the Newmarket (Cams.) grain silos in 1989 (see page 37).

ADRIAN L. GRENFELL, 19 Station Road, Winterbourne Down, BRISTOL BS17 1EP

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ALIEN PLANTS ON IRISH ROADSIDES

Following the mild winter of 1987-88, a variety of alien plants was found at the port of Foynes, Co. Limerick, Dublin port (S. Reynolds, Irish Naturalists' Journal, in press) and the port of Rosbercon/New Ross, Co. Wexford (D. Kelly, Irish Naturalists' Journal, in press). It is suspected that the aliens arrived as seed contaminants in animal feed.

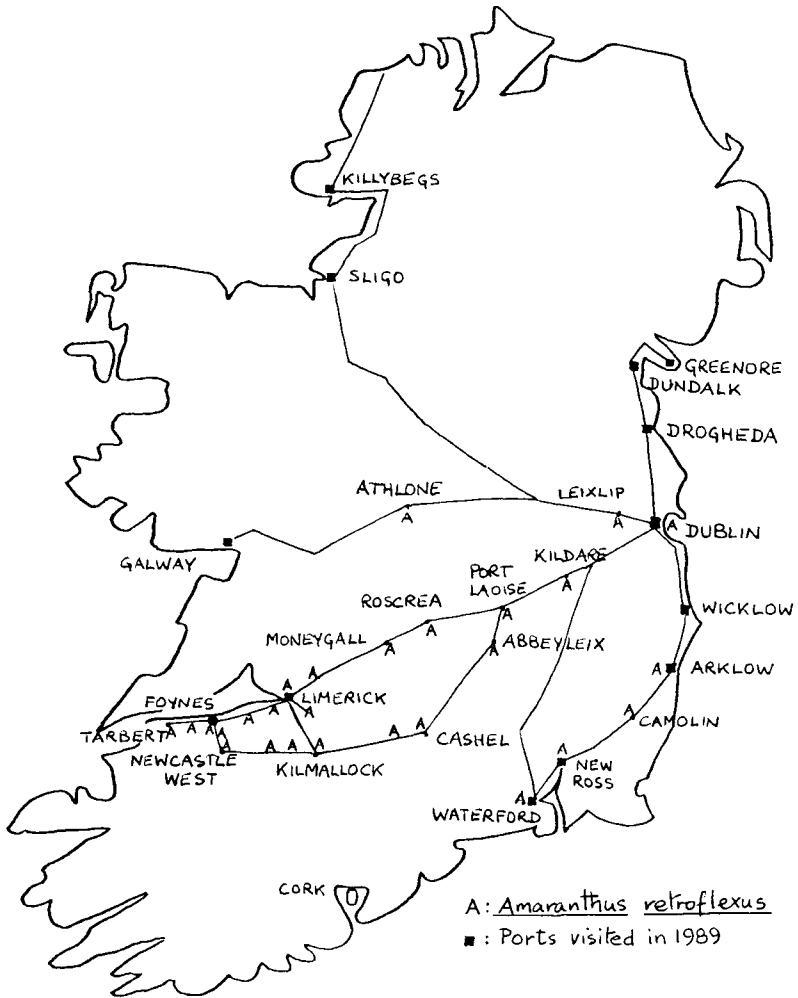
Early in July 1989 many of the same species were found to be growing profusely on roadsides leading away from Foynes. The most common assemblage of plants included **Amaranthus retroflexus**, **Setaria viridis**, **Thlaspi arvense** and **Chenopodium album** forma **glomerulosum**, and, less frequently, **Kochia scoparia**, **Erucastrum gallicum**, **Erysimum cheiranthoides** and **Descurainia sophia**. Most of these plants have been reported only as casuals in Ireland, so it was of interest to see where else they could be found in the country.

**Amaranthus retroflexus** was selected as an appropriate indicator for this group of dock aliens because it could be spotted while driving at up to 50mph. Hundreds of miles of roadsides were investigated and several ports were also visited. **A. retroflexus**, usually growing with other alien species, was found in a surprising number of locations as shown on the accompanying map (see page 39). The roads which were driven are also marked.

I am in the process of putting together my information on Irish roadside aliens for 1989, and would be interested to know of similar observations particularly from areas I did not get to.

SYLVIA REYNOLDS, 115 Weirview Drive, STILLORGAN, Co. Dublin, Ireland

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Map showing roads travelled and observed distribution of *Amaranthus retroflexus* in 1989

NOTICES (BSBI)

MISSING IRISH MEMBERS?

The Irish Regional Committee is currently revising its membership list. It appears that in certain cases, members living in Ireland have not been notified of events organised by the I.R.C. even though their membership is in order and they have received Watsonia, BSBI News and other documentation in good time. Any members resident in Ireland who feel that they have missed certain mailings from the I.R.C. should contact me as soon as possible to have the matter rectified.

DECLAN DOOGUE, 12 Glasilawn Road, DUBLIN 11, Irish Republic.

Notices (Others)

**NOTICES (OTHERS)**

**LAUTERBRUNNEN REVISITED**

Members who visited Lauterbrunnen, Switzerland, with the writer in 1984 and enjoyed an unforgettable week, are invited to make a return trip in early June 1990. On this occasion members will have to make their own travel arrangements but it is envisaged that those attending will drive to the destination, spending a few days botanising (and eating!) in France en route. Some of the 1984 party have already expressed an interest in the trip ..... I look forward to more replies.

ADRIAN L. GRENFELL, 19 Station Road, Winterbourne Down, BRISTOL BS17 1EP  
Tel. 0454-774448

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**XV INTERNATIONAL BOTANICAL CONGRESS TOKYO, 1993 - ADVANCE NOTICE**

The Organizing Committee of the XVth International Botanical Congress wishes to announce that the XV IBC will be held in the Tokyo area during August and September, 1993: nomenclature session 23-27 August; general session 28 August - 3 September. The first circular of the XV IBC will be prepared in 1990 and distributed to those who are interested in the Congress. Requests for information and other questions and comments may be sent to the Secretariat at the address below.

KUNIO IWATSUKI, Secretary General, XV International Botanical Congress Tokyo, Department of Botany, Faculty of Science, The University of Tokyo, 7-3-1 Hongo, Bunkyo-Ku, TOKYO 113, JAPAN

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**THE BM FERN CRIB**

'The BM Fern Crib' is now £1.50 per copy due to increased costs. It is available from 'The Fern Section' at the address below. Please make cheques payable to 'The Natural History Museum' and enclose a 22p stamped self-addressed 23x16.3cm envelope with orders.

JOSEPHINE M. CAMUS, The Fern Section, The Natural History Museum, Cromwell Road, LONDON SW7 5BD

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**THE OLEG POLUNIN MEMORIAL FUND**

The Oleg Polunin Memorial Fund was established by the family and friends of Oleg Polunin, to give assistance to those wishing to undertake botanical or biological fieldwork either abroad or in the U.K., and awards can be made to an individual or a member of an organised expedition.

Applicants should normally have Charterhouse School connections but other persons with strong botanical or biological interests will also be considered, and awards will normally be for amounts of up to £1000.

Applications should be made in writing to the address below, giving a clear statement about the proposed field studies, where they will be undertaken and when, the extent to which they will be supervised, and the amount of grant requested. The closing date for applications for the 1990 award is 1st February 1989.

PETER J. ATTENBOROUGH, Headmaster, Charterhouse, GODALMING, Surrey GU7 2DJ

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**HIGHLAND FIELD STUDIES**

Brian Brookes has again put together an interesting and varied programme of courses for 1990. Some are specifically botanical and several others, though more general, have a high botanical content. All will be run as small, friendly groups in a relaxed, informal and enjoyable atmosphere.

Specially recommended to BSBI members are the courses on Grasses, Sedges and Rushes (July 7-14) and Wildflowers of Tayside (July 21-28), both courses based at Dunkeld, Perthshire.

The programme also includes:

Mosses and liverworts	Dunkeld, Perthshire	April 27 - 30
Spring Flowers	Dunkeld, Perthshire	April 30 - 5 May
Highland Wildflowers	Dunkeld, Perthshire	May 26 - 2 June
Botany in Morvern	Ardtornish, Argyll	June 9 - 16
Mountain Flowers	Dunkeld, Perthshire	June 23 - 30
Beginning Botany	Dunkeld, Perthshire	August 10 - 12
Bryophytes	Dunkeld, Perthshire	August 25 - 1 September
Natural History of Coll	Coll Hotel	September 17 - 22
Natural History of Skye	Harlosh, Dunvegan, Skye	September 29 - 6 October
Autumn in Tayside	Dunkeld, Perthshire	October 13 - 20

The full programme and details of any particular courses are available from the address below. All enquiries are welcomed (sae appreciated).

BRIAN BROOKES, Borelick, Trochry, DUNKELD, Perthshire, PH8 0BX (tel. 03503-222)

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**FIELD TRIPS TO THE PYRENEES**

There are two opportunities to explore the flora and countryside of the Pyrenees in a group of not more than 6 people. The first will run from 27 May to 10 June and cover the Park of Aigues Tortes, Val d'Aran and Benasque starting and ending at Barcelona or Figueras as convenient to members of the expedition. The second will start at Barcelona or Figueras on 10 June returning to the UK by ferry from Santander on about 21 June and will cover Ordesa, the French Parc National des Pyrenees and the worthwhile places en route.

Expenses will be on a pay-as-we-go basis and are unlikely to exceed £25 a day for food and accommodation and £7 a day for transport. If you are interested please contact me by phone or write to the address below.

JOHN TOPP, 20 Lupus Street, LONDON SW1 V 3DZ (tel. 01-834-3079).

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**FORTHCOMING MEETINGS OF THE BRITISH BRYOLOGICAL SOCIETY**

- 4 - 11 April. Spring Field Meeting, Lancaster.  
Full details from the local secretary: Martin Wigginton, NCC, 70 Castlegate, Grantham, Lincolnshire
  - August. Summer Field Meeting, Ulster: Antrim, Derry and Donegal. Full details from the local secretary: Dr Keith Lewis, Biomedical Library, Queen's University, Belfast City Hospital, Lisburn Road, BELFAST BT9 7AB
  - 22 -23 September. Annual General Meeting and Paper Reading Meeting, Cambridge. A special meeting in honour of Professor Paul Richards and Dr Eustace Jones. Full details from the local secretary: Dr Philip Stanley, 48 Glisson Road, Cambridge CB1 2HF
  - 10 November. Workshop Meeting, Manchester. Full details from the local secretary: Mr Sean Edwards, Manchester Museum, The University, Manchester M13 9PL
- As always, BSBI members will be most welcome at these meetings.

PHILIP LIGHTOWLERS, British Antarctic Survey, High Cross, Madingley Road, CAMBRIDGE CB3 0ET

**EXPEDITIONS OVERSEAS**

The following overseas tours have been arranged for 1990. All the leaders are members of the BSBI.

**Cox & Kings Travel Ltd., St James Court, Buckingham Gate, LONDON SW1E 6AF**

COUNTRY	DATE	LEADER
Crete	20 March - 3 April	Mary Briggs
Southern Turkey	31 March - 16 April	Tony Kemp
Peloponnese	9 - 20 April	Mary Briggs
Rhodes	9 - 23 April	Peter Jepson
Cyprus	9 - 18 April	Alan Outen
Majorca	4 - 12 April	Richard Pankhurst
Lake Ochrid (Yugoslavia)	17 - 28 May	Mary Briggs
Madeira	23 May - 3 June	Marian Short
Dolomites	28 June - 13 July	Tony Kemp
Wengen	27 June - 11 July	Mary Briggs
Obergurgl	27 July - 9 August	Alan Outen
Canadian Rockies	26 July - 10 August	Mary Briggs
Western Australia	16 September - 4 October	Mary Briggs

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

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**FIELD STUDIES COUNCIL COURSES**

The 1990 brochure of courses at the nine residential Centres of the Field Studies Council is now available. Courses of special interest to botanists are on a sheet headed 'Flowers and Other Plants'.

This or the complete brochure is free to all who would like a copy but a first-class stamp towards the cost of postage would be appreciated. For your copy write to: Field Studies Council, Central Services, Preston Montford, Montford Bridge, SHREWSBURY SY4 1HW.

CATHERINE BROOM-LYNNE, Promotion & Publicity, Field Studies Council, Flatford Mill Field Centre, East Bergholt, COLCHESTER CO7 6UL

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**REQUESTS**

**FLORA OF NORTHEAST ESSEX**

This project, a 10-year long co-operative venture between Colchester Museums and the Colchester Natural History Society is now entering its final phase. We would welcome any records made, since the publication of Stan Jermyn's *Flora*, by botanists visiting this area (Essex east of grid line 80) for inclusion in the database which currently stands at around 150,000 records all with 1km grid references. Publication is scheduled for September 1990. Details with date and grid ref. if possible please to me at the address below.

JEREMY HEATH, Colchester Museum, 14 Ryegate Road, COLCHESTER, Essex CO1 1YG

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**ROSA AT THE NATURAL HISTORY MUSEUM, LONDON**

One of the forthcoming BSBI handbooks is *Roses of Great Britain and Ireland* by the Rev. G.G. Graham and the Rev. A.L. Primavesi. We hope that it will be possible to include distribution maps of all species and of some hybrids in this handbook. As few of the

species and none of the hybrids have been mapped before, there are few data at the Biological Records Centre. We are therefore attempting to gather records, based on critically determined specimens. The most important herbarium specimens are held by the Natural History Museum, which has the herbaria of A.H. Wolley-Dod and a number of other noted rhodologists. We are looking for a volunteer or volunteers who would be able to extract records from these specimens. No expertise in *Rosa* taxonomy is needed! Arthur Chater and Marian Short of the Museum staff have offered to help supervise this work. The Museum is open on weekdays and on some Saturdays. Anyone willing to help should contact A.O. Chater at the address below. The BSBI would consider paying travelling expenses within the London area.

ARTHUR O. CHATER, Department of Botany, Natural History Museum, Cromwell Road, LONDON SW7 5BD. Tel. 01-938 8812

CHRIS PRESTON, Biological Records Centre, The Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, HUNTINGDON PE17 2LS

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## OFFERS

### POLAND FIELD MEETING SPECIES LIST

Mr J.J. Zawadzki has produced a list, in alphabetical order of genera, of the 900+ vascular plant species recorded on the Poland Field Meeting, (6th - 20th August 1989). The nomenclature follows that of *Flora Europaea*. Copies have been sent to all participants and are now offered to other members. If you would like to receive one, please write to me at the address below, enclosing 60p to cover costs. A cheque or postal order (made payable to A. Copping), or postage stamps are all equally acceptable.

A. COPPING. The Nook, The Green, Roydon, DISS, Norfolk IP22 3SD

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## BOOK NOTES

From its inception in the first issue of *BSBI News*, this column has been able to list the titles which were scheduled for review in the next issue of *Watsonia*. The contents of the book reviews section of the journal were already settled (barring an occasional absentee when a promised review failed to materialise), and many readers found the preview useful.

There are, however, three issues of *News* and only two of *Watsonia* per year. This particular issue of 'Book Notes', therefore, is an innovation since it deals in greater depth with books received since the last issue of *News*. Autumn being the peak period for the emergence of new publications (including, inexplicably, some field guides) this should ensure a more regular flow of information about new books.

As before, books which will not be reviewed are marked with an asterisk; unsigned notes are by J.E.

\**Flora of Turkey* vol. 10: *Supplement*, by Peter H. Davis, Robert R. Mill & Kit Tan. Edinburgh U.P. 1988. Pp. xxi + 590. Price £70 (ISBN 0-85224-559-9). [Marks the termination of a major Flora project one hundred years after the completion of Bossier's *Flora Orientalis*. Two-thirds of the additions to the Turkish flora were new to science, and in the flora as a whole a remarkable 31% of the species are endemic.]

*Med-checklist* vol. 4: *dicots (Lauraceae - Rhamnaceae)*, by Werner Greuter, Herve M. Burdet & G. Long. Conservatoire et Jardin botaniques, Geneva. 1989. Pp. xvii + 458 + cxxix. [Covers all circum-Mediterranean countries plus Crimea and Jordan.]

\**Ornamental grasses*, by Roger Grounds. Christopher Helm, Bromley in association with the Hardy Plant Society. 1989. Pp. viii + 232, with 30 colour plates and 35 line drawings. Price £19.95 (ISBN 0-7470-1219-9). [Chapters on the diversity of grasses, their garden uses and cultivation followed by chapters on 'grasses', 'bamboos' and 'sedges' each with a list of genera and species, and short chapters on 'rushes' and 'cat-tails'. Few of the species treated are natives of Europe, and the exceptions include such unlikely garden subjects as *Nardus stricta*. Aimed at the enthusiast;

- much of the reference material is unoriginal (e.g. the hardiness ratings) but could be a quick source of information on cultivars.]
- \*Spring and winter flowering bulbs of the Cape. Text and watercolours by Barbara Jeppe. Oxford U.P., Cape Town. 1989. Pp. 143, with 62 colour plates. Price £34 (ISBN 0-19-570535-1). [Quarto coffee-table book covering the rich Cape flora of more than 400 geophytes; brief descriptions, flowering times and distribution. Gives an insight into the native relatives of horticulturally 'improved' genera such as **Freesia**, **Gladiolus** and **Lachenalia**.]
- Atlas Florae Europaeae vol. 8: Nymphaeaceae to Ranunculaceae, edited by Jaako Jalas and Juha Suominen. Committee for Mapping the Flora of Europe & Soc. Bot. Fennica Vanamo, 1989; 444 distribution maps. [Maintains the impeccable standards of previous volumes.]
- \*The genus **Lewisia**, by Brian Mathew. A Kew Magazine monograph. Royal Botanic Gardens, Kew in association with Christopher Helm and Timber Press. 1989. Pp. 151, with 20 colour plates by Christobel King. Price £17.95 (ISBN 0-7420-2217-8). [A book for both gardeners and botanists, containing a taxonomic revision of the 19 species of **Lewisia** (Portulacaceae) from western North America with notes on their cultivation.]
- Colour identification guide to the grasses, rushes and ferns of the British Isles and north-western Europe, by Francis Rose. Pp. 240, with 62 colour plates and numerous small line drawings in margins of keys. Viking, 1989. [A critical, original and richly illustrated treatment of the 'ugly ducklings' which are omitted from many popular field guides.]
- \*Patterns in plant development, 2nd ed., by T.A. Steeves & I.M. Sussex. Cambridge U.P. 1989. Pp. xv + 388. Price £9.95 p/b. [A textbook of developmental morphology and anatomy.]
- \*Sir James Edward Smith, 1759-1828, by Margot Walker. Linnean Society of London. 1988. Pp. vii + 60. Price £3 (ISBN 0-9506207-1-8). [Biographical sketch of the first President of the Linnean Society and purchaser of Linnaeus's herbarium. Short but scholarly; contains much previously unpublished material, there being no full-length biography of this eminent English botanist.]
- \*Chambers Biology Dictionary, ed. by Peter Walker. Chambers, Cambridge U.P. 1989. Pp. xii + 324. Price £8.95 p/b. (ISBN 0-521-96153-8). [Derived from Chambers Science and Technology Dictionary; cheaper and more portable, aimed at biology students.]
- The European Garden Flora, vol 3 (dicots. part 1). Edited by S.M. Walters and 10 others. Cambridge U.P. 1989. [Covers families from Casuarinaceae to Aristolochiaceae in Engler's sequence. Treats all plants cultivated for amenity in Europe; crops and garden weeds are excluded.]
- \*Flora Malesiana ser. 1 vol. 10 part 4, edited by W. de Wilde. Dr W. Junk (Kluwer Academic Publishers), Dordrecht. 1989. Price £49.50 (ISBN 0-7923-0421-7). [Contains accounts of 25 small families, including many conifers, and a dedication to Carl Ludwig Blume by C.G.G.J. van Steenis.]

JOHN EDMONDSON, Botany Dept., Liverpool Museum, William Brown St, LIVERPOOL L3 8EN

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#### NEWS FROM OUNDLE BOOKS

Heathers and Heathlands ed. S.L. Jury, 1989. 68 pages. £4.85

This BSBI Conference Report No 21 will be published in the Botanical Journal of the Linnean Society Volume 101(3) November 1989. It is the report of the papers given at a joint meeting to celebrate the Bicentenary of the Linnean Society.

It will be available at this price, which includes postage, from BSBI Publications at the address below.

Further additions to the Autumn 1989 list plus other changes are on a supplementary list that I am constantly updating. This includes Francis Rose's new book on Grasses, Sedges, Rushes and Ferns @ £35 and Marjorie Blamey's splendid illustrated Flora @ £25. Please send a post card if you would like a copy.

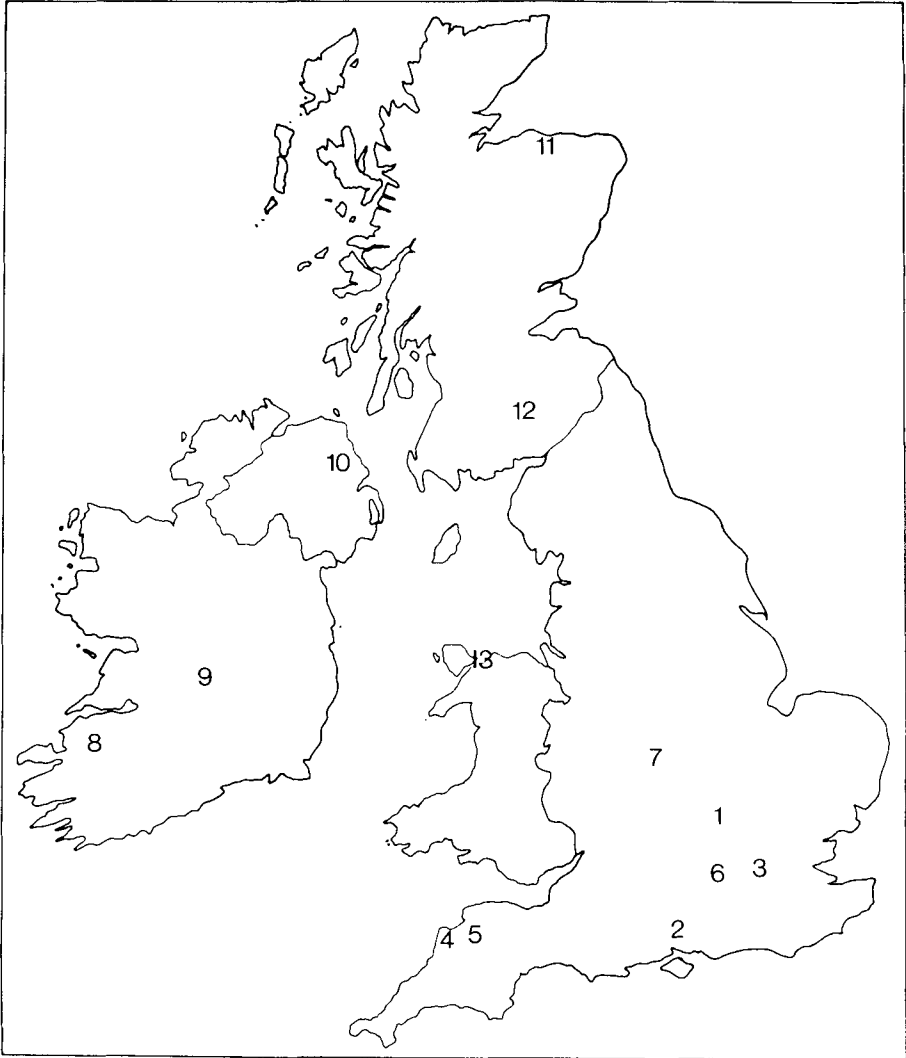
MARGARET PERRING, 24 Glaphorn Road, OUNDLE, Peterborough PE8 4JQ

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**REPORTS OF FIELD MEETINGS - 1989**

Reports of Field Meetings are edited by, and should be sent to, Dr B.S. Rushton, Biology Department, The University of Ulster, COLERAINE, Co. Londonderry, N. Ireland BT52 1SA.

The map shows the approximate locations of the field meetings reported below (except Poland).



## ENGLAND

## NORTH BUCKINGHAMSHIRE (v.c. 24). 27th - 28th MAY (1)

Eight people attended this meeting: four on both days and two others, each for one day. Two venues were visited on each day, mostly in glorious weather. On the Saturday two woods were seen, one of which had been 'sampled' in an A-tetrad in 1987-8. To the good list already made we added *Dryopteris affinis* and *Carex divulsa* subsp. *divulsa*. This latter record is for the furthest north that this species has been seen in Buckinghamshire. The second wood has recently been saved from complete clear-felling and given to the local naturalists' trust. Already many new trees have been planted, but it will be a long time before woodland is re-established. Some 130 species were noted, several being weeds which, hopefully, will disappear as the woodland develops. *Carex ovalis* and *C. pallescens* were found in small quantity, the former being very rare in North Buckinghamshire.

Part of a disused gravel-pit complex has been restored as a wildfowl centre and is also used for research. The visit here took us to several of the diverse habitats present. On the grassy verge, by one of the tracks *Lathyrus nissolia* was just coming into bloom and two splendid specimens of *Tragopogon porrifolius* were seen. Good patches of *Carex spicata* were found and one large area had *Equisetum x litorale* (possibly a new v.c. record). No *E. fluviatile* was found, however, but *E. arvense* was. The fourth site was a couple of old meadows. We managed to see a few *Orchis morio* and *Primula veris* flowers, but most were, unfortunately, past their best. *Conopodium majus* was putting on a good display but mostly we had to be content with identification by vegetative characters. The two days produced 15 sedges, these fields having *Carex distans* as their speciality. It had only been seen in one of the fields until our visit, but we saw several plants in the second field.

No complete tally of species seen was kept, but we must have topped the 300 mark quite easily: more eyes do see more plants!

R. MAYCOCK

## SOUTHAMPTON COMMON, HANTS. (v.c.11). 8th JULY (2)

This was one of two meetings in 1989 specially for the study of *Rubus*. That as many as 20 members and two guests were attracted to it, half of them from outside Hampshire and its adjoining counties and six from as far away as the northern half of England, testifies to the marked revival in popularity that this long-shunned group is currently enjoying.

The scene of a previous BSBI *Rubus* meeting in 1976, Southampton Common naturally suggests itself for a one-day occasion of this kind in view of the exceptional number of species it contains within its comparatively small area. The 44 named ones so far on record, moreover, are a useful mixture of common British forms and local specialities. The very distinct New Forest florula is well represented and several of the specifically Southampton area species accompany this. Its position as a geographical crossroads, indeed, is one of the reasons for the Common's remarkable richness; another is its gravel soil and abundance of woodland margins, ideal ecologically for the general run of *Rubus* species. But most important of all is its miraculous unbroken history since it constituted the common wood-pasture of the Saxon town of Hamwic, from perhaps as early the Sixth Century A.D.

In the course of the day, 32 of the 44 species were met with and their salient features demonstrated. Material was also collected by and for the cognoscenti of the three most widespread of the Common's numerous un-named forms, on the off-chance that these can be matched with brambles in other parts of Britain.

In the last few moments, as the party had almost reached the car park, an unexpected addition was made in the shape of *R. criniger*, a species increasingly encountered in the far south of Hampshire. Later still, after the meeting had officially ended, three of us combed the south margin in a vain search for *R. insectifolius* - and were rewarded instead with another addition: *R. rossensis*, a species widespread in the district to the east of the city. Thus even after many years of intensive working, it would seem that the *Rubus* flora of this unrivalled urban oasis has still by no means been exhausted.

D.E. ALLEN

CITY OF LONDON (v.c. 21). 16th JULY (3)

The objective of the meeting was to try out the keys for my BSBI Cruciferae Handbook before they are published. To test the generic key objectively, the genera were changed to names of towns to stop people keying out species by eliminating the ones they know! The BSBI guinea pigs who attended were asked to check that the keys were accurate and clearly worded, and that the characters were simple and easy to interpret.

We met at Tower Hill Tube Station and started with *Sisymbrium irio* (a classic site) and some demonstration material. It rapidly became clear that the appressed bifid (medifixed) hairs in *Erysimum* (and *Lobularia*) appear simple to a hand lens and are thus likely to be mis-interpreted. The requirement for both flowers and fruit was bemoaned.

We then caught a convenient bus to Poplar, and examined a number of unusual crucifers on a site which was being developed. *Sisymbrium loeselii*, *Bunias orientalis* and *Diplotaxis tenuifolia* were successfully keyed out but the lack of fruit set in some plants (due to self-incompatibility) gave further problems. Another convenient bus took us to Cubitt Town where we had lunch behind the Asda supermarket.

Crucifers such as *Cardaria chalepensis* and *Berteroa incana* took second place for a while to a patch of "chalk grassland" (you should have seen D.H. Kent's looks of disbelief as *Plantago media*, *Scabiosa columbaria* and *Campanula glomerata* were discovered) and to other aliens including *Rumex cristatus*, *Salvia verticillata* and *Lapsana communis* subsp. *intermedia*.

A third convenient bus and a less considerate tube transported us to Kew for ice-creams and two final sites. St Anne's churchyard produced the 6th *Sisymbrium* (*S. strictissimum*) of the day and the River Thames yielded *Rorippa amphibia* and *R. palustris*, but alas none of their hybrid.

To my relief the keys generally worked well. A number of improvements were suggested, a few corrections picked up and the little illustrations approved of. The day proved an invaluable exercise for me and I am very grateful to the BSBI members for their hard work, patience and helpful ideas.

T.C.G. RICH

NORTH DEVON (v.c. 4). 22nd - 23rd JULY (4)

Bradworthy Common (G.R. 21/3.1), the first of two sites visited on the Saturday, is an area of grassland, scrub and wet moor and is subject to the exercise of grazing rights by local villagers. The wettest part, though it was not very wet in this abnormally dry season, was dominated by *Carex rostrata*, *Menyanthes trifoliata* and *Potentilla palustris*. Other plants seen included *Hypericum undulatum* and *Pinguicula lusitanica* and there was a good range of sedges, including *Carex demissa* x *hostiana* with both its parents. Bradworthy Common incorporates a typical example of the wet moors of North-West Devon, so many of which have been lost to the claims of economic land management, especially forestry.

In the afternoon we moved to Lower Tamar Lake, which was originally built as a reservoir to feed the old Bude Canal and then became a source of local water supply. In 1975, when the new Upper Tamar reservoir was completed, the Lower Lake was turned over to fishing and other recreational purposes. The shoreline provides varied habitats. In one lush area we saw *Carex vesicaria*, here just over the county boundary in one of its few Cornish sites, and again *Hypericum undulatum*. In another very different and sparsely colonized part of the lake-side we saw numerous minute plants of *Anagallis minima*.

On the Sunday Braunton Burrows, with its wealth of rare species, was our first venue. The very dry season made it almost impossible to find any surviving flowers of *Dactylorhiza incarnata* subsp. *coccinea* and the extensive sheets of *Epipactis palustris* were less striking than usual and already past their best. One disappointment was that in the area where last year a large population of the recently identified *Gentianella anglica* subsp. *cornubiensis* had been seen the plants had this year failed to appear at all. On the other hand some particularly fine plants of *Linaria arenaria* were found and *Teucrium scordium* was just at its best.

Our last visit was to part of the coastal path between Croyde and Baggy Point. Here the main interest centered on garden plants which had established themselves or succeeded in

maintaining themselves in competition with the natural vegetation. These included *Erica vagans*, *Hemerocallis fulva* and *Acanthus mollis*. There are usually some native plants of interest along here and we did see *Scilla autumnalis* but others, like *Lotus subbiflorus* and the colour varieties of *Anthyllis vulneraria* had been 'burnt' out of all recognition.

About 20 members attended the meeting. Help is gratefully acknowledged from Len Margetts and Alan Newton in identifying the hybrid sedge and some critical plants encountered.

W.H. TUCKER

#### SOUTH MOLTON, NORTH DEVON (v.c. 4). 25th - 27th JULY (5)

As the distribution of Brambles has been more widely studied, it has become apparent that the many species found mainly in Cornwall which extend into Devon, tend to do so through the southern half of that county, while a fair number of species in north Devon have part, if not the main part of their population, across the Bristol channel in South Wales. It was to gain a better understanding of the complexities of the Devon Bramble flora, that a dozen members met for a preliminary session in the Girl Guide hut at South Molton on the Tuesday evening, under the benevolent eye of Alan Newton, the *Rubus* referee and co-author of the Batologist's Bible.

Having worked out a plan of campaign, and looked at some specimens from the area collected by several of those present, we adjourned, to meet again on Wednesday morning at Great Odam Plantation, near Meshaw. This was the first of seven sites visited in the two days, during which, we saw over 40 species. As space will not allow mention of all these, examples will be used to reflect different types of distribution.

During the 1988 Cornish visit, I found that an East Anglian had to start almost from scratch, and that *Rubus nemoralis* at a single site was a new county record for v.c. 1. In Devon, quite a number of widespread species were encountered, and of the 40 species found, 16 also occur in Norfolk or Suffolk. Among these were an encouraging number of species belonging to the sub-erect group, usually deemed to be indicators of undisturbed sites. *Rubus plicatus* was found at Witheridge Moor and Haresdown on the first day and at Holewater on the second. *R. nessensis* was found at three of the four sites on the second day and *R. scissus* at two. These three species are all widespread, but *R. sulcatus* is scattered over relatively few sites south of the Severn/Wash line. *R. nobilissimus* also falls into this category, but is even more southern.

Almost the first species spotted by the eagle eye of our leader at Great Odam, was one of 'his' western plants, *R. wirralensis*. This, however, remained stubbornly elusive, as the first plant consisted of a single primocane, and another was never found!

I suppose *R. dumnoniensis* was to be expected in Devon, but a glance at the distribution map shows it to be a plant scattered all the way up the western seaboard, with a second centre in the Hebrides!

*R. errabundus* was found at all the first days sites to the south and south east of South Molton, but at none of the four sites to the north of the town, on the second day. This also has a curious distribution, being mainly found in north west England and south west Scotland, with an outlying population along the southern English coast.

Plants with a genuine south western distribution, which were met with in most places, included *R. adscitus* and *R. prolongatus*, while *R. albionis* was only seen twice on the first day and *R. plymensis* once.

Plants largely confined to Cornwall and Devon, and therefore roughly in the centre of their range, included *R. tamarensis* which was found at two sites on each day, whilst *R. fuscoviridis* and *R. thurstonii* only appeared at the more southerly sites on day one.

Moving on to the second day, one plant which appeared at three of the four sites, was *R. scaber*, which is mainly southern and south eastern in Britain. These were in woodland at West Molland, Heasley Mill and Holewater. Another southern species, *R. diversus*, which I knew from Suffolk, came as a surprise to me when found at Heasley Mill, but Alan tells me it was collected in the area a hundred years ago!

What about that Welsh connection? It was certainly there. *R. orbis* was found twice on the first day and three times on the second. Whilst this is mainly a south western species, it has several Welsh sites. *R. altiarcuatus* appeared at several sites - a plant equally at home on either side of the Bristol Channel. *R. morganwgensis*, a pretty bramble, was found well inland at Great Odam Plantation. *R. rossensis* was seen at Haresdown on the



first day and at Filleigh on the second. A single station for *R. acclivatum* was discovered at Heasley Mill by Mike Porter, a plant he knows well in Brecon, as indeed he knows *R. biloensis*, whose name is to appear officially in *Watsonia* shortly. Like *R. rossensis*, this was found at our last stop on each day. I wonder if the same flocks of birds ferried the seed across the Bristol Channel?

It says something for the careful preparation made by Bill Tucker, assisted by Len Margetts, that it fell to yours truly to discover the only bush of *R. ulmifolius* to be seen in the whole two days, at our very last stop!

No account of this most enjoyable and instructive two days would be complete without a mention of one or two other highlights. For the botanist with a penchant for yellow dandelion type flowers, there was the rather nice colony of Hawkweed at Witheridge Moor, pointed out to us by Len Margetts as *Hieracium calcaricola*, and named originally by P.D. Sell.

As we ate lunch at West Molland on the second day, we became aware of House Martins screaming in alarm above our heads. Looking up, we were rewarded with an unforgettable display of aerobatics by a Hobby intent on House Martin for lunch.

For myself, I shall long remember Mike Porter calling us across an open area of *Molinia caerulea* on Witheridge Moor to a few square metres of Knapweed in flower. Busily imbibing nectar from this island of purple in a sea of grass, were no fewer than seven gorgeous Silver Washed Fritillaries, a butterfly which I had never seen before, as they are now extinct in Norfolk.

Finally, when we arrived at West Molland, we encountered a man and a lad with a collie dog. The woodland is used for the intensive rearing of young Pheasants - perhaps the most stupid of birds when hand reared, and usually suicidal, especially on the roads. The collie was trained to catch the young Pheasants and take them to his master, who popped them back over the fence into the wood!

Finally, the thanks of all the party must go to Bill Tucker for his work in organising the whole two days, including the hall and refreshments on our arrival. Thanks too to Len Margetts for helping to find the best places to go.

A. BULL

#### UMBELLIFERAE WORKSHOP, READING, BERKS. (v.c. 22). 29th JULY (6)

About 25 members attended this meeting in the Plant Science Laboratories, University of Reading. The day started with an introductory lecture on the family, paying special attention to the terminology employed by botanists. A demonstration of living plant material was available as well as literature, photographs, drawings, etc.

After lunch, the participants heard about the floral biology and breeding systems and how this related to morphology.

The day ended around 4.30pm with an optional excursion, first to Burnham Beeches to see *Physospermum cornubiense* flowering and fruiting, and then on to Runnymede Pond for *Oenanthe aquatica* and *O. fistulosa* (as well as a splendid collection of hydrophytes including *Azolla filiculoides*, *Hydrocharis morsus-ranae*, *Stratiotes aloides*, *Sagittaria sagittifolia* and *Butomus umbellatus*).

I would like to particularly thank several people. Sabina and Martin Gardner provided some of the Umbellifer specimens from their own garden, including a spectacular fruiting *Ferula communis*. Sabina gave much encouragement and help reconnoitering the possible excursion sites earlier in the week. Mervyn Southam, sadly for us, was unable to be present, as he was hunting rare *Seseli* species on Greek Mountains. However, he kindly bought plant material and drawings to Reading on loan before he left. John Akeroyd, unfortunately, never made the lectures or demonstration: we kept him too busy making tea and coffee and washing up throughout the day. Professor H.G. Dickinson, Head of the School of Plant Sciences and Professor J.B. Harborne, Head of the Department of Botany, kindly provided the University facilities.

S.L. JURY

SUTTON PARK, WEST MIDLANDS (v.c. 38). 9th SEPTEMBER (7)

Sutton Park, once the centre of a great forest came into the possession of the Royal Town in 1528 by charter, thanks to the high regard of Henry VIII for Bishop Vesey, formerly John Harman, a native of Sutton Coldfield. Now administered by Birmingham City Council its 1000ha are surrounded by urban development but its woodlands, heaths and wetlands have preserved much of their original aspect. The wealth of species and more or less wild habitats came as an agreeable surprise to the 16 members participating in this visit. On this occasion we concentrated on the wetlands of Longmoor valley and the Bracebridge area. Here are to be found many of the interesting plants which have survived the centuries despite the thousands who flock here from far around. 20 or so species are found nowhere else in the county.

A searching north-easterly wind was soon forgotten in the contemplation of a fine colony of *Parnassia palustris* subsp. *palustris* as we approached the streamside. In the vicinity, among the dead spikes of *Dactylorhiza majalis* subsp. *praetermissa* (Southern Marsh-orchid) were *Potentilla palustris*, *Pinguicula vulgaris*, *Anagallis tenella*, *Sagina nodosa* and much *Succisa pratensis*. In a deeply waterlogged place - unaffected by the long dry spell - was a patch of an American willow, *Salix cordata*, not identified as such until 1976 when the exceptional drought permitted an approach close enough to obtain material. More of this willow was found by one of the party in an apparently new, and more accessible place upstream.

On the way to the Bracebridge area a few minutes were spent at the Visitor Centre, destined to become increasingly important as an educational amenity. There was a brief roadside stop to admire a colony of *Polygonum campanulatum*, after which the party was shown a much more recent introduction, *Sarracenia ?lutea* in a boggy area with *Sphagnum* and *Drosera rotundifolia*. Shortly after this, on the way to Little Bracebridge pool the fungi stole the show temporarily, among the many species noted being the attractive bright yellow swamp russule (*Russula claroflava*).

Large areas of Little Bracebridge pool were covered with *Menyanthes trifoliata* and its relative, *Nymphoides peltata* (Fringed Water-lily). Another invasive plant was *Azolla filiculoides* (Water Fern). One more introduced plant, *Calla palustris* (Bog Arum) was located with difficulty.

Members of the party contributed their expertise in the naming of *Equisetum*, *Juncus* and *Polygonum* species. There is no doubt everyone was impressed with the beauty and botanical wealth of the park.

H.H. FOWKES

IRELAND

WEST LIMERICK (v.c. H8). 15th - 16th JULY (8)

West Limerick is an interesting area where a limestone plain meets low hills of shale. The whole is bordered by the Shannon estuary, and over the two days of the field meeting five contrasting sites were visited by a small group of participants.

On Saturday morning we recorded the flora of a saltmarsh and adjacent grassland north of Askeaton. The protected grass *Hordeum secalinum* grows over quite a large area, and in one place is associated with *Trifolium fragiferum*. Later in the day we walked over a wet bog northwest of Carrigkerry, the only location for *Pinguicula grandiflora* in the county, where we saw *Vaccinium oxycoccos* and many plants of *Carex limosa*.

On our way to the bog, we stopped at Robertstown Church to look at *Amaranthus retroflexus*, *Setaria viridis*, *Erucastrum gallicum*, *Crepis tectorum* and other alien plants growing profusely along the roadside. These species were first found at the nearby port of Föynes in 1988.

On Sunday, the aquatic and marginal plants of interconnected shallow lime-rich lakes in the forest park at Curragh Chase were recorded. Most of the marginal vegetation had been cut, but one substantial patch of *Cladium mariscus* and *Juncus subnodulosus* had been left. The aquatic vegetation was luxuriant and included three species of *Sparganium*, *Baldellia ranunculoides*, *Alisma plantago-aquatica* and an abundance of a large *Chara* species. In the afternoon, we went to an area of unspoilt limestone crag, scrub and *Cladium mariscus* fen

south-east of Foynes. The most notable species were *Mycelis muralis* and *Rubus saxatilis* on the crag, and *Melica uniflora* under *Corylus avellana*. The meeting disbanded beside a lovely patch of *Verbena officinalis* on a nearby roadside.

SYLVIA REYNOLDS

Co. OFFALY (v.c. H18). 5th AUGUST (9)

A joint field meeting of the Dublin Naturalists' Field Club and the BSBI was held in Co. Offaly and was jointly led by Maura Scannell and Daniel Kelly.

Our first visit was to the site of Lough Coura, north of Birr (Irish G.R. 22/098.132). On the first Ordnance Survey in 1840, this was shown as a lake of about 40ha. The revised map of 1909 shows marshy vegetation over the whole area, and Praeger wrote of the lake in 1934 as "now an extensive limy marsh". Several unusual sedges and orchids have been recorded (cf. Booth, E.M. & Scannell, M.J.P. 1969. *Ir. Nat. J.* 16: 205-206).

The area has been subjected to extensive drainage, and we found it has now been largely converted to conifer plantation and cattle pasture. A rich flora still survives in the deeper drains, including *Carex pseudocyperus*, *Cladium mariscus* and *Berula erecta*. The vertical sections formed by the sides of the drains showed a transition from brown bog-peat to white marl of the former lake-bed. Returning towards our cars, we found a couple of unusual plants that we had all walked past on the way out: *Lithospermum officinale* and *Frangula alnus*. The latter species is apparently declining due to peatland exploitation, and has not been recorded recently in the county (Curtis, T.G.F & McGough, H.N. 1988. The Irish Red Data Book : Vascular Plants.) Squeezed between a forest road and a young conifer plantation, the future of this small clump looks somewhat doubtful. Our next stop was at a small marsh in the neighbourhood. *Galium uliginosum* was plentiful. Attempts to convert stunted specimens of *Carex paniculata* into *Carex appropinquata* were dismissed by Con Breen, who has developed a special relationship with the latter species.

We proceeded thence to Glaster, south of Banagher (Irish G.R. 22/00.10). This is a fine esker ridge with a good flora of lime- and drought-tolerant species, notably *Erigeron acer*, *Carlina vulgaris*, *Blackstonia perfoliata* and *Verbascum thapsus*. From the top of the ridge we surveyed the expanse of All Saints Bog, also known as Lower Newtown Bog. This bog is one of the ecological discoveries of the decade. It has the normal domed shape of a raised bog, but at the top of the dome is a birch wood approximately 20ha in extent. The trees are up to 10m high, rooted in a carpet of *Sphagnum*, mostly *S. fimbriatum*. There is a patchy dwarf shrub layer of *Calluna vulgaris*, *Empetrum nigrum* and *Vaccinium oxycoccos*. This is a unique site: the closest analogue appears to be in Finland (Cross, J. 1987. *Ir. Nat. J.* 22: 305-310). Sadly, the bog is seriously threatened by peat exploitation by a private company: huge ridges of milled peat could be seen on its eastern margin.

The sky was by now black to the west, with occasional flickers of lightening, so we descended from the esker crest for the most important business of the day. This was a presentation to Maura Scannell (M.J.P. Scannell), from some of her friends and admirers in the two societies. We presented a painting of esker flowers by Daphne Levinge (a member of the Dublin Naturalists' Field Club who has made a happy combination of her botanical and artistic talents). Daniel Kelly and Micheline Sheehy-Skeffington each spoke briefly on behalf of the two societies, trying to express in a few words our appreciation of Maura's enormous contribution to Irish botany. This was also an occasion to express something of the great affection for Maura which is so widely held. (The only problem in organizing the presentation was in having to restrain the generosity of subscribers!) Recovering from the surprise of this unexpected turn of events, Maura expressed her thanks, with some words of reminiscence about her association with each of the two societies. She has a long association with both: she was elected an Honorary Member of the Dublin Naturalist' Field Club in January 1987, and she was a founder member of the Irish Branch of the BSBI from its inception in 1963. Maura has just retired from her post in the National Herbarium, but her botanical activities show no signs of diminishing. Long may she retain her unique position at the centre of Irish botanical activity.

D.L. KELLY

THE GARRON PLATEAU, Co. ANTRIM (v.c. H39). 12th - 13th AUGUST (10)

The first day of this two-day excursion was planned as a joint meeting for both BSBI members, and for members of the Belfast Naturalists' Field Club. In the event, the party was further augmented by members of the Conservation Branch of the Department of the Environment for Northern Ireland, so that it was a party of 23 individuals which met in Carnlough on a showery morning and set off up the steep east-facing slopes of the Plateau towards the site of *Spiranthes romanzoffiana*, which lies some 250 metres above sea-level in Gortnagory townland. On this occasion the plant was not to be found, although in previous years, notably in 1985, as many as 20-25 flowering spikes have been found amongst the system of flushes which dissect the area. After lunch, the party progressed upwards to Lough na Trosk where we noted the submerged mats of *Groenlandia densa*, and an abundance of *Potamogeton perfoliatus* washed up along the eastern shore. Rising above Lough na Trosk on its western shore are the basalt escarpments of Big Trosk and Little Trosk, and it was on a north-facing outlier of this basalt that we found a relatively luxuriant specimen of *Cryptogramma crispa*, happily bearing several fertile fronds.

In the boggy tract to the south east of Lough Fine, we encountered *Carex pauciflora* for the first time, growing in association with *Drosera anglica*. *Carex pauciflora* is widespread on The Garron, but is easily overlooked until the eye becomes adept at noticing the characteristic pale utricles almost hidden in the scraw. In nearby Denny's Lough there was a good deal of *Lobelia dortmanna*, accompanied by *Equisetum fluviatile*. In Lough Fine there was more *E. fluviatile*, this time accompanied by *Schoenoplectus lacustris* and *Sparganium angustifolium*. By now we were moving towards the centre of the plateau, and towards the expansive, gently sloping and exceedingly wet mire which forms the watershed of the Black Burn. Along the edges of one of the bog runnels which drain through this mire, members of the party counted at least 20 flowering spikes of *Hammarbya paludosa*. The orchid was typically found growing scattered in ones and twos in association with *Drosera anglica*, *Pinguicula lusitanica*, *Vaccinium oxycoccus*, and *Schoenus nigricans*. The fact that the area searched constituted a relatively small section of this large site suggests that the orchid may be widespread here, albeit in a very diminutive form. This particular part of the site also contained a good deal of *Utricularia minor*, growing in the runnels and occasionally producing its single yellow flower just above the surface of the peaty water.

Meanwhile the weather had remained generally sunny, so that visibility on the plateau was excellent, allowing a good impression to be gained of the full extent of this bleak but beautiful terrain. The party returned to Carnlough by way of the southern edge of Lough na Cally, where we noted a fine stand of 'fruiting' *Carex lasiocarpa* - all the utricles examined proved to be well-formed, but empty.

The excursion planned for the second day was intended to take the form of a leisurely ramble along the Cranny and Pollan Burns. As it happened, torrential overnight rain had turned both these usually docile streams into something more serious, so that it was no longer possible to cross easily at any point, far less criss-cross at will from bank to bank. Inevitably, all the good streamside sites seemed to occur on the opposite bank so that whereas *Solidago virgaurea*, *Crepis paludosa*, and *Luzula sylvatica* could easily be made out at a distance, the chances of re-discovering *Orthilia secunda* in the steep gullies of the Cranny Burn proved decidedly bleak. Similarly, the single plant of *Gymnocarpium dryopteris* could not be re-found in its precarious site on the Pollan Burn, despite a considerable search. Nevertheless, the scarps to the east of the Pollan Burn gave us a fine display of *Ulex gallii*, whereas the western scarps provided several more specimens of *Cryptogramma crispa*, and some very luxurious *Phegopteris connectilis*. We then made the trek across extensive tracts of old cutaway bog to examine a population of *Carex magellanica* which is to be found growing in *Sphagnum* on the fringe of a small lochan. Comparisons were made between *Carex magellanica* and *C. limosa* which occurs nearby. The party then once more made its way back to Carnlough.

Even in the course of a two-day meeting it is impossible to do full justice to the Garron Plateau; nevertheless a good impression had been gained of the unique richness of this northern upland expanse. Thanks are to be extended to Mr Craig of Gortnagory who kindly provided car parking facilities on the first day of the meeting.

D. LEDSHAM

SCOTLAND

THE LEIN, KINGSTON, MORAY (v.c.95). 11th JUNE (1)

Owing to lack of interest this meeting was limited to one day. The three BSBI members were joined by 16 members of the Scottish Wildlife Trust's local group and by Jill Matthews of the NCC. Jill explained the history and ecology of the site which is a proposed SWT reserve, and which is also part of a larger coastal SSSI extending eastwards to Lossiemouth.

It is the second largest area of shingle in the British Isles. In places the shingle has been extracted leaving damp 'winter lochs' which partly dry out in the summer months creating ideal conditions for dune-slack plant communities including *Juncus balticus* and *Corallorhiza trifida*. The spread of scrub willow species, *Salix repens* and *S. aurita*, will create a management problem for the reserve.

In the sandy areas the dry conditions were suiting *Sagina subulata*, *Jasione montana* and *Ornithopus perpusillus*, the latter two species thriving at the northern limits of their ranges.

On the way home we visited the conifer plantation at Fochabers where the Forestry Commission had brushed up some of the trees to let light into the colony of *Linnaea borealis*. One group of plants in the middle of the wood could not be located, and appeared to have been shaded out, but there were still a number of plants at the west-facing woodland edge, though none were in flower.

J. EDELSTEN

MOFFAT HILLS, DUMFRIESSHIRE (v.c. 72). 17th - 18th JUNE (12)

On a scorching day which characterised this Summers weather, the five members of the party walked up the path to Loch Skene noting *Orchis mascula*, *Thalictrum minus* and *Trollius europaeus* on ledges above the Tail Burn. The main fall area was not investigated. On the peaty bottom of the loch near the outlet, *Subularia aquatica* occurred very locally with a single plant of *Isoetes lacustris*. *Rubus chamaemorus* was in flower nearby. En route for the Midlaw Linn, *Listera cordata* was very local and *Carex bigelowii* recorded from its lower altitudinal limit in these hills of 549m. The Linn has been visited by generations of botanists and sadly some of the rarities seem to have disappeared. However, the massed heads of *Trollius europaeus* on the ledges indicated the potential richness of the site. Species in flower were *Epilobium anagallidifolium*, *Saxifraga hypnoides*, *S. stellaris* and *Thalictrum alpinum*. The immature inflorescences of *Carex capillaris* took time to find with *Carex atrata* close by. *Alchemilla wichurae* was local and easily distinguished from the commoner and coarser *A. glabra*. Other species of note were *Antennaria dioica*, *Botrychium lunaria*, *Hymenophyllum wilsonii*, *Oxyria digyna*, *Saussurea alpina*, *Sedum rosea* and *Silene vulgaris* subsp. *maritima*. At the head of the Linn *Alopecurus alpinus* was very local. A speciality of these hills, it was seen later in greater quantity in high level flushes associated with the rare moss *Splachnum vasculosum*. The *Veronica serpyllifolia* seen in these flushes all appeared to belong to subsp. *serpyllifolia* there being no sign of subsp. *humifusa* previously reported. *Salix herbacea* and *S. lapponum* were seen on the way off the hill but *Empetrum nigrum* subsp. *hermaphroditum* was not recorded with certainty and *Cornus suecica* eluded the party.

The following day was as hot as ever as the steep slopes of Blackhope were ascended. *Avenula pratensis* was the first calcicole of note contrasting with acid screes supporting *Cryptogramma crispera* and *Dryopteris oreades*. A fine colony of *Potentilla crantzii* was seen in flower on an 'inaccessible' ledge accessible to only one member of the party, but a stunted *Salix*, possibly *S. phylicifolia*, was just out of reach. *Sedum villosum* was very local in a flush with *Cochlearia officinalis* and *Epilobium alsinifolium* draping the rocks in damp gullies. At the head of the glen at 518m a flushed grassy slope excited interest with a colony of *Ranunculus auricomus* and the leaves of *Geranium sylvaticum*, *Polygonum viviparum*, *Trollius europaeus* and *Thalictrum alpinum*. Further searching revealed a few heads of *Carex vaginata*. This site is probably the lowest in altitude yet recorded for these hills and similar to those across the Moffat Water in Selkirkshire (v.c. 79) where it reaches its southern limit in the British Isles. (Corner, R.W.M., 1981. *Watsonia* 13:

317). Although not all the rarities of the area described by Ratcliffe (1959. Trans. Bot. Soc. Edinb. 37: 257) were seen, a good range of species had been observed under unusually hot and thirst promoting conditions.

R.W.M. CORNER

## WALES

PTERIDOPHYTE WORKSHOP, BANGOR, GWYNEDD (v.c. 49). 13th - 21st AUGUST (13)

The Pteridophyte Workshop was centred on the Botanic Garden of the University College of North Wales, Treborth, Bangor, where laboratory facilities were available, and the Normal College, Bangor, where we had booked accommodation and a lecture room. There were 27 participants. The course leaders were Nigel Brown of the Botanic Garden, Bangor, and Josephine Carnus and Clive Jermy of the Natural History Museum, London.

Nigel Brown gave an introduction to the ecology and geology of North Wales on the Friday evening, which whetted appetites for the days to come. Study began in earnest the next morning with a lecture by Clive Jermy on *Polypodium* and *Dryopteris* species, subspecies and hybrids that covered the complex ancestry and genomes of these ferns. We then went to Anglesey to equate theory with practice. Mr Charles Aron of Plas Lligwy kindly allowed us to explore Plas Lligwy Wood, 2km WSW of Moelfre, G.R. 23/493.857 (v.c. 52). This is an ungrazed *Fraxinus excelsior* - *Acer pseudoplatanus* - *Ulmus glabra* wood on carboniferous limestone with a substantial cliff and pavement in one area. Here were *Dryopteris affinis* (subsp. *affinis*, *borreri* and *cambrensis*), *D. filix-mas*, *Polystichum setiferum* (common), and *P. aculeatum* (rare) and *Asplenium scolopendrium* (abundant) on the woodland floor, with *Polypodium interjectum*, *P. x shivasiae* and *P. cambricum* on walls and the limestone cliff.

In the more open glades amongst *Mercurialis perennis* and *Allium ursinum* (very evident in the spring) were *Dryopteris affinis* subsp. *affinis* and *D. affinis* subsp. *borreri*. A few plants of *D. affinis* subsp. *cambrensis* were found in more open wood. Frond morphology characteristics were demonstrated, but the plants at Lligwy emphasised the importance of indusial characters (in spite of the late season) in distinguishing the three subspecies. The *Dryopteris affinis* subsp. *affinis* here was a variety with very 'crispy' fronds very similar to subsp. *cambrensis* but the indusia were typically hard, thick and persistent. Plas Lligwy is known for its large populations of *Polypodium*. Unfortunately our visit fell between two seasons: *Polypodium vulgare* (which is rare there) was found in spore, but *P. interjectum* was only just producing fertile fronds and *P. cambricum* was just beginning to shoot new fronds to spore in late autumn. *P. x shivasiae* was seen in small quantities on the limestone cliff. *Dryopteris x complexa* (*D. affinis* subsp. *affinis* x *D. filix-mas*) was found, but not *Polystichum x bicknellii* (*P. aculeatum* x *P. setiferum*).

A number of less taxing ferns were seen as we progressed to nearby Traeth Lligwy, G.R. 23/495.372 (v.c. 52) for *Equisetum arvense*, *E. palustre*, *E. telmateia* and an extensive stand of *E. x font-queri* (*E. palustre* x *E. telmateia*) recently found here by Mr R.H. Roberts of Bangor (a new vice-county record for Anglesey, v.c. 52). Collecting throughout the day was restricted to ensure that the sites were not debilitated. An evening of laboratory work followed, with much microscopic examination of the day's bag.

Sunday started with lectures on the complexity of *Equisetum* and *Asplenium* by Josephine Carnus and Clive Jermy, stressing characters of taxonomic value in the former and hybrids in the latter that have been or may be found in the British Isles.

Field study began on the lower slopes of Cwm Grianog, Nant Ffrancon, 4km S of Bethesda, G.R. 23/631.632 (v.c. 49). The first site was an ungrazed area below the road and access was by kind permission of the National Trust. The rocky streamside and derelict sheep pens provided an interesting array of ferns. The well-grown *Dryopteris* plants here were *D. affinis* subsp. *borreri* and *D. affinis* subsp. *cambrensis*, with some *D. filix-mas* and *D. oreades*. One plant aroused so much curiosity that a frond could have been reassembled jig-saw fashion that evening in the lab. Its abortive spores confirmed our suspicions that it was *D. x mantoniae* (*D. filix-mas* x *D. oreades*). *Asplenium trichomanes* subsp. *quadrialeans* was growing on the remnants of mortar on the ruined walls. *Equisetum fluviatile* was found in a wet flush nearby. We then explored the acid scree slopes above the road, by kind permission of Mr Williams of Maes Caradoc, Nant Ffrancon. Here the large populations of *Dryopteris affinis* subsp. *affinis*, *D. affinis* subsp. *cambrensis* and

**D. oreades** are now being badly grazed. Nigel Brown pointed out that even sheep grazing can be used as a taxonomic character in **Dryopteris** - **D. oreades** plants flush earliest in the spring and are therefore the most chewed-looking.

Some magnificent lengths of branching rhizomes of **D. oreades** were seen in a disused mine adit entrance, free from grazing. Splendid plants of **Oreopteris limbosperma**, much less grazed by sheep than **D. oreades**, and some **Selaginella selaginoides** and **Cryptogramma crispa** provided a refreshing respite from taxonomic intricacies. The party then moved to the large boulder scree of Tryfan G.R. 23/864.600 (v.c. 49) and found both **Hymenophyllum wilsonii** and **H. tunbrigense**. The populations were small and somewhat distant from each other, making the discovery of the hybrid between them unlikely. **Huperzia selago** was bristling with well-developed gemmae. Llyn Ogwen, G.R. 23/656.603 (v.c. 49) harboured **Equisetum fluviatile** and **Isoetes lacustris**. Much use was made in that day's laboratory sessions of the study set of pteridophytes and **Isoetes** megaspores brought by the B.M. staff.

Monday morning found the group at a disused lead mine (by kind permission of the Forestry Commission) near Nant Bwlch yr Haearn, 3km NW of Betws-y-Coed, G.R. 23/778.593 (v.c. 49). This site is extremely fragile, and very careful foot-work is essential to avoid damage to the habitat and plants. It supports an interesting collection of **Asplenium** and **Dryopteris** species and subspecies, including **Dryopteris oreades**, **Asplenium septentrionale** and **A. trichomanes** subsp. **trichomanes**. **A. x alternifolium** (**A. septentrionale** x **A. trichomanes** subsp. **trichomanes**) has been recorded from here, but was not seen on this visit. The final foray was into the very fine oak woods at Coed Hafod, 2km NE of Betws-y-Coed, G.R. 23/807.580 (v.c. 49) in the hope of finding **Dryopteris aemula**. We did not succeed, though the youngest member of the party (Daniel Brown, aged 8) found the parasitic fungus **Boletus parasiticus**. Such a lovely wood, richly carpeted with bryophytes and **Dryopteris dilatata**, it was a very charming place to end the Workshop.

The laboratory sessions were considered useful and in future programmes more time would be given to this. It must be remembered that many who attend such workshops need training in laboratory techniques as well as identification.

We are grateful to Professor J.W. Payne for permission to use the Botanic Garden Laboratories.

N. BROWN, J.M. CAMUS, and A.C. JERMY

## POLAND

POLAND. 6th - 20th AUGUST

21 members participated in the Society's first Meeting in Poland since the C.S.S.F. visit in 1976. The most enthusiastic among them occupied the hour available before dinner on the first evening exploring flower beds and waste ground near the Palace of Culture in Warsaw. Of greatest interest here was **Eragrostis minor**, an annual grass which ran riot in Warsaw following the city's destruction by the Germans at the end of the war, and persists in limited quantity to this day.

Following a brief city tour of Warsaw on the 7th the party set off for Bialowieza, stopping at Treblinka en route. Here, among the memorial stones to victims at the Nazi extermination camp, was a marvellous steppe flora, similar to but richer than that of Breckland, containing **Artemisia campestris**, **Corynephorus canescens**, **Dianthus carthusianorum**, **Centaurea rhenana**, **Echium vulgare**, **Helichrysum arenarium**, **Medicago sativa** subsp. **falcata**, **Silene otites** and **Veronica spicata**. Special here was our only record of **Eryngium planum**.

Our first day in Bialowieza included a guided tour of part of the strict forest reserve where we were amazed at the girth and stature of the mature trees, especially specimens of **Quercus robur** and **Pinus sylvestris**. The route from the hotel to the forest and neighbouring areas provided many exciting British varieties, notably **Selinum carvifolia**, **Carex vulpina**, **Centaurea cyanus**, **Arabis glabra**, **Equisetum pratense** and **Leersia oryzoides** with expanded panicles. By the forest edge we saw **Melampyrum polonicum**, our first endemic.

The next day Professor J.B. Falinski very kindly received us at the Geobotanical Station, outlining the work carried out from the Station and the history of the forest. He also suggested the venue for our afternoon visit to the fen and marsh vegetation bordering the River Lesna near the Soviet Frontier. On our way there we saw bison free in the forest and glimpsed wild boar from the bus. Three hours of botanising yielded **Alopecurus aequalis**, **Gentiana pneumonanthe**, **Luzula pallescens**, **Senecio paludosus**, **Serratula tinctoria**

and *Stratiotes aloides* as highlights of a rich and diverse flora.

On the 10th we made the long transfer to Kielce, stopping briefly at Pulawy in the flood plain of the Wisla river. Here, by the road-side, we noted *Armeria maritima* subsp. *elongata*, *Peucedanum oreoselinum* and *Thymus serpyllum*, while the meadows provided *Sanguisorba officinalis* in abundance.

Further riches awaited us the next day at sites in the Swietokrzyski National Park and included *Epipactis atrorubens*, *Gladiolus imbricatus*, *Juncus alpinus*, *J. compressus*, *Orthilia secunda* and *Polygonum mite*.

After a city tour of Krakow on the morning of the 12th we were joined by Dr A. Jankun who accompanied and assisted us for the remainder of the Meeting. The afternoon was spent in an area of rich limestone within one km of the city centre where *Allium senescens*, *Jovibarba sobolifera*, *Chamaenerion dodonaei*, *Anthericum ramosum* and *Vincetoxicum hirundinaria* reminded us we were far from home. We continued exploring by the Wisla near Krakow at Skawina and Tyniec on the 13th, noting potato fields infested with Colorado beetle and recording *Bromus secalinus*, *Petrorhagia prolifera*, *Glyceria x pedicellata*, *Vicia grandiflora*, *Cucubalus baccifer* and *Chenopodium murale*.

We spent the next morning in the wonderfully scenic Ojcowski National Park near Krakow where *Agrostemma githago* and *Seseli libanotis* caught our attention in addition to the Park speciality, the endemic *Betula oycoviensis*. A dam constructed by beaver was of great interest here although we failed to see the animals themselves.

In the afternoon we transferred to Zakopane, stopping briefly by a field of bearded wheat being harvested by scythe and sickle. Straw was used for the tying of sheaves in preference to twine.

The remainder of the meeting was based in Zakopane in the shadow of the Tatras and the mountain flora probably surpassed our expectations. Dr Jankun led us on the 15th through the neighbouring parallel valleys Dolina Bialego and Dolina Strazyska. The lower wooded slopes bordering the stream eventually gave way to *Pinus mugo* scrub and finally areas of open limestone. Of the many new species found that day just three, *Leontopodium alpinum*, *Sorbus chamaemespilus* and *Swertia perennis* may convey some of the excitements of the botanising.

The next morning we were joined by Dr Z. Mirek who led us to some of the region's richest hay meadow and peat bog associations. Here were many familiar British species, including *Carex pulicaris*, only recently found in Poland and at the extreme eastern limit of its geographical range, together with *Calla palustris*, *Glyceria nemoralis* and the beautiful *Dianthus superbus*.

On the morning of the 17th Dr Mirek and his wife Halina conducted us through the Field Station garden in Zakopane where endangered species from the Tatras are maintained in cultivation. Pride of place went to *Dryopteris submontana*, first found in 1988 and new to the Tatra flora. During the afternoon we ascended Kasprowy Wierch (1935m) by cable car and walked down, accompanied by Drs Mirek and Jankun. The route took us through areas of granite and limestone and, among a wealth of species, we noted *Luzula alpinopilosa* subsp. *obscura*, *Juncus trifidus*, *Ranunculus montanus*, *Campanula alpina*, *Potentilla aurea*, *Senecio incanus* subsp. *carniolicus* (in Czechoslovakia!), *Gentiana frigida*, *Gentiana verna*, *Dianthus glacialis*, the endemic *Erysimum wahlenbergii* and *Chamorchis alpina*. Truly a memorable day!

On the 18th we visited the Pieniny National Park where, for the only time, rain hindered our botanising. However, we were rewarded with new discoveries including *Salvia glutinosa*, *Gentianella ciliata*, *Myricaria germanica*, *Teucrium montanum*, *Alyssum saxatile*, *Melica transsilvanica*, *Orobancha lutea* and the majestic *Cirsium eriophorum*.

Our last day was a leisurely one in Dolina Koscieliska where, in the narrow gorge, we found the endemic *Delphinium oxyssepalum* washed down from above.

In certain genera, especially *Galeopsis*, *Calamagrostis* and *Glyceria*, we saw a high proportion of the Polish species and were able to learn to distinguish them in the field. The many representatives of *Salix*, *Campanula*, *Poa* and *Festuca* similarly challenged our taxonomic skills. Dr Mirek's patient and clear demonstrations of the differences between *Salix alpina* and *S. retusa* and between *Poa alpina* and *P. granitica*, together with the distinguishing features of *Festuca airoides*, *F. picta*, *F. versicolor* and *F. tatrae* will remain with us for a long time.

In such a brief report, where undue emphasis has been placed on British rarities, justice cannot be done to the wonders we saw. Over 900 species were recorded in 14 days which combined botany with enough sightseeing to convey some idea of the history, culture and hardships of everyday life in contemporary Poland.



I wish to thank Mr J.J. Zawadzki for his help in translating Rosliny Polskie into English for use in the field and for providing computer print-outs of species lists which greatly simplified our recording. Thanks are due too to Professor J.B. Falinski at Bialowieza and Dr A. Jankun and Dr Z. Mirek for help with the botany at Krakow and Zakopane; and to Dr H. Piekos-Mirkowa for the tours of the Mountain Botanical Garden and Tatra Scientific Station at Zakopane. Finally I wish to thank the Orbis guide and bus driver who took us without fuss to all the sites we requested, and Amelia Ashman of Polorbis in London for efficiently arranging our programme and accommodation.

A. COPPING

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## STOP PRESS

### A NEW ATLAS

**A means to an end. An end within our means**

I have been convinced by discussions at meetings of the Scottish members and of the Scottish Vice-county Recorders in Edinburgh that BSBI members do now wish for a new 'Atlas of the British Flora' and indeed the project has the blessing of Council (see BSBI News 50: 8 (1988)). But it does seem that a complete survey of the British Isles within a few years, to the high standards set by the Monitoring Scheme, would place severe strains not only on the loyalty of our members and the Vice-county Recorders in particular, but also on resources likely to be available to us from grant-aiding bodies or elsewhere.

I have tried to think what one would expect from a 'New Atlas' and what that implies for the data required. If the format is to be a black and white map for each species about 10cm across, the amount of information that can be presented is strictly limited. One cannot, for example, present a wide range of date-classes to show gradual increase or decrease over the years, nor can one present a wide range of classes designed to show frequency or abundance in each unit area of one 10km square. About the best that can be done is to show status in two basic classes: present today, and present formerly, with an additional facility to identify abnormal status such as planted introductions and intermittent casuals. Ideally there would be a further class for arrivals after some chosen cut-off date, but I suspect that that is beyond us.

If this concept of status as present today and present formerly is accepted then one turns to the experience of the Monitoring Scheme. This showed clearly that in a limited survey one cannot expect to re-find all the species previously recorded, but one can expect to find some species not previously recorded. I have listed all the species not re-found for the squares I worked in that Scheme, and have found it practical to separate them into three classes, those probably overlooked, those probably now absent, and those for which the original record is now considered dubious. Of course there are borderline cases but if the objective is to reinstate some obvious omissions and to leave out those at best desperately rare, the task is neither difficult nor unduly subjective. A table showing the results for 10km square NT 64 is given on page 58

It is then that light begins to dawn. One suddenly realises that it is not necessary to rework each and every 10km square now, in order to edit a cumulative list of recorded species for that square. A Vice-county Recorder who has been engaged in recent field work in the Vice-county and who has reasonable records at hand, can make an acceptable assessment of the current status of each species in that square with a view to eliminating dubious records and identifying species which may well now be absent. The task is eased by the omission of critical species outwith the scope of a 'New Atlas'. As new arrivals can only be added in the field it might be thought that they will be missed, but in practice these are just the species most likely to have been noted as individual records over the years and may thus be rather well represented. Two rules seem necessary as a safeguard in a subjective assessment of this kind, firstly never to include a species that has not actually been recorded at some time, and secondly not to accept as present today a species only recorded before some chosen cut-off date however likely it is that it has been overlooked since. For such a cut-off date, 1950 is suggested as there are still many areas where the recording for the 1962 Atlas has been the base-line for subsequent recording, with additional species only being recorded.

This way the quality of the 'New Atlas' would not suffer severely if a particular part

of the British Isles were poorly recorded between now and the publication date, but members would still have the stimulus of a five-year period when they knew that new records would soon be published. Full use would also be made of all the work that has gone into the many major modern local floras. A means to an end indeed.

Meanwhile the only input from the Vice-county Recorders to the mapping office would be one master card for each 10km square, limited to the species actually chosen for mapping and coded into four categories: present today, present formerly, casual, and planted. Some further input from specialists, especially in relation to rare species, would be essential but the total data would be much less than for the Monitoring Scheme and its processing would be very affordable. An end within our means.

So how do we start? A good way might be to prepare master cards on this basis now with one additional status, that of uncertain, then go out and do five years field work and really measure what we have learnt.

The Monitoring Scheme - NT 64, Berwickshire  
(excluding dubious records, planted spp, critical spp, subsp and hybrids)

To 1986	Established	Casual	Total
Refound 1987	342	0	342
Not refound	<u>53</u>	<u>7</u>	<u>60</u>
Total species	<u>395</u>	<u>7</u>	<u>402</u>
1987			
Refound	342	0	342
Added	<u>60</u>	<u>6</u>	<u>66</u>
Total species	<u>402</u>	<u>6</u>	<u>408</u>

Analysis of Species not refound 1987

Considered extinct	30	5	35
Status uncertain	14	2	16
Probably overlooked	<u>9</u>	<u>0</u>	<u>9</u>
Total species	<u>53</u>	<u>7</u>	<u>60</u>

All Records

Total species	<u>455</u>	<u>13</u>	<u>468</u>
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Comment

NT 64 is mainly arable and improved grassland but was formerly moorland. It had received relatively little systematic recording except in sites of recognised botanical interest up to 1986, but was rather thoroughly worked in 1987, when 54 hours were spent on surveys. The number of species probably overlooked at 9 is therefore unusually low. The status uncertain species at 16 are not numerous and it would not be significant which were treated as present day and which as present formerly.

MICHAEL BRAITHWAITE, Clarilaw, HAWICK, Roxburghshire TD9 8PT

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CALLUNA IN CRETE?

Please, will anyone going to Crete, look out for ordinary, but late-flowering, *Calluna*, which is not otherwise recorded for 100's of km to the north. The record, and I have seen the plant, comes from 'Above the village named Heusonisson between Iraklion and Ayios Nikolaos, where there was a mass of colour in November above the narrow path.'

DAVID McCLINTOCK, Bracken Hill, PLATT, Severnoaks, Kent TN15 8JH

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