B.S.B.I. NEWS

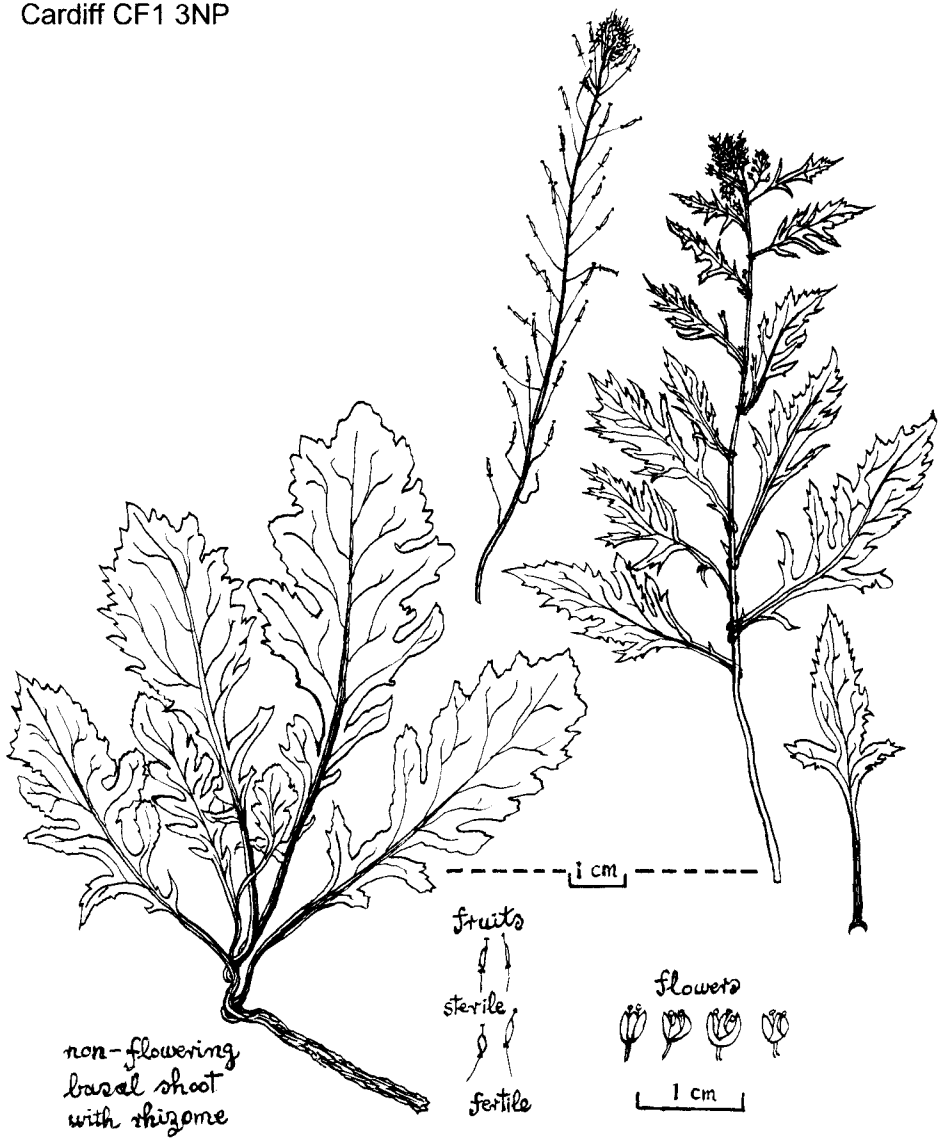
September 1993

Edited by R. Gwynn Ellis

No. 64

Dept. of Botany, National Museum of Wales

Cardiff CF1 3NP



Rorippa × *armoracioides* in the Lea Valley, del. Brian Wurzell © 1993 (see page 39)

ADMINISTRATION

HON. GENERAL SECRETARY (General Enquiries) Mrs Mary Briggs, M.B.E.,
9 Arun Prospect, PULBOROUGH, West Sussex RH20 1AL
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HON. TREASURER (Payment of Subscriptions and change of address) Mr Michael Walpole,
68 Outwoods Road, LOUGHBOROUGH, Leics. LE11 3LY
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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).

HON. FIELD SECRETARY (Enquiries on Field Meetings). Mrs Elinor Wiltshire
62 Carroll House, Craven Terrace, LONDON W2 3PR

PLEASE NOTE

Changes of address for secretaries of TWO Permanent Working Committees:

CONSERVATION: Ms Vicky M. Morgan
2 Flaxen Walk, Warboys, HUNTINGDON Cambs PE17 2TR

RECORDS Mr David J. McCosh
Baconsthorpe Old Rectory, HOLT, Norfolk NR25 6LU

NB.
We now have two 'Old Rectory Davids' on our Records Committee:
1. Hon. Sec. of Records Committee and Recorder for v.c. 78 Peebles (and special interest in *Hieracium*)
DAVID McCOSH
Baconsthorpe Old Rectory, HOLT, Norfolk NR25 6LU

2. Scarce Plants Project 1990-93 BSBI/BRC Liaison, Nationally Rare Species Project 1993 (-1996) BSBI/EN/JNCC Liaison, and Recorder's Conference Organiser, York September 1993 (and special interest in *Medicago*)
DAVID PEARMAN
The Old Rectory, Frome St Quinton, DORCHESTER, Dorset DT2 0HF

MARY BRIGGS, Hon. General Secretary

CONTRIBUTIONS INTENDED FOR

***BSBI NEWS* 65**

should reach the Editor before

5 NOVEMBER 1993

DIARY

N.B. These dates are supplementary to those in the 1993 Calendar.

1993

OCTOBER	
13	*Careers in the Environment* National Conference, London (see page 58)
16	*Conservation of the Biosphere* meeting, Winchester Guildhall (see *BSBI News* **62**, page 49)
NOVEMBER	
16	Careers in the Environment Workshop, London (see page 58)
27	BSBI Exhibition Meeting **at Reading** (see page 9)
DECEMBER	
16-18	*Rehabilitation of Rivers* workshop, ICOLE, Loughborough University (see page 57)

1994

FEBRUARY	
	BSBI Abstracts to be distributed with *Watsonia* (see page 9)
APRIL	
14	*Plant and Insect Relationships* Conference, Royal Entomological Society rooms, London (see *BSBI News* **63**: 37)

EDITOR

EDITORIAL

It is gratifying that *News* continues to attract a very mixed bag of contributions. This means that there should be something of interest for all members in this issue. My thanks to all contributors and apologies to those whose articles have been postponed until the next issue. Please keep your contributions flooding in.

The slightly delayed mailing of this issue of *BSBI News* is one consequence of the recent postal strike in Cardiff. Proofs were sent out just before the strike but their return was much delayed. It is possible that some are still lost in the post and I apologise to any authors who find that their corrections have not been incorporated.

I must also apologise for a short delay in the publication of the BSBI's Conference Report No 22 - *Plants Wild and Garden.* Proofs have been sent to authors and we hope to have gone to press by the time you read this notice. Publication should take place in October (November at the latest). I do hope all subscribers will bear with us a little longer.

Another apology, I'm afraid, for again not having time to check that English names are used, as well as Latin, wherever possible, and that all Latin names follow Stace and Kent. It would be a great help if contributors could make every effort to conform.

May I take this opportunity of thanking all those who ordered a copy of my '*Index* to Stace'. They should have received their copy by now but if not, please let me know.

Finally, sincere condolences to Jeff Curtis, a friend and former Recorder for v.c. 41, whose wife Chris died in August. Jeff, Chris and their two young children were on the first field meeting organised for the *Flora of Glamorgan* project in the early 1970s. We used to joke about her becoming a grandmother before the *Flora* was published but never dreamt that *she* would not live to see it. May she rest in peace.

EDITOR

PROFILES

NEW PRESIDENT

DR FRANKLYN H. PERRING

The new BSBI president, Franklyn Perring, is of course best known as the co-editor, with Max Walters, of the *Atlas of the British Flora* (1962). In 1954 the BSBI appointed Frank, a young Cambridge PhD student, as Senior Worker for the Maps Scheme. He proved to be just the right person to inspire botanists to take up grid-square recording and then push the publication through to a successful conclusion. Many readers no doubt have vivid memories of those years, but to my generation they have already become a time of myth and legend. Reading the *BSBI Proceedings* gives a flavour of the period: a small band of botanists, not yet swollen by the massed ranks of environmentalists, learnt how the national grid worked (sometimes against their natural inclinations) and attempted to record all the 10km squares in five years. Frank was apparently omnipresent, leading field meetings in remote areas, heading off with his bicycle on the pre-Beeching railway system to record unworked squares nearer home or travelling the lanes of Ireland assisting David Webb in his almost single-handed attempt to map the Irish flora. The *Atlas* is perhaps the most significant British natural history book to be published this century. Using it every day, I'm struck by the quality of the first edition. This extends from the broad accuracy of most maps, and the sound judgement with which problems of doubtful identifications or of alien status were tackled, to the lack of misprints - all achieved by the *Atlas* team despite the limited number of recorders, a tight timescale and technology which was then the best available but now seems very slow and labour-intensive.

After the *Atlas*, Frank moved to Monks Wood in 1964 as head of the Nature Conservancy's Biological Records Centre. There he set out with his zoological colleagues to extend the *Atlas* methodology to other groups. Atlases of butterflies, mammals and many less popular groups have resulted from the schemes they launched or promoted. Meanwhile Frank was completing (with Peter Sell) the *Critical Supplement to the Atlas of the British Flora*, and using BRC as a base from which to promote other initiatives. These included the European mapping project which has resulted in *Atlas Florae Europaea*, network surveys such as the Winter Mistletoe Count (1969-1972), the establishment of local records centres in many counties and (with Lynne Farrell) the first *British Red Data Book* (1977). The latter was an important development: followed years later by the publication by NCC/JNCC of volumes for insects (1987) and other invertebrates (1991) and by Poyser of a volume for birds (1990).

By the late 1970s there had been changes at Monks Wood. The split of the Nature Conservancy in 1973 into NCC and ITE was deplored by most of those who worked for the old organisation, and perhaps left Frank feeling that in ITE he was on the wrong side of the fence. It also marked the period when managers of science ceased to appoint good people and then let them get on with the job, but adopted more intrusive techniques. I suspect that Frank was not really interested in the development of computer databases; the plants and the people had greater appeal to such a gregarious person. The pioneer work had been done at BRC, and in 1979 Frank left to become General Secretary of the Society for the Promotion of Nature Conservation, soon to become under his leadership the Royal Society for Nature Conservation.

Back in the voluntary sector Frank's spirits rose: here was a new challenge. With his background he could start immediately to get the best out of this complex organisation of nearly fifty autonomous local Trusts. He had been a founder member of the Cambridgeshire Trust and was chairman of the Northamptonshire Trust. He had an understanding of nature conservation and a conviction that its importance must be shouted from the rooftops to a much wider audience. How could it possibly be that those in high places did not always see things exactly as Frank saw them?

The RSNC's magazine *Natural World* was one of Frank's initiatives. During his energetic 8½ years, the Society launched its successful British Wildlife Appeal under Sir David Attenborough's patronage, raising £15 million for the Trusts. It also embraced and encouraged the growth of Urban Wildlife Groups. Once again Frank had shown what was possible and had opened the way for his successors. On his retirement in 1987 he received the OBE for his services to nature conservation.

During his working life Frank had been involved, in his spare time, in numerous botanical projects (he is co-author of the Floras of Cambridgeshire and Shropshire), and in his retirement he has

been able to concentrate on his roles as tour leader, lecturer, author, conservationist and Margaret's assistant in the Oundle book business.

The new president is above all an ideas-man. Ideas fly from Frank like sparks from a Catherine Wheel. The BSBI now provides its president with an Energising Panel - in this case the members will surely be redundant! In a Society where most of us are content to follow established procedures, such a person is a most valuable asset, as the number of pioneer works already mentioned testifies. Of course, like all ideas-men some of Frank's suggestions are totally impractical - these he defends at meetings with great mental agility until the inevitable, graceful surrender. He has always had a great drive to get things done: if he sees a goal he will head straight towards it, oblivious of the fact that he is cutting across more circuitous official pathways. This can, of course, lead to heated discussions. Here one of Frank's outstanding characteristics emerges. However great the arguments in committee, he will always be as friendly and charming at the end of the meeting as at the beginning. He bears no grudges, harbours no animosities, and always comes up smiling. A valuable asset in a president!

It is certainly fitting that Frank should now be elected as the president of BSBI. He has had its interests at heart throughout his career, and served it with as much enthusiasm as anyone has ever done. We look forward to a productive and eventful term of office.

C.D. PRESTON, BRC, Monks Wood, Abbots Ripton, HUNTINGDON, Cambridgeshire PE17 2LS

Franklyn Perring on his birthday, photo © G. Crompton, 1/8/93

NEW HONORARY MEMBERS

JOHN (P.J.O.) TRIST

John Trist joined the Society in 1956 and was immediately enrolled as an active worker for the Distribution Maps Scheme. One of his first field meetings was a weekend based on Bury St Edmunds where although he was a senior ADAS adviser he managed somehow to balance encouraging more efficient agriculture with a love of wild flowers and a care for conservation. Perhaps even then his development of a keen interest in grasses was a diplomatic means of being able to work comfortably in both camps.

In Bury he was extremely well placed to take an interest in the Breckland and, almost immediately the Maps Scheme was over, he became deeply involved in a project which was to occupy him for the next 15 years - the preparation of *An Ecological Flora of Breckland* which he edited and for which he produced invaluable detailed habitat studies and rare species accounts, seven of which were for grasses. One of these was *Festuca caesia* Sm. (*F. longifolia* Thuill.). A study of this teasing taxon led to several papers in *Watsonia* and the *Transactions of the Suffolk Naturalists' Society*.

These Breckland habitat studies were part of John's general interest in habitats and rare species and their conservation and, as Conservation Officer of the Suffolk Trust, he carried out and published surveys on several Suffolk specialities, notably *Fritillaria meleagris*, *Orchis militaris* and *Tulipa sylvestris*.

But the Gramineae have continued to be his major interest and he has published papers on *Molinia caerulea*, *Festuca arundinacea* and *Festuca trachyphylla* (*F. brevipila*) in the last decade continuing until the present day with a paper on *Corynephorus canescens* in the latest issue of *Watsonia* (Vol. **19**, part 3). His knowledge of *Festuca* and *Bromus* (sensu lato) led to the Society inviting him to become the referee for these genera and he served in this capacity for many years. In carrying out his duties he habitually went out of his way to offer more than just the name of the specimens submitted to him, as many members can testify. His readiness to pass on to novices his profound knowledge of our native grasses, clearly derived from long familiarity with these plants, has ensured him the gratitude of many grass enthusiasts.

All members have reason to be grateful because not only was he a referee himself but for many years he maintained the *Panel of Referees and Specialists* which ensured we had people to turn to for all critical groups.

It is most appropriate that the Society should honour John Trist in his 86th year when he has reluctantly relinquished his duties as one of our most respected Referees. That we shall miss his expertise is obvious - the Society has not yet been able to find another referee for *Bromus* or *Festuca*!

RONALD PAYNE and FRANKLYN PERRING

DICK (R.H.) ROBERTS

R.H. Roberts was a school teacher by profession. Early on in his career he had a post in Sussex where he botanised extensively on the South Downs. It was here that he first witnessed extensive habitat destruction as downland was ploughed for the war effort and the experience gave rise to his great interest in conservation. After serving in the RAF during the war, Dick returned to North Wales to teach. He continued his botanical activities and became a close friend of Evan Roberts. Between them they surveyed the plants of SE Caernarfonshire (v.c. 49) and the peaks of Snowdonia and published their records in several journals. It was at this time, in the early 1950s, that Dick joined the BSBI.

He moved to Bangor in the mid-1950s and was appointed vice-county recorder for Anglesey (v.c. 52). He continued to botanise as fervently as before, both on the mainland and on the island, for the BSBI's mapping scheme (though his efforts were curiously not acknowledged in the *Atlas*).

Several plant groups have attracted his special interest, namely ferns, monkeyflowers and orchids. He has acted as BSBI Referee for *Polypodium* and *Dactylorhiza*, has had an active and critical interest in *Dryopteris* (though he has published nothing on this genus) and has remarkable field and lab experience of most other genera of ferns and orchids. In addition he was the first to discover the

presence of *Mimulus* hybrids in Britain and has acted as Referee for this genus as well. His expertise in two of these genera has recently been marked by the naming of two hybrid taxa in his honour - *Mimulus* × *robertsii* Silverside and *Dactylorhiza* × *dinglensis* nothosubsp. *robertsii* F. Horsman.

Apart from being an outstanding botanist, Dick has been, and still is, an influential plant conservationist. He and Prof. Bill Lacey were jointly responsible for the establishment of the North Wales Naturalists' Trust in 1963, specifically for the purpose of safeguarding a particularly important wetland area in Anglesey - the Gors Goch Nature Reserve.

In recognition of his outstanding contribution to botany and conservation in North Wales, Dick was awarded an Honorary M.Sc. by the University of Wales in 1979 and in 1982, the National Museum of Wales published his *Flowering Plants and Ferns of Anglesey*. Despite his years, he is now 83, he worked actively on the BSBI's Monitoring Scheme and the Scarce Plant Project and is an enthusiastic supporter of the Society's Atlas 2000 project and intends to co-ordinate the effort in v.c. 52 of which he is still a very active Recorder.

There can be few more fitting persons that the Society could honour and we wish him many more happy years botanising in Anglesey.

NIGEL BROWN and GWYNN ELLIS

THE PARTNERSHIP CAKE

Cake, decorated to symbolise co-operation between RSNC, The Wildlife Trusts Partnership and the BSBI, enjoyed by members of the Society during the AGM at Lincoln who were invited to join RSNC Executive and staff for tea at RSNC's HQ in the city. The cake was cut by Dr John Philipson, Chairman of RSNC Executive, and Dr Franklyn Perring, former General Secretary of RSNC, on his first day as President of the BSBI.

Photo © Margaret Perring

IMPORTANT NOTICES

WHITHER BSBI?

Why do you belong to the BSBI? Are you an active member regularly attending field meetings in the summer and exhibition meetings and conferences in the winter? Do you enjoy *Watsonia* and *News* and possess, and use, all the Handbooks?

When I became President-elect I realised that, before I could decide how best to serve the Society I have loved during 40 years of membership during my term of office, I would need to know what other members thought about it and of any ways in which they would like to see things changed. So, Council agreed to a Publicity Working Party being set up on which John Akeroyd, Brian Gale and Patrick Roper have joined me as members, and to our sending you the Questionnaire which is enclosed with this copy of *News*.

Please spare 10 minutes to answer the questions and to make any suggestions for improvements or new directions which you think the Society should take - and if you are family members please make separate returns - the best families disagree from time to time and we would like all your opinions.

Send your completed Questionnaire(s) to Patrick Roper, South View, Sedlescombe, Battle, E. Sussex TN33 0PE. Patrick will be analysing the results leaning on his experience as Development Director at the National Maritime Museum where he is responsible for marketing and public relations and has been involved in a similar survey for their Friends.

The results of the survey will be incorporated in a Report to be submitted to Council, with recommendations, early next year.

One thing which is already apparent as I have been getting out and about meeting members in all parts of the British Isles since I took office in May (Dublin, Cheviots, Cornwall and Gower) is that there are still many active and talented field botanists out there who are not members of the BSBI and who know very little about us. I am sure you know some yourself - members of the botany section of your local natural history society perhaps, or conservation staff of the Wildlife Trust, or officers of English Heritage, Scottish Natural Heritage, Countryside Council for Wales etc. At the end of the Questionnaire you are asked for names and addresses of people like that to whom we should be sending membership forms. Please make a special effort with this section.

I do not believe we should be rushing into the market place to enrol members just for the sake of members - but the BSBI is an important Society which should be serving the needs of all botanists in the British Isles (and some overseas!) with a serious interest in its wonderful and ever changing, ever fascinating flora - and I am sure that the number is many more than the 2,700 or so who presently belong. Please, for our sake and for those who have not yet 'received the message', help us to increase that membership.

To remind you here are the categories and subscription rates:

Ordinary £15.00 Open to all over 21

Family £2.00 (per member) Open to members of the family of the above. Have full privileges but do not receive separate mailing.

Junior £7.00 Open to young people up to the age of 21, and to students in full-time education up to 25. Have full privileges.

Institutional £15.00 Open to schools, colleges, public libraries, museums, societies and other institutions. Full privileges but only one vote at meetings.

N.B. If a member joins after 1st October the subscription lasts to 31st December the following year: so use this bait to catch your first new members in October.

FRANKLYN PERRING, President

A REMINDER

With this mailing you have a Notice of the 1993 Annual Exhibition Meeting, at the Plant Sciences Laboratories, University of **READING**, and a map of the campus showing the PSL (no. 35). The available space and facilities for the exhibition are very good at Reading, and a welcome is being prepared for us at the P.S.L. It is very appropriate that Dr Stephen Jury, who is in charge of the organisation for this meeting, has this year also been appointed as Chairman of BSBI Meetings Committee and BSBI Conference Co-ordinator.

Moving the Exhibition meeting away from London is possibly the end of an era - Edgar Milne-Redhead, unable to be at the 1992 meeting told us that it was the first that he had missed since the receptions were held in the Marylebone Hotel, and some of us recall in the early 1960s the Exhibition at Imperial College followed by a supper at Crosby Hall, Chelsea, before we were invited to hold the Exhibition in the Dept. of Botany, B.M.(N.H.).

Since, for nearly thirty years the meeting was based in the Department of Botany, but recent visits there have confirmed the wisdom of the decision to move - the Department is considerably obstructed at present with the scaffolding for the roof repairs, and this week several windows had been temporarily removed; the staff meanwhile have carried on undeterred through the disorganisation, with only very few herbarium cupboard doors completely blocked by scaffolding poles. But even with these removed the shape of the Herbarium and the large blocks of cupboards no longer make it ideal for an Exhibition meeting. The expansion of Dinosaurs into Galleries where we have some years held the exhibition and showed slides elsewhere in the Museum has added to the problems, and we look forward to the new venue for this 1993 meeting at Reading.

MARY BRIGGS, Hon. General Secretary

SCARCE PLANTS PROJECT

During the course of the above project measures deemed necessary to encourage replies were reported and discussed at meetings of at least four BSBI Committees and repeated exhortations were made to certain v.c. Recorders. It is certainly true that without the dedicated efforts of the organising team the coverage would have fallen far short of what was eventually achieved.

At a meeting of the Executive Committee in April it was considered that a positive comment was called for in respect of the considerable amount of work involved and carried out timeously and without complaint by the majority of the v.c. Recorders. It was therefore agreed that I should write a brief note emphasising this point and expressing appreciation to these Recorders.

As a recorder myself, I can report that the exchange of knowledge was not all one-sided. The printouts sent contained, for my v.c., quite a number of sites of which I was unaware. The fact that these were always accompanied by source and date made them valuable additions to my records.

PETER MACPHERSON, President until 6:4:93

BSBI ABSTRACTS 23 (FOR 1992)

BSBI Abstracts is about to take on a new look. The past seven issues (16-22) have been prepared on a word-processor and printed on a daisywheel printer as camera-ready copy. Parts 23 onwards will be prepared from the BSBI Database (Leicester) and camera-ready copy will be produced from it by laser printer. This will result in a much better looking text, but unfortunately the requisite programming had not been completed until very recently, so that there will again be a six-month delay in production this year. Hence part 23 will be distributed with the February 1994 *Watsonia* mailing. We apologise for the delay, but hope that the anticipated improved appearance will justify it.

CLIVE A. STACE, BSBI Database Project, Dept of Botany, University of Leicester, University Road, LEICESTER LE1 7RH

REGIONAL JOURNALS

IRISH BOTANICAL NEWS

Irish Botanical News is published annually, usually in February and is circulated free to all members living in Ireland and to non-resident Irish vice-county recorders. Since its inception three years ago, I have been asked by a small, but significant, number of people to provide a subscription service. I have resisted this in the past owing to the uncertainties of publication but now, with three issues already published, I think it may be time to introduce such a scheme. Printing and distribution costs are approximately £1.50. Consequently, cheques, made payable to BSBI, in multiples of £1.50, up to a maximum of four will ensure that you receive copies as they are published. If printing costs are considerably less, the balance will be carried forward.

BRIAN S. RUSHTON, Dept. of Biological and Biomedical Sciences, University of Ulster, COLERAINE, Northern Ireland BT52 1SA

BSBI WELSH BULLETIN

The *BSBI Welsh Bulletin* (now at No. 55) is normally published twice yearly, usually in late spring/early summer and in winter/early spring. It is circulated free of charge to all members living in Wales and to non-resident Welsh vice-county recorders. All back issues are still available on request (originals or photocopies) and a list of contents is available on loan (to be returned with orders!). Orders should be sent to Dr G. Hutchinson, Dept. of Botany, National Museum of Wales, Cathays Park, CARDIFF CF1 3NP, specifying the issue number (or year, which would have to include the season or month), together with a cheque (made payable to BSBI Wales) @ £1 per issue, including p.& p. For long runs the price is negotiable - contact me at the address below. If you would like to subscribe to the *Welsh Bulletin*, send your cheques, to cover as many years as you wish, to me and I will inform you when your subscription is due to expire.

GWYNN ELLIS, Dept. of Botany, National Museum of Wales, Cathays Park, CARDIFF CF1 3NP

THE SCOTTISH NEWSLETTER

The Scottish Newsletter has now had 15 issues. It is published each spring and sent to members resident in Scotland. Members outwith Scotland who would like to receive a copy are invited to open an account from which the cost of postage will be deducted each year. Those interested should send a remittance (of not less than £2.00) made out to me at the address below. As is the case for members who have already subscribed, they will be informed when a top-up is necessary.

PETER MACPHERSON (Joint Editor), 15 Lubnaig Road, Newlands, GLASGOW G43 2RY

HON. GENERAL SECRETARY'S NOTES

Congratulations to D.H. Kent, who was awarded the O.B.E. in the Queen's Birthday Honours List - a well deserved award to Duggie whose work for the Society includes editing the *Year Book* in 1953, then for many years he was Editor of *Proceedings of the Botanical Society of the British Isles*, and now Compiler and Editor of *BSBI Abstracts* currently, and since Part 1 in 1970. All these have been achieved as voluntary work, and also the *List of Vascular Plants of the British Isles*, 1992. Duggie writes that the award 'seems to have given me a new status in the eyes of my two granddaughters!

Congratulations also to Dr Eva Crackles who was awarded the M.B.E.. in the New Year Honours List for services to botany and nature conservation. She attended Buckingham Palace on July 14th to receive the honour. At the ceremony, the Queen came down from the dais to meet Eva who was in a wheelchair. Her Majesty mentioned botany and Eva told her that she had been a naturalist all her life and the Queen was interested. As a disabled person, Eva was extremely well looked after by Palace officials who were attentive, supportive and very good humoured. Everything went very well indeed; it was a most memorable and happy day. The Hull Daily Mail's report of the visit was entitled 'Botanist's day at the Palace'. In connection with the official citation the reporter had added: 'throughout her life Dr Crackles has worked to increase the general public's awareness of nature and the environment'.
Congratulations also to David McClintock. Presenting the Linnean Society of London **HH Bloomer Award for Botany** to David Charles McClintock FLS, in May, the President of the Linnean Society said: 'David McClintock has lived in Kent for nearly fifty years but his paternal roots are in Ireland, where his family has lived for centuries. His father's vocation as a clergyman took the family to various parts of England in David's youth, but his mother's home near Ware provided a firm link with Hertfordshire and led to his joining the Hertfordshire Yeomanry before the Second World War. Despite having no biological training, he has made valuable contributions to both botany and horticulture.

After graduating from Trinity College, Cambridge, David qualified as a chartered accountant and, for many years, was Chief Accountant and Administrative Officer of the Coal Utilisation Council. He has pursued his interest in plants in several directions but always with vigour. His detailed floristic knowledge of the British Isles was early demonstrated in the popular *Pocket Guide to Wild Flowers* that he wrote with Richard Fitter in 1956. The Channel Islands' flora, particularly that of Guernsey, has held a constant attraction for him and he has been sole or joint author of seven publications on them. His other botanical publications have ranged over many aspects of floristics, distribution and nomenclature, and include contributions to many books, as well as dictionaries and Floras. *The European Garden Flora* developed from an idea of his.

David gardens on three acres of dry sandy Kentish soil on which he has produced an unusual and fascinating kaleidoscope of native and exotic plants, with emphasis on his two main systematic concerns, hardy bamboos and heathers of Europe and the Mediterranean. These groups figure prominently in his large herbarium and library and, naturally, in his writings. He has travelled widely to study and collect heathers in the field and has become the leading British authority on hardy bamboos, particularly on their erratic flowering.

David McClintock's outstanding work for botanical and horticultural organisations has been acknowledged by honours from the Royal Horticultural Society and the Societe Guerneiaise and by high office in several other societies including past-President of the BSBI, the Wild Flower Society, the Heather Society, the Bamboo Society and the International Dendrology Society. In the Linnean Society he has served on Council (1970-78), on Finance Committee, as Vice-President (1971-74) and Editorial Secretary (1974-78). His contributions to scientific knowledge in all fields of natural history into which he has ventured, as well as the inspiration of his pen, his broadcasts and his infectious enthusiasm which have given pleasure to many, make him a very worthy recipient of the HH Bloomer Award in 1993.'

Congratulations to Professor Jim Dickson on being elected a Fellow of the Royal Society, Edinburgh, and, last but not least, **Congratulations** to Vicky Morgan, Hon. Sec. of BSBI Conservation Committee, on the birth of a son, Ewan.

Memorial Tree

The Bedfordshire Natural History Society has planted a *Tilia cordata* in the grounds of Luton Museum in memory of John Dony. Chris Dony tells me that she was asked to throw in the first spadeful of soil, followed by Bernard Verdcourt and Peter Taylor, both founder members of the Bedfordshire Natural History Society - as John was also.

In Memoriam

With sadness we report that Dick David died in April this year. A past-President and Honorary Member of the Society, Dick had been deeply involved with our publications and recording Committees and activities for many years. He was a very good friend to the Society and will be sadly missed. He was in Corsica on one of my botanical holidays at the time. We also regret to report the death of Aidan Brady B.Ag.Sc., F.L.S, Director of the National Botanic Gardens, Glasnevin, Dublin. Obituaries of both, together with those of the deceased Referees (see page 12) will appear in *Watsonia*.

MARY BRIGGS, Hon. General Secretary

RECORDERS AND RECORDING

Supplement no. 2 to List of Recorders in 1993 Year Book

v.c. 72 Dumfriess.	Mrs M.E.R. Martin - resigned. Dr M.G.B. Hughes, SNH, Cairnbaan, Lochgilphaed, Argyll PA31 8SQ - appointed.
v.c. 91 Kincardine	Dr D. Welch, East Fernbank, Woodside Road, Banchory, Kincardineshire, AB3 4BY - appointed (in addition to v.c. 93 N. Aberdeen)
v.c. 101	Dr Marian Hughes - resigned Mr & Mrs B.D. Batty, Kirnau Farm, Kilmichael Glen, Lochgilphaed, Argyll - appointed

Welcome and thanks to the newly appointed Recorders, and to Mary Martin we send our sincere thanks for being v.c. Recorder for Dumfries for 18 years. In her letter of resignation, Mary writes 'I have had a good spell covering an interesting number of years. . . . My last pleasure is now to thank the Committee that appointed me and those who helped and encouraged me along the way. Thank you for my place in your learned Society's recording fringe which could not have been sustained without the publication called *BSBI News* containing many things for Recorders especially the Panel of Referees and Specialists.

I can think of two or three unsolved plant problems for v.c. 72 and it will be nice for me if I can solve them and send word of them on pink cards for my successor to deal with'. Thank you. Mary.

Eric Philp, Recorder for v.cc. 15 & 16, E & W Kent, has taken early retirement from his post of Keeper of Natural History at Maidstone Museum and Art Gallery. We sent a message of good wishes to his retirement party at which the Mayor of Maidstone made a presentation. Happily Eric is not retiring as v.c. Recorder (but we anticipate that he will now be able to spend even more hours recording in Kent?)

Supplement no. 2 to Panel of Referees and Specialists in 1993 Year Book

With regret we report the deaths of three Referees.

PTEROPSIDA
Asplenium & *Polystichum*:
Dr Anne Sleep who sadly died this year after many years of ill health and painful illness.

POLYGONACEAE
Polygonum aviculare s.l.:
Dr Brian Styles of Oxford, suddenly.

CYPERACEAE
Carex:
Mr R.W. David (see Hon. Gen. Sec.'s Notes page 11).

All were Referees for the Society for many years and will be missed.

Specimens of *Asplenium* and *Polystichum* can be sent to Miss Alison Paul; *Polygonum aviculare* to Dr John Akeroyd; *Carex* to Arthur Chater or Clive Jermy - all these Referees as listed in *BSBI Year Book for 1993* pages 30-34, with their addresses in List of Members.

MARY BRIGGS Hon. General Secretary

RED DATA BOOK PROJECT

Many thanks to all those who have kindly responded to our request for new and updated records of RDB species. There has been a good response, and a considerable bulk of data has been received from vice-county Recorders, from individuals with a particular knowledge of an area or a species, and from staff of English Nature and Scottish Natural Heritage local offices. We do appreciate that Recorders and others are busy people, and we are, therefore, particularly grateful for the efforts made on behalf of this project. We very much look forward to receiving records from other vice-counties in due course.

These data are now being entered on the JNCC Rare Plants Database, together with information culled from other sources. When data entry and checking has been completed, we will send a copy of the updated printouts to vice-county Recorders.

We have been able to support some fieldwork this summer. In Suffolk Breckland, information is being collected from all known sites for *Phleum phleoides*, *Silene otites* and *Thymus serpyllum*. In Durham, all known localities for *Gentiana verna* and *Potentilla fruticosa* have been visited, and new localities for the former species have been found. Commissioned survey in Scotland has been centred in the Braemar area, and localities for montane RDB species have been visited. Thanks to all those who have been collecting field data.

As mentioned in *BSBI News* **63**, we hope to be able to support further field surveys next year, mainly aimed at checking localities for which there is no recent field record. The database will help to identify where survey effort might be directed but we will, of course, remain reliant on local knowledge: if vice-county Recorders are aware of likely needs for surveys in their area, we should be grateful to know.

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LUDWIGIA PALUSTRIS - FIRST RECORD IN SUSSEX SINCE 1876

A colony of *Ludwigia palustris* (L.) Elliott (Hampshire-purslane), about 1 metre in diameter on mud and in the shallow water of a dew-pond on the Downs above Seaford, East Sussex, was a surprising find for Paul Maurice on 31st August 1991. The plants were fruiting, the specimen was confirmed at R.B.G. Kew by Eimear nic Lughadha and Dr Wheatley, and the associated plants included *Juncus bufonius* (Toad Rush), *Ranunculus flammula* (Lesser Spearwort) **and** *Crassula helmsii* (New Zealand Pigmyweed).

Speculating on the source of this very rare plant, now restricted to Hampshire, but here well away from its present known New Forest localities:-

a) The Seaford dew-pond is not one of the old recorded Sussex localities. The Rev. Arnold in *Sussex Flora* (1887) cites Buxted and Cuckfield, and says of this species (then known as *Isnardia palustris* L., the Marsh Isnardia) 'probably now nearly extinct in Sussex'. Lieut.-Colonel Wolley-Dod (1937) cites a specimen in the herbarium of J.H.A. Jenner from Buxted dated 1876.

b) The Seaford area has been diligently botanised in this century, by the late W.H. Spreadbury, and by Miss B.A. Kneller. We think it unlikely that the *Ludwigia* in this dew-pond would have been overlooked.

c) The *Crassula helmsii* also present, suggests recent introduction? Tim Rich confirms that most exotic aquatics are spread by aquarists tipping the contents of their fish-tanks into a local pond; there is a Car Park adjacent to this dew-pond. The recent fashion for terrapins amongst the young in the Ninja Turtle era, was followed by a sharp rise in terrapin donations to zoos and pet displays - and very possibly an increase in discarded tank contents also?

d) David Coombe was able to find for me that Stapeley Water Gardens - Europe's largest Garden Centre, at Nantwich, can supply *Ludwigia palustris* at a cost of '£1.50 per pot or 85p bunched, plus carriage, subject to availability' (but neither the *Ludwigia* nor the *Crassula* are included in their catalogue).

e) *Crassula helmsii* grows with *Ludwigia* in its New Forest locality, giving the remote possibility of both species being transported from Hampshire to East Sussex by water fowl, but our considered conclusion is that the *Ludwigia* in E. Sussex is almost certainly a recent introduction via the discarded contents of a fish, or terrapin, tank.

However the *Ludwigia* arrived at this site, it is certainly now well established. This year, four separate colonies were counted, the largest being about 1.5 metres in diameter.

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ONONIS RECLINATA REFOUND IN ALDERNEY

The small colony which had existed for many years in a single spot, had not been seen for at least five years despite careful searching each year by several individuals separately, on different occasions during its flowering period.

The habitat is a short, rabbit grazed, slightly calcareous turf bank about 15m above HWM on Alderney's low, rocky, east coast, at an elevation of 5-8m with thin soil over sandstone.

This year about 8 plants were seen in flower on 21st May and reported to me. The following day I found only four plants that were in flower, but about a dozen other small plants nearby seemed likely to be the annual plant and not our very common *Ononis repens* which is also found in this area.

On 5th June I returned to take more photographs and after careful searching around the spot found over 100 plants in an area about 10 × 2m with 25-30 in flower, and several with seed pods formed.

The plants were growing in company with *Bupleurum baldense*, *Cirsium acaule*, *Phleum arenaria*, *Desmazeria marina*, etc., and only a few metres from one of our colonies of *Thesium humifusum* which now extends about 100m from this spot along a line about 1-2m wide.

BRIAN BONNARD, The Twins, Le Petit Val, ALDERNEY, Channel Islands

THE 1992 CROCKENHILL TREE SURVEY - A TEN YEAR UPDATE

Crockenhill, in the north-west corner of Kent, is a thriving village with about 1,500 inhabitants. Though set in rural surrounds, its closeness to Greater London and even more so to the town of Swanley and the M25/M20 road network makes villagers aware of its vulnerability. It was this awareness that led a team to undertake a full tree survey of the village and its surrounding countryside in 1982.

At the time it was published a number of experts said that the real value would come if, after ten years, another survey could be undertaken so that changes, including the growth rate of trees, could be quantified. The 1992 survey is the response.

Within the built-up area trees becoming too big for gardens have come under threat; minor developments have taken their toll as have major developments like the building of the M25. In the countryside damage by stubble burning was a regular occurrence until stringent by-laws passed by Sevenoaks District Council led farmers to drop the practice. An increasing worry has been the use of hedge slashing machines, which can weaken and damage trees if the hedge is cut too closely.

The vast majority of tree losses occurred on that traumatic night of 15-16th October 1987 so vividly etched on many memories. Familiar landmarks disappeared overnight and people were stunned by the extent of the devastation. Two hundred trees were lost within the village itself and countless others in hedges and woodlands - but out of the shock came a remarkable change of attitude. After the Great October Storm there was a definite slowdown of the deliberate destruction of tree features and a greater awareness and appreciation of the importance of trees in the landscape developed.

The tree warden scheme for Kent was set up by Trees for Kent and Crockenhill has taken an active part in this. The Men of the Trees competition for the village in Kent which takes best care of

its trees has gone from strength to strength - Crockenhill taking its share of the honours. Many new trees have been planted - the tree survey noting at least twenty-four major schemes undertaken by local councils, farmer and individual landowners. Crockenhill Parish Council alone has planted about one thousand trees on its land.

All in all the picture which has emerged after ten years is encouraging. While cataloguing the losses, the 1992 tree survey also highlights the hopeful trends. Much remains intact and new trees have been established to beautify village and country for future generations to enjoy.

Crockenhill - Trees and Shrubs of a Kentish Village (ten year update) published by Crockenhill Parish Council with 105 pages, 18 maps and 45 illustrations costs £4 + 70p postage and is available from Crockenhill Parish Council Office, The Village Hall, Stones Cross Road, Crockenhill, Swanley BR8 8LT.

Mrs SUSAN PITTMAN, Tree Warden and Tree Survey Organiser, 27 Old Chapel Road, Crockenhill, SWANLEY, Kent BR8 8LL

LYME DISEASE: SOME THOUGHTS FROM THE SHARP END OF A TICK

No doubt I read with interest the notes on Lyme Disease published in *BSBI News* in 1990 by Archer (**54**:15) and Lang (**55**:8) but, perhaps because I have never been assaulted by a tick in this country, despite extensive field work in appropriate localities, these publications had slipped my mind until reminded of them by a colleague, when I returned recently from an extended botanical trip to the United States to find that I had acquired Lyme Disease.

Having had my awareness rudely awakened, I feel that it may be timely to bring the matter again to the attention of members. I cannot add to the excellent advice given in the notes, but perhaps a first hand description of the highly characteristic primary rash may be of value. It appears some week to ten days after exposure to tick bites (not all ticks in an area are of course infected - one out of six in my case). The rash appeared as a circular flushed area round the bite and has a 'target-like' concentric zonation, with a pale zone round the bite, then a red-flushed area and finally a very dark blackish-red ring round the circumference. I located it on my rear the day after my return home, as the area felt somewhat sore - like a moderate bruise. I understand that this rash does not necessarily occur in all cases.

I have no wish to alarm members but, as the disease seems likely to become more prevalent in this country, as it has in the USA and, as field botanists are ideally situated to encounter the tick vectors, I do urge members to bear the possibilities in mind and to seek medical advice if in doubt without delay. While it seems readily susceptible to early antibiotic treatment, delay or failure to obtain treatment can have very serious long term results. Among these, chronic lassitude and debility are the least worrying, while meningitis, cardiac conditions and arthritis etc. may also occur. All these are difficult to treat; while we were in the USA, we saw a television news item which reported that some insurance companies are declining to fund the indefinite, long-term treatment of Lyme disease, a very clear indication of the severity of the condition.

To be forewarned is to be forearmed and I offer this contribution in the hope that it will help members to further awareness of the potential risks of tick bites encountered in fieldwork.

Since writing the above, a very extensive and informative review article has been published in *Science* **260** 1610-1616 (1993), by A.G. Barbour & D. Fish, under the title *The Biological and Social Phenomenon of Lyme Disease*. It makes plain the considerable ambiguity that remains about this condition, cautions against hasty diagnosis and indicates the need for better understanding of laboratory techniques for the identification of the causative agent. It has an extensive bibliography and should be consulted by any member seeking fuller information on this subject.

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NEW ZEALAND BITTERCRESS, *CARDAMINE CORYMBOSA*

Dr Stephen Jury at Reading kindly sent me Michael Braithwaite's article on New Zealand bittercress from *BSBI News* **58** (September 1991). The excellent description and illustration show clearly a New Zealand native species of *Cardamine* that is a common weed in our experimental nursery at Landcare Research, Canterbury, New Zealand. A native of coastal turf and dry forest, it grows in rockeries and shaded lawns in many parts of New Zealand. The plants thrive in pots, planter bags, gravel paths and rockeries, and are difficult to remove by weeding. Staff in our experimental nursery have found that spotting them with vinegar kills them effectively - also, incidentally, an effective way of killing liverworts.

As Michael Braithwaite pointed out, *Cardamine* is in need of revision in New Zealand. There appear to be somewhere between 20 and 25 recognisable entities, many of which are probably good species, but only six species names are available. Unfortunately, the name that has been applied to the species now naturalised in Scotland, *C. uniflora* (Hook.f.) Allan, is illegitimate. When Allan (1961) raised Hooker's *C. hirsuta* var. *uniflora* to species rank, he was unaware that the name *Cardamine uniflora* had already been used by Micheaux (1803) for a different species (now *Leavenworthia uniflora* (Michx.) Britton). In addition, the type specimen of *C. corymbosa* Hook.f., an earlier name than Allan's *C. uniflora*, is clearly the same species. In my treatment of *Cardamine* for *Flora of New Zealand* Vol. IV (Webb *et al.* 1988), I grouped a number of different forms under *C. corymbosa*. The form that best matches Hooker's type specimen of *C. corymbosa* is the same one illustrated by Michael Braithwaite, so *C. corymbosa* is the correct name for this new introduction to Scotland.

The few New Zealand plants naturalised in Britain are a drop in the bucket compared with the hundreds of British and European plants, among them *Cardamine hirsuta*, *C. flexuosa*, and *C. pratensis*, that have established in New Zealand (Webb *et al.* 1988). They came with the people and their seeds and animals, and established because of similar climates and land uses. *Cardamine corymbosa* and *Epilobium brunnescens* have become nursery weeds in both New Zealand and Britain, which might indicate that such New Zealand plants are entering Britain with nursery stock.

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PHIL GARNOCK-JONES, Landcare Research, P.O. Box 69, LINCOLN, New Zealand

CERASTIUM BRACHYPETALUM FACING DESTRUCTION IN S.E. ENGLAND

In the Bulletin of the Kent Field Club No. 24 (Jan. 1979) I reported finding *Cerastium brachypetalum* Pers. in W Kent on 16th April 1978, and subsequently discovered it in a total of seven separate locations in old chalk grassland, though all in the area west of Longfield. Since then it has disappeared in one at least of these locations due to change in land use.

The remaining sites for this *Red Data Book* species (except for one possibly) will all be totally destroyed by the proposed new route of the Channel Tunnel Rail Link. Other plants in the path of the railway and certain to be destroyed are *Pyrola rotundifolia* L. subsp. *maritima* (Kenyon) E. Warb. in what I believe to be its only locality in eastern England (see page 17), and *Epipactis palustris* (L.) Crantz in its only locality in v.c. 16. The botanically rich Ebbsfleet Valley, with the interesting aquatic habitat of Northfleet Brooks, is also a route for the new line.

Cerastium brachypetalum is native to Britain, at least in W Kent, and is probably the last new native plant to be discovered in England. A future article will treat this topic in more detail.

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PRIMROSE VARIATION AND DISEASE

I now live on the coast between Fishguard and St David's in Pembrokeshire (having moved from Warwickshire) and nowhere else have I seen such a variety of Primroses (*Primula vulgaris*). In Shakespeare's time Warwickshire, where I used to live, did boast occasional varieties but not, I believe, on this scale. Reds, pinks, mauves (I am not too good on "reds") and yellows, solitary or umbellate inflorescences imperfectly shaped sepals or sepals which do not unite, leaving gaps, my list of variations would be longer but for my idleness beyond noticing just the most obvious ones. However, well away from cottages, houses and farms as, for example, along the coast, Primroses stay conventional, apart from the occasional False Oxlips along a Primrose/Cowslip 'frontier'.

In other words gardens are the source of the variation to be seen along the nearby hedgebanks and of course in the gardens themselves, as in my own where it is quite difficult to grow normal Primroses.

Initially I puzzled over this difference between Warwickshire and Pembrokeshire, but I believe it to be due to two major differences: a climatic difference, Pembrokeshire being so much damper so that Primroses and many other woodland plants grow outside woods, and hedgebanks which, provided they are shaded by grass-discouraging trees, make an ideal local habitat for Primroses. Hence wild Primroses find themselves growing much nearer to garden varieties of *Primula*.

As to gene transfer, locally this service is provided by *Anthophora retusa* - a rapid and reliable pollinator, *Bombus hortorum* and occasionally *Bombylius major*. In my own garden *A. retusa* visits plants over and over again and maximum numbers of seed are produced. Along the coast probably only *Bombus hortorum* is to be relied upon. I don't think that gene transfer is any more effective here than in Warwickshire.

As a result of local conditions, my garden, where I only grow wild flowers, including cowslips, should now be a solid mass of Primroses. But it isn't. As rapidly as they are produced they die of what appears to be root rot. The roots become black, the leaves brown and in effect the plants die of 'drought'.

I would be grateful for two pieces of information from members.

1) Where else in Great Britain do Primroses show this incredible variety? Devon for example?
2) And what is known about the root rot? How important is it in population control and what is the causative agent?

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PYROLA ROTUNDIFOLIA subsp. *MARITIMA* IN E ENGLAND

On 10th July 1976, I found a quantity of *Pyrola rotundifolia* L. growing in a previously unexplored chalkpit between Swanscombe and Northfleet, W Kent. There were also 200 plants of *Epipactis palustris* (Marsh Helleborine), some of which were var. *ochroleuca* Barla, and some *Dactylorhiza praetermissa* and *Anacamptis pyramidalis*.

On another visit, in September 1984, I looked at the Wintergreen again and noticed that it was *Pyrola rotundifolia* subsp. *maritima*, previously known only from the west coast of England. (Leaves round; scales on stem 3 to 5; calyx teeth short, broad and blunt; anthers less than 2mm; pedicels less than 5mm; were the characters observed). Determination later confirmed by E.G. Philp on a visit (specimen in Maidstone Museum). Colonies on the NW coast of Europe are not far away, for wind or bird dispersal.

Due to tipping of building materials, the Orchid and Wintergreen are now confined to a small preserved patch, which is however in the direct route of the proposed new Channel Tunnel Rail Link. Owing to other development, this is now the only known location for Marsh Helleborine in W Kent (v.c. 16).

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HERBARIA: TOWARDS A BETTER USE

Are some of the older herbaria bursting at the seams? I imagine that thought has already been given to future space requirements, so perhaps it may be timely to consider some aspects of existing collections of sheets and the acceptance of specimens in future.

It seems clear that lines of elimination will have to be drawn. It is not always the number of duplicates in a collection that is open to criticism, for specimens from different areas in a county or in Britain and those from unusual habitats may well be worthy of retention. It is the unnecessary number of specimens of very common taxa, some of which have been poorly collected and badly mounted, which is of little value, except in cases such as when a poor specimen, perhaps taken late in the season, is the sole voucher for a first vice-county record. Some duplicates representing taxonomic ranks recognised by Victorian and Edwardian botanists are probably worthy of consideration, as they illustrate part of the written history recorded in the old county floras.

We are in a period of change, and attitudes towards many facets of education are undergoing scrutiny. New schools arise with new banners over the door. What is going to be left behind? So is it not time to consider a new attitude to the botanical sheet? Do we retain museum-pieces on which remnants of a badly mounted plant are said to be *Bellis perennis*, or shall we store good specimens which display the characters of the determination? Is this consideration a waste of time?

On some of my sheets I sometimes fix a photograph of the habitat and record full details of location together with a list of associates and any significant notes from my field book. For mountain grasses, I note the facing position and altitude which are guides to further searches. When I start to work on the ecology and distribution of a grass taxon, I know that much of the information I shall use is annotated on my collection of sheets from different areas.

Is this just the approach of an old man with plenty of time, or can it be a signal for the subject to be reviewed?

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ANOTHER DANISH INVASION?

Unlike the first, which swept up our rivers from the coast, this appears to prefer to leave the coast via our motorways and dual carriageways.

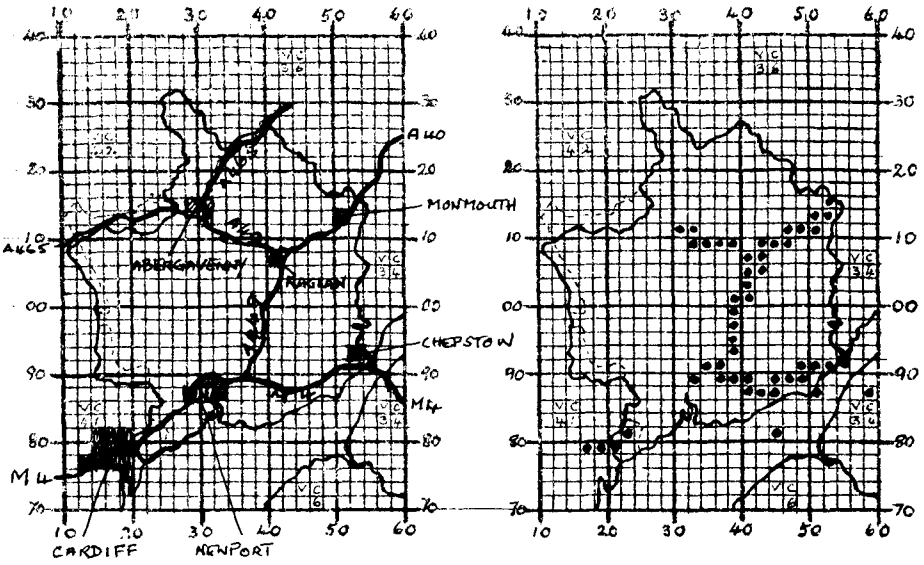
I was not aware of this advance until the 27th March 1993. Jim Bevan and I used the M4 motorway to reach the National Museum of Wales in Cardiff where, with George Hutchinson we would pour over v.c. 35 Hawkweeds for the day. The conversation was interrupted suddenly by Jim's 'Is that *Cochlearia danica*?' Other topics were forgotten as linear colonies of the Danish Scurvygrass were observed mainly along the central reservation with scattered patches on the verge as well. Oh for a specimen to confirm our identification, unfortunately an early arrival at the museum was necessary to ensure a parking space.

Confirmation didn't occur until 18th April when the weather relented and I had a free moment to collect specimens on the M4 at Caldicot and Magor. Now armed with a personal cassette recorder, I undertook a number of journeys to ascertain the extent of the invasion.

Except for a stretch between the middle of Newport to the A48(M) turn off to Cardiff where the central reservation had been asphalted over or had been treated with weed killer the scurvygrass occurred in every tetrad through which the M4 passed, with the plant tightly packed for hundreds of metres in places. On the way back, I diverted up the A449 Newport to Raglan dual carriageway via Usk. The central reservation held long stretches of the scurvygrass in every tetrad and this continued all the way along the A40 to Monmouth.

This was intriguing as the only native sites for *Cochlearia danica* in v.c. 35 were in the Bristol Channel, on Denny Island, half in Wales and half in England, and on the coast at Sudbrook.

A casual record had been reported at Abersychan by Bob Hewitt in 1985, probably associated with winter road gritting. Heather Colls had recorded several patches near Mitchell Troy, on the A40 in 1988 and Brian Gregory had seen it on the same trunk road near Monmouth in 1990. These last two records hadn't rung any bells at the time but now the questions 'Where else?', 'How Far?', 'In which direction was it travelling?', demanded to be answered.



Major roads Tetrad distribution of *Cochlearia danica*

Back from my younger son's on 22nd April via the A40 Ross to Monmouth dual carriageway, only grass and the odd British weed in Herefordshire but there it was as soon as I crossed into Wales and v.c. 35.

A 23rd April visit to Jack Evans at Cefn Coed, Merthyr Tydfil, enabled the scurvygrass to be plotted along the A40 from Raglan to Abergavenny but on beyond to Merthyr nothing but grass and the occasional weed.

Next day, a visit to my other son, involved a journey into England along the M4 to the M5 and up to Cheltenham. *Cochlearia danica* soon appeared on the central reservation and less frequently on the verges. Long stretches were to be seen in the central reservation of the M5, but not on the verges until the Stroud exit. From there to the Gloucester exit, plant colonies appeared less frequently and beyond to Cheltenham, even less so. On the English part of the M4 and on the M5 *Stellaria media* appeared with the scurvygrass but was dominated by it.

My final trip along the A465 from the county boundary to Abergavenny revealed no central reservation and no scurvygrass. My distribution map was complete.

There must be hundreds of thousands, if not millions, of plants on the roads I've looked at. How many more have turned inland from the coast? In v.c. 35 it could be argued that the prevailing wind is driving the invading force eastwards and north eastwards. However, the prevalence of *Cochlearia danica* on the central reservation suggests that turbulence caused by the speeding traffic in the fast lane is aiding progress in both directions. Wade in his *Flora of Monmouthshire* says of it 'only certain record for the county is from ballast'. CTW states, apart from coastal, 'also on railway ballast inland'. Stace says 'by railways and salt treated roads inland'. Rich in *Crucifers of Great Britain and Ireland* says 'In England and Wales widely distributed inland on railway ballast and roadsides'. Yet, neither the *Atlas* nor the Monitoring Scheme map indicates how pervasive the scurvygrass has become. Adrian and Elsa Wood have added that it is extensive down the M5 south of the M4 interchange. In the superstitious past the doom-mongers would now be warning of a pending shortage of Vitamin C and the scurvygrass was sent to save us. Then again - perhaps we will all be munching our way along the motorway.

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BASTARD CABBAGE IN CHALK GRASSLAND

Graham Steven's letter in *BSBI News* **62** suggests that the spread of this species within an SSSI at Amberley, Sussex is recent and may be due to global warming.

I have known the species at this site since 1964 and it may have been there long before this, though it was certainly much less abundant and widespread. We used to call it *Rapistrum rugosum* subsp. *orientale* (but may have been wrong). There can be little doubt that excessive stocking by cattle has so eroded the area that if this plant did not invade then some other equally unwelcome one would. The last remaining stand of Juniper in the area is also at risk from the same cause.

All this is within an SSSI and AONB (South Downs Conservation Board) and it may be also ESA (though this is a State secret!). The SSSI citation states that 'it contains some of the richest grassland in Sussex ... and several nationally restricted invertebrates'. This particularly concerns butterflies and snails. However, unless steps are taken promptly its importance will not endure and this has been brought to the attention of English Nature.

FRANK PENFOLD, Morels, Burpham, ARUNDEL BN18 9RR

TRANSLOCATIONS AGAIN

I can understand the argument underlying Mr Payne's objection to translocations (*BSBI News* **62**, Dec. 1992) but I am puzzled by his premises. Is it so certain that 'the study of the distribution and natural spread or decline of species' will always be open to us? The urbane language brings to my mind a picture of a broad equilibrium in which replacements have the opportunity to take over gradually from former natives. All my field experience, and all too many of the items I read, tell me that what equilibrium remains to us is being undermined piecemeal and continually giving way. In the increasing number of cases where we watch a plant dwindle towards extinction we are hardly likely to look for replacements; often, indeed, it would seem that any such study as Mr Payne envisages is already a luxury of the past, since the habitats themselves are disappearing. Small-scale instances perhaps, and relevant as yet, fortunately, to only a comparatively small proportion of our flora, but on the long view and the global scale that he favours I can see no reason to expect anything other than the same trend writ large.

Behind his equanimity there is a curiously hazardous assumption. Of course we have always been agents of 'continuous unintentional changes in plant distribution'. But to rely upon the future survival of this give-and-take relationship between nature and ourselves seems to me quite unrealistic. The combination of an unprecedented access of efficiency in accomplishing change and a greatly increased pressure for land development has created an altogether new situation, and raises questions which could hardly have been conceived in former times. If, willy-nilly, as Mr Payne implies, we are inextricably a part of nature, we are nevertheless a part with a sense of responsibility, and it seems to me inconsistent with a respect for our mute associates to bring them to the present sorry pass and then to refuse them the possibility of any remedial action whatsoever. The very cogently argued letter from Mr Walls (*BSBI News* **63**, April 1993) indicates a basis for considering such action rationally and in strictly limited circumstances, and if - supposing the case to be one of an undoubtedly endangered species - this should lead to the result that 'we shall never know whether the plant in question could have spread to the site by natural means', I can only ask, what is the point of such purely clinical curiosity anyway?

On the face of it, the orchid incident described by Mr Payne was certainly indefensible. But it also seems to have been in a quite different category from that of the situation envisaged by Mr Walls, whose suggestion that we might consider the provision of 'stepping stones' for gene flow where a habitat is badly disrupted seems entirely reasonable.

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INTRINSICALLY POOR HABITATS

Most papers in the botanical literature not concerned with the difficulties of taxonomy and identification usually relate to rare species or habitats of high diversity. This is all very exciting, but rather a blinkered view of botany and it may well be biasing our view of conservation. The climate and edaphic factors conspire to prevent many semi-natural habitats from having great rarities (or at least not recognised) or from developing a level of diversity comparable with that achieved by the more sexy habitats. Should we regard these areas as being unworthy of conservation? To disregard such habitats would be to ignore large tracts of good countryside and the species that are ordinary because they are successful. With the pressures on the countryside I don't think we can afford to do this. Not very long ago heathland and hay meadows were common in England.

I have become aware of our proclivity in Dorset over the last two years whilst we have been developing our thinking on sites of nature conservation interest (SNCIs). Two aspects have emerged which are basic to our strategy and may be worthy of a wider discussion. These are the use of 'indicator species' and how to deal equitably with habitats that are intrinsically poor in plant species (IPHs) - they either have low diversity or they have few scarce species. For reasons of objectivity we use the term Notable Species instead of indicators. The latter term implies that something is indicated and that there is an established correlation for the county. At worst the implication may be unfounded and at best it is trivial or a tautology (e.g.. calcicolous species grow on chalk).

I will explain the two aspects separately to start with although the second depends on, and may be a consequence of the first.

Notable species

It is inevitable, especially if time is short, that the initial assessment of a new site as a SNCI will usually be based on the vascular plants. This is not ideal for all manner of reasons, but it is what often happens. The site report may be assessed in two ways: either by looking for rare species or by seeking recognisable assemblages of species. The second of these may be to identify communities which are themselves rare or decreasing, or the plant community is used as a surrogate for scarce fauna or flora which would not have been observed at the time of the survey. In practice the conservation value of a site is probably decided on a mixture of these approaches.

To make the assessment more objective it is useful to have a clear idea of the significance of the species. We have found the following categories are useful :

RDB - Red Data Book, species recorded from 1 to 15 hectads in the British Isles.

NSS - Nationally Scarce Species, recorded from 16 to 100 hectads in the British Isles.

CSS - County Scarce Species, recorded from 3 or fewer sites within the county (excluding RDB & NSS)

CRDB - County Red Data Book, an account of all RDB, NSS and CSS species

CNS - County Notable Species, not in the CRDB, but of interest for reasons other than extreme rarity

(a hectad is a 10km grid square, as defined by K.G. Messenger, *BSBI News* **45**, April 1987).

The first four categories are precisely defined and self explanatory; it is the last that is of concern. The CNS list consists of all species which we expect to see in good habitats, but which are not rare enough to be in the CRDB, for instance *Euphorbia amygdaloides*, *Lathyrus montanus*, *Galium odoratum* in woods. Such species are being used to help us choose good habitats and in this sense they could be called 'indicator species'.

The characteristics we might expect of a CNS, if it is to assist in habitat selection, are for it to fall into at least one of these categories:

a) more or less confined to a particular habitat (probability greater than 0.75 say).

b) a component of the defining assemblage.

c) fairly scarce, but too frequent to be in the CRDB.

d) known to support rare species in other taxa.

Species may be added for other reasons, such as a plant having an unexplained distribution, but these are beyond the scope of this note.

Some examples from Dorset Notable Species list would be *Carex strigosa* which is almost confined to damp woods, many of which have characteristics of ancient woodland. *Helianthemum nummularium* is rarely found elsewhere than in calcicolous grassland and usually in association with a group of similar and rarer plants which may not always be as visible. In contrast *Succisa pratensis* occurs in a number of habitats, but it is an important food plant for the marsh fritillary. *Mercurialis perennis* is not on the list because it is too widespread in all sorts of shady places.

Intrinsically poor habitats

The first step in conserving a site is to recognise it as a good example of its type. This is more readily done for some habitats than others. It has been found, for instance, that many species-rich woods and unimproved calcicolous grasslands are readily selected as SNCIs. Heathlands are poor in plant species, but they are readily accepted as SNCIs because of their associated fauna, all that is asked is whether the site is a good example of heathland. Grasslands, woodlands and scrub on poor soils are rarely chosen, because they have no rare species and few, if any, CNS. Are they being judged fairly?

Even the richest of acid grasslands will have fewer species than a chalk downland. A glance through the NVC books will demonstrate this. To compound the effect, it is likely that there will be fewer CNS listed from, for example, acid grassland than calcicolous grassland. The net result is that some habitats, whilst scarce and as 'natural' as some more popular habitats, are not conserved. In Dorset, unimproved grasslands not on chalk or limestone have declined dramatically and almost unnoticed, I suspect because we are not valuing them properly. We are effectively reinforcing a prejudice that chalk soils should have grassland, sandy soils should have heathland and loams should support woodland.

As I implied in the introduction, I consider it important that all natural and semi-natural habitats are judged in a comparable manner. Simply to set a criterion based on the diversity or the presence of rare species will guarantee the exclusion of some habitats. What is needed is a more equitable scheme which relates to the best example of that habitat.

I would be interested to hear of any schemes for appraising sites which avoid the bias I have outlined above.

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CONYZA CANADENSIS / *C. SUMATRENSIS* INTERMEDIATES

In August 1991 I first noticed plants which appeared to be intermediate between these two species, on a former rubbish tip at Swanscombe v c. 16, where there were very large numbers of both *Conyza canadensis* and *C. sumatrensis*.

In July 1993 a plant on waste ground near Northfleet Cemetery (also W Kent) caught my eye as the stem, branches and leaves were intermediate in colour between the lime-green of *C. canadensis* and the grey-green of *C. sumatrensis*. The other features were:-

1. The hairs on the leaf-edges were intermediate in length and thickness, patent near the stem then curved to run parallel with the stem.
2. The hairs on the phyllaries were much fewer in number than in the case of *C. sumatrensis*, but more than one would expect with *C. canadensis*.
3. The main stem snapped easily and almost cleanly like *C. sumatrensis* does. (This is a character distinguishing it from *C. canadensis*, which I don't think has been mentioned elsewhere).

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IS *POA INFIRMA* MOVING EASTWARDS?

This spring I have been surveying the cliffs of Poole Bay, Dorset within the Borough of Bournemouth (v.c. 11). There are many interesting aspects, but paradoxically the most important feature botanically may be the worn out grasslands at the top. Here can be found, in some abundance, a wide range of annuals which are scarce in the British Isles (several rare clovers, *Cerastium semidecandrum*, *C. diffusum*, *Lotus subbiflorus* and *Crassula tillea*). Indeed these plants are only to be found where the grass has been completely worn away by the continuous trampling of residents and visitors throughout the year.

Whilst recording these in May this year I noticed many patches of dead grass. Given the heavy use of the area by dogs this might be unremarkable, but on Hengistbury Head, an SSSI at the eastern extreme of Poole Bay, *Poa bulbosa* is readily detected by this characteristic. One patch did prove to

be *P. bulbosa*, but the others were *P. annua* I thought until it dawned on me that most plants of this elsewhere were still green. Closer inspection suggested that it looked very like *Poa infirma* and John Edmondson at Liverpool has confirmed the specimens. Earlier in the year Felicity Woodhead had found *P. infirma* at Hengistbury Head and she suspects its presence elsewhere.

To the best of my knowledge, prior to 1989, this grass was only recorded from Cornwall. In that year, during the BSBI symposium in Exeter, Ro FitzGerald found plants at Dawlish and I noticed a few plants while on the outing to Berry Head. Fortunately there were experts on hand to confirm the find without removing specimens. Since then I believe other sites in Devon have been found. The finds this year advances the range across one vice-county and into the next. The species is present in some quantity in this community and has probably been there for some time. Many people are known to have introduced plants to the Bournemouth cliffs, but mainly garden varieties of more colourful species.

I suppose *P. infirma* could have travelled from Cornwall on the boots of an enthusiastic clover twitcher returning from the Lizard, but in view of the similarity with one of the commonest and least regarded grasses in the British flora it is highly likely that *P. infirma* has been very under recorded. An alternative is that aided by a change in the climate it is indulging in a rapid expansion, which would be most interesting. Whatever the reason a thorough search along the south coast next Spring will most likely bring in a host of new records.

After drafting this note I learn that Bournemouth Borough Council is planning a major development for the cliffs which will undoubtedly result in the loss of a long stretch of this interesting habitat. The final irony is that part of the development is designated a botanic garden!

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PLANTS FOUND IN A LEICESTERSHIRE QUARRY

Introduction

I have recently made a list of the plants seen in a quarry at Groby, Leicestershire during the past 23 years. The site measures 280 yards by 75 yards, with an extension at a lower level of 80 yards by 60 yards. This latter part consists of Keuper Marl from which the top soil was removed in 1960 when prospecting for more stone (Markfieldite). The larger area was formerly a hill, 'Bunney Hill', which was quarried towards the end of the last century. In 1889 the nearby Groby Pool overflowed, the water pouring across the road and into the quarry hole, forming a good-sized pool. As quarrying extended, boulder clay overburden and 'rammel' were tipped into it, gradually filling it until in 1955 the fish it contained were caught and placed in the main Groby Pool. Tipping of soil, old machinery, liquid concrete and tar macadam, plus some unofficial rubbish dumping, continued until the site was fenced off in the 1970s.

Native plants

There are several wet depressions in which grow Common Spike-rush (*Eleocharis palustris*) Common Club-rush (*Schoenoplectus lacustris*), Bulrush (*Typha latifolia*) and Lesser Bulrush (*T. angustifolia*). Thread-leaved Water-crowfoot (*Ranunculus trichophyllus*) seems able to survive in quite dry conditions. These plants are relics of the good-sized pond mentioned above. Seedlings and saplings of common native trees and shrubs, such as Ash (*Fraxinus excelsior*), Silver Birch (*Betula pendula*), Elder (*Sambucus niger*) and Broom (*Cytisus scoparius*) have appeared, whilst wild roses are plentiful and brambles abundant - liable to trip up the unwary. So far 8 species and hybrids of willow have been named.

Tall native herbs such as Hemlock (*Conium maculatum*) and Ploughman's-spikenard (*Inula conyza*) are common, the former up to 8 feet tall. Weld (*Reseda luteola*), formerly grown as a yellow dye plant, reaches 5 feet. Fat-hen (*Chenopodium album*), our commonest goosefoot, grows on soil heaps. Great Lettuce (*Lactuca virosa*) has appeared in recent years and is spreading over the county as a whole. Although a lettuce, its juice is poisonous. Mugwort (*Artemisia vulgaris*), formerly used as a strewing herb to keep flies away, grows here too, but in small quantity.

Strong-smelling Black Horehound (*Ballota nigra*) occurs, whilst Great Mullein (*Verbascum thapsus*) with its flannelly leaves grows in good numbers on the patches of tipped concrete and asphalt.

Smaller native plants which have appeared include Primrose (*Primula vulgaris*), Common Dog-violet (*Viola riviniana*), Silverweed (*Potentilla anserina*), and abundant Wild Strawberry (*Fragaria vesca*). Common Centaury (*Centaurium erythraea*) is a delight with its starry pink flowers. Scarlet Pimpernel (*Anagallis arvensis*) dates from Roman times. The oil of Perforate St John's-wort (*Hypericum perforatum*) was used to soothe the scratches of a cat on Don Quixote's face. It was also formerly used to improve the secretion of bile and the circulation of the blood, for the treatment of diarrhoea, and externally for wounds, haemorrhoids, and burns! The yellow flowers of this and Common Ragwort (*Senecio jacobaea*) together with the deep pink of Willowherbs (*Epilobium* spp.) make a colourful display, along with the deep blue of Selfheal (*Prunella vulgaris*). Wild Teasel (*Dipsacus fullonum*), whilst pretty when in flower, has become a prickly nuisance.

Grasses range from the 4-5 feet tall Wood Small-reed (*Calamagrostis epigejos*) down to the 2½ inch Fern-grass (*Catapodium rigidum*).

Plants of the red-fruited section of small dandelions are frequent on the Keuper Marl area of the site, with Blue Fleabane (*Erigeron acer*), Fairy Flax (*Linum catharticum*), daisies and occasionally Common Spotted-orchid (*Dactylorhiza fuchsii*).

Aliens

Plants of alien origin have been introduced into this country for their medicinal or culinary qualities and have become naturalised. Such are Greater Celandine (*Chelidonium majus*) and Good-King-Henry (*Chenopodium bonus-henricus*). Also found in the quarry in the 1970s but not later was Soapwort (*Saponaria officinalis*), which was used by our forebears for washing and is still cultivated for washing woollens in Syria. A popular name for the double variety is 'Bouncing Bett'. Oxford Ragwort has an interesting history. It is native of Sicily where it grows on soils formed from the volcanic ash of Mount Etna, It escaped from the Oxford Botanic Garden and was first recorded on walls in Oxford in 1794. Later the wind-borne fruits were carried along the Great Western Railway by trains, soon reaching London and then spreading widely to almost all parts of the country. In 1978 a patch of about 10 plants of Bastard Cabbage (*Rapistrum rugosum* subsp. *rugosum*) appeared on this quarry site. Until recently this plant was recorded occasionally as a casual, but in recent years it seems to be increasing (see *BSBI News* **62**, p. 43 for an account of its invasion of a chalk grassland SSSI). An alien which is very much at home in Britain is the Sycamore (*Acer pseudoplatanus*), the seedlings of which are very plentiful here.

Garden escapes

Bushes of garden origin established on this site are numerous. Flowering Currant (*Ribes sanguineum*) is common, Lilac (*Syringa vulgaris*) and Butterfly-bush (*Buddleja davidii*) less so. On one steep slope facing the former railway track is a patch of Japanese Knotweed (*Fallopia japonica*), about 8 feet high, a vigorous pest, difficult to eradicate. Two of the bramble species found are garden escapes: *Rubus laciniatus* has finely dissected leaves but nondescript fruit, whilst *Rubus armeniacus* (formerly *R. procerus*), the Himalayan Giant has large luscious fruit. One of the 7 willows named, Siberian Violet-willow (*Salix acutifolia*), has an attractive mauve-blue bloom on its twigs. White Dogwood (*Cornus alba*) and Shrubby Cinquefoil (*Potentilla fruticosa*) have also been seen recently.

Alien herbs which have appeared recently on the site vary in quantity. There are several balm plants (*Mellissa officinalis*), formerly grown for its lemon-scented leaves. The most flourishing garden plant here is the Large-flowered Evening-primrose (*Oenothera glazioviana*). Cushions of a hairy-leaved Lady's-mantle (*Alchemilla mollis*) are very common. It has yellowish-green flowers and was introduced from Asia Minor. White Stonecrop (*Sedum album*) and Caucasian Stonecrop (*S. spurium*) are in stony places, also Dovedale Moss or Mossy Saxifrage (*Saxifraga hypnoides*) and Londonpride (*S.* × *urbium*). In the spring of 1992 one tiny plant of Celandine Saxifraga (*Saxifraga cymbalaria*) was found. This is occasionally a persistent garden weed. *Tolmiea menziesii*, with its 'pick-a-back' young shoots on top of the old leaves, grew for a few recent years, whilst two other short-lived invaders were Shasta Daisy (*Leucanthemum* × *superbum*) and Dame's-violet (*Hesperis matronalis*). There are several clumps of Dotted Loosestrife (*Lysimachia punctata*), a native of Austria, the Caucasus and Asia Minor which is becoming regularly established on rough damp ground. Opium Poppy (*Papaver somniferum*) bloomed for several years in the early 1970s, making a lovely display on a large heap of soil.

If this site were given a chance, it would become scrub woodland in quite a short time, but there are plans to build a new entrance road to the main quarry which will cut through the centre.

Many thanks to Mr A. Newton, Mr R.D. Meikle, and Mr D. McClintock for identifying brambles, willows and garden escapes. Also to the Rev. A.L. Primavesi for helpful advice and for typing the MS; to the former manager of the quarry Mr S. Percival and the present manager Mr Manning for kind permission to wander at will.

List of plants found in the quarry

Acer pseudoplatanus, *Achillea millefolium*, *Agrostis canina*, *A. capillaris*, *A. stolonifera*, *Ajuga reptans*, *Alchemilla conjugata*, *A. mollis*, *Alliaria petiolata*, *Alnus glutinosa*, *Anagallis arvensis*, *Anisantha sterilis*, *Anthriscus sylvestris*, *Aphanes arvensis*, *Aquileja vulgaris*, *Arabidopsis thaliana*, *Arctium minus*, *Armoracia rusticana*, *Arrhenatherum elatius*, *Artemisia vulgaris*, *Atriplex prostrata*, *Ballota nigra*, *Barbarea verna*, *Betula pendula*, *Brachypodium sylvaticum*, *Bromus hordeaceus*, *Bryonia dioica*, *Buddleja davidii*, *Calamagrostis epigejos*, *Calystegia sepium*, *C. silvatica*, *Cardamine hirsuta*, *C. pratensis*, *Carex flacca*, *C. nigra*, *Catapodium rigidum*, *Centaurea nigra*, *Centaurium erythraea*, *Cerastium fontanum*, *C. glomeratum*, *C. tomentosum*, *Chamerion angustifolium*, *Chelidonium majus*, *Chenopodium album*, *C. bonus-henricus*, *C. polyspermum*, *Cirsium arvense*, *C. vulgare*, *Conium maculatum*, *Cornus alba*, *Corylus avellana*, *Cotoneaster* sp., *Crataegus monogyna*, *Crepis capillaris*, *C. vesicaria*, *Cynosurus cristatus*, *Cytisus scoparius*, *Dactylis glomerata*, *Dactylorhiza fuchsii*, *D. praetermissa*, *Deschampsia cespitosa*, *D. flexuosa*, *Digitalis purpurea*, *Dipsacus fullonum*, *Dryopteris filix-mas*, *Eleocharis palustris*, *Elytrigia repens*, *Epilobium ciliatum*, *E. hirsutum*, *E. montanum*, *E. tetragonum*, *Equisetum arvense*, *Erigeron acer*, *Erophila verna*, *Fallopia japonica*, *Festuca rubra*, *Filago vulgaris*, *Fragaria* × *ananassa*, *F. vesca*, *Fraxinus excelsior*, *Galium aparine*, *G. saxatile*, *G. verum*, *Geranium dissectum*, *G. molle*, *G. pusillum*, *Geum urbanum*, *Helichtotrichon pubescens*, *Heracleum sphondylium*, *Hesperis matronalis*, *Hieracium maculatum*, *Holcus lanatus*, *Humulus lupulus*, *Hyacinthoides non-scripta*, *Hypericum calycinum*, *H. hirsutum*, *H. maculatum* subsp. *obtusiusculum*, *H. perforatum*, *Iberis*, *Inula conyza*, *Iris* sp., *Juncus conglomeratus*, *J. effusus*, *J. inflexus*, *Lactuca virosa*, *Lamium album*, *L. purpureum*, *Lapsana communis*, *Lathyrus pratensis*, *Leucanthemum* × *superbum*, *L. vulgare*, *Linum catharticum*, *Lolium perenne*, *Lonicera periclymenum*, *Luzula campestris*, *Lysimachia nummularia*, *L. punctata*, *Meconopsis cambrica*, *Melilotus altissimus*, *Melissa officinalis*, *Myosotis arvensis*, *M. discolor*, *M. sylvatica*, *Narcissus pseudonarcissus*, *Oenothera glazioviana*, *Papaver somniferum*, *Persicaria maculosa*, *Phleum pratense*, *Pilosella officinalis*, *Plantago lanceolata*, *P. major*, *Poa annua*, *P. nemoralis*, *P. trivialis*, *Potentilla anserina*, *P. fruticosa*, *P. reptans*, *Primula vulgaris*, *Prunella vulgaris*, *Prunus avium*, *Quercus robur*, *Ranunculus acris*, *R. ficaria*, *R. repens*, *R. trichophyllus*, *Rapistrum rugosum* subsp. *rugosum*, *Reseda luteola*, *Rheum* × *hybridum*, *Ribes sanguineum*, *R. uva-crispa*, *Rosa glauca*, *Rubus armeniacus*, *R. caesius*, *R. calvatus*, *R. dasyphyllus*, *R. idaeus*, *R. laciniatus*, *R. lindleianus*, *R. tuberculatus*, *R. ulmifolius*, *Rumex conglomeratus*, *R. crispus*, *R. obtusifolius*, *Sagina apetala*, *S. procumbens*, *Salix acutifolia*, *S. aurita* × *S. caprea*, *S. aurita* × *S. cinerea* subsp. *oleifolia*, *S. caprea*, *S. caprea* × *S. cinerea* subsp. *oleifolia*, *S. cinerea* subsp. *cinerea*, *S. cinerea* subsp. *oleifolia*, *S. viminalis*, *S. viminalis* × *S. aurita* × *S. caprea*, *S. viminalis* × *S. cinerea* × *S. aurita*, *Sambucus nigra*, *Saponaria officinalis*, *Saxifraga cymbalaria*, *S. hypnoides*, *S. spathularis* × *S. umbrosa*, *Schoenoplectus lacustris*, *Scrophularia auriculata*, *S. nodosa*, *Sedum album*, *S. spurium*, *Senecio jacobaea*, *Senecio squalidus*, *S. vulgaris*, *Silene dioica*, *Sisymbrium officinale*, *Solanum dulcamara*, *Sonchus asper*, *S. oleraceus*, *Stachys sylvatica*, *Stellaria media*, *Stellaria pallida*, *Symphytum* × *uplandicum*, *Syringa vulgaris*, *Taraxacum* spp., *Teucrium scorodonia*, *Tolmiea menziesii*, *Trifolium campestre*, *T. dubium*, *T. pratense*, *T. repens*, *Torilis japonica*, *Tripleurospermum inodorum*, *Tulipa* sp., *Tussilago farfara*, *Typha angustifolia*, *T. latifolia*, *Urtica dioica*, *Verbascum phlomoides*, *V. thapsus*, *Veronica arvensis*, *V. chamaedrys*, *V. officinalis*, *V. persica*, *V. serpyllifolia*, *Viburnum opulus*, *Vicia hirsuta*, *V. sativa* s.l., *V. sativa* subsp. *nigra*, *Viola riviniana*.

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THE SPREAD OF *BRACHYPODIUM PINNATUM* IN WALES

Brachypodium pinnatum has been recognised as having the potential to become an aggressively invasive species since the 1950s (Nature Conservancy Annual Report, 1955) when it was found to be spreading over ungrazed areas of the chalk downlands. If unchecked this grass can rapidly become dominant, typically spreading outwards in enlarging clumps to form a dense mat with growth of up to 1m high (Junghanns, 1988); studies in Holland have shown that it can eventually represent 80% or more of the above ground biomass (Bobbink & Willems, 1987). In the latter study, increasing dominance of *B. pinnatum* was shown to be strongly correlated with a reduction in species diversity and that species number could be reduced by more than 50% within a few years.

Today *B. pinnatum* represents a major management problem of calcareous grassland throughout western Europe (Ratcliffe, 1984, Bobbink & Willems, 1987, 1991; Junghanns, 1988) especially where there has been a decline in traditional grazing management. Many of these grasslands, which are among the most species-rich communities in western Europe and support a large number of rare and endangered species (Rodwell, 1992) are now under threat from the increasing dominance of this species. Furthermore, according to Bobbink & Willems (1987) many management regimes, including

mowing in autumn, burning and sheep grazing have not prevented infestation. They also suggested that the deposition of atmospheric nitrogen may be further enhancing its ability to dominate these oligotrophic grasslands. However, on a more optimistic note Bobbink & Willems (1991) have recently indicated that it may be possible to reduce the dominance of this species by cutting it back in mid-summer.

To date there does not appear to be any evidence of *B. pinnatum* becoming a problem on inland calcicolous grasslands in Wales and it may still be a relatively uncommon species in Wales. Ellis (1983), for example, only recorded its presence in thirteen 10km squares (Fig. 1, page 27). However, it has recently come to light that the species has become established on certain base-rich dune systems in Wales and that there are now large stands occurring within the forested areas of Pembrey Burrows, Carmarthenshire (v.c. 44), and Newborough Warren, Anglesey (v.c. 52) and the open dune grasslands at Stackpole Warren in Pembrokeshire (v.c. 45). In fact, concerns over the threat to the nature conservation value of the latter two sites has prompted action to eradicate the species from these areas. At Stackpole Warren attempts have already been made to eliminate the species by hand digging and the application of the herbicide Glyphosate 'Roundup' (pers. comm. R. Haycock). At the Newborough site it is proposed to attempt to eradicate *B. pinnatum* also using weed wipe application of Glyphosate (pers. comm. J. Ratcliffe). Table 1 (page 27) shows when *B. pinnatum* was first recorded at the three Welsh sand dune sites and the estimated areas of infestation prior to any eradication programme.

It is of interest that the coastal dune systems in Wales rather than inland limestone grasslands have been invaded by *B. pinnatum* since, as yet, it does not appear to be to be a problem on coastal dune systems in England (pers. comm. Dr G. Radley). One suggestion is that it may have been introduced to the forested areas during hydro-seeding operations to stabilise the forest trackways. The sand dunes in Wales also tend to be more base-rich than those in England. However, the community composition of the Welsh dune communities differ significantly from the more typical *B. pinnatum* dominated grasslands described in the National Vegetation Classification (Rodwell, 1992) which so far, in Wales appear to have only been described as occurring on the Limestone cliffs of Stackpole Warren (Cooper, 1988). The difference in the dune *B. pinnatum* communities is partly explained by the presence of a sand dune element and also the presence of a woodland element at two of the sites (see Table 2, page 28) but in addition, at Newborough, there is the added complication that *B. pinnatum* appears to be closely associated with a number of calcifugous taxa such as *Calluna vulgaris* and *Polytrichum* sp. Its presence with these species and the fact that it appears to be thriving in the semi-shade of woodland rides in Wales is slightly disconcerting in that it seems to be extending beyond its normal ecological range. However, it is hoped that the prompt action to eliminate these dominant stands of *B. pinnatum* in Wales will prevent the species spreading into other semi-natural calcicolous communities in the Principality.

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Fig. 1. Distribution of *Brachypodium pinnatum* in Wales

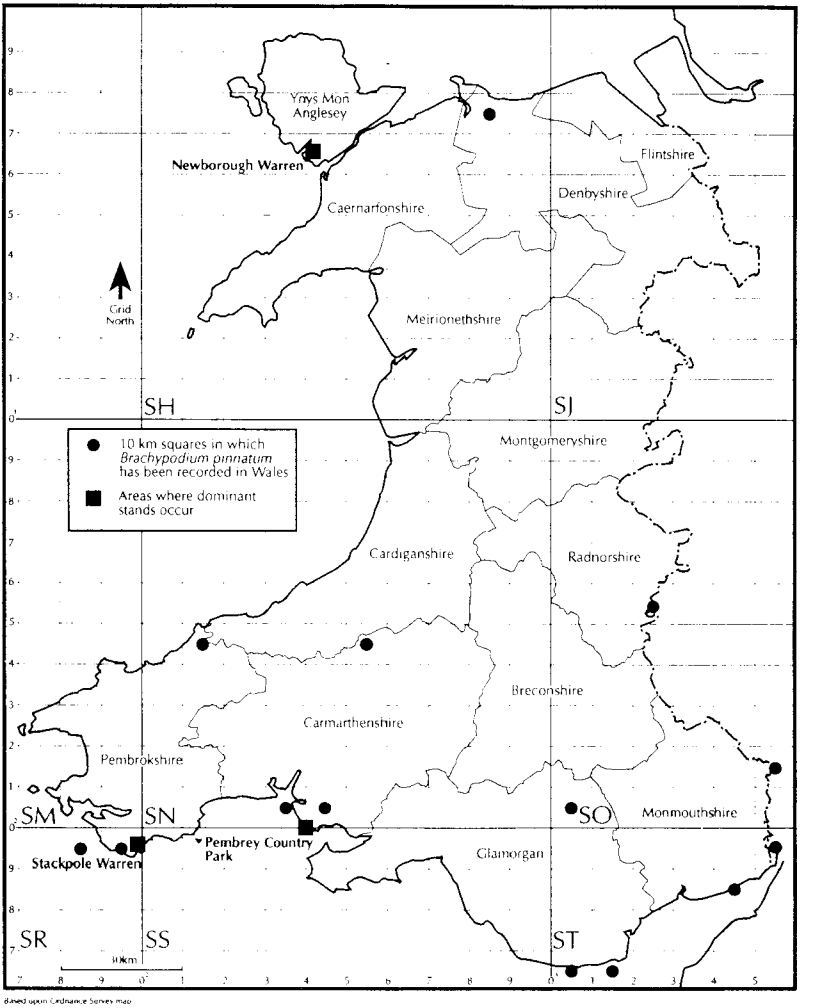


TABLE 1

The first records of *Brachypodium pinnatum* and its present extent at the three sand dune sites in Wales where relatively extensive stands occur.

Site	First records of *B. pinnatum*	Total estimated area (ha)	Number of major stands
Newborough Warren	1983 (Studholme, 1983; Brown & Roberts, 1992)	0.4	5
Stackpole Warren	1968 (Davis, 1969)	0.53	7
Pembrey Country Park	1977 (Kay, 1979a, b)	0.37	1

Associates	N	S	P	Associates	N	S	P
Agrostis canina		*		Ligustrum vulgare		*	
Ammophila arenaria		*		Linaria vulgaris		*	
Anthyllis vulneraria		*		Lithospermum officinale		*	
Anthoxanthum odoratum	*		*	Lolium perenne			*
Arrhenatherum elatius		*	*	Lonicera periclymenum		*	*
Bellis perennis		*		Lotus corniculatus	*	*	*
Betula pendula	*			Ononis repens			*
Brachypodium sylvaticum		*		Oenothera sp.			*
Briza media	*	*		Peltigera sp.	*		
Bromus erectus		*		Pinus nigra	*		*
Bromus mollis		*		Pinus radicata	*		
Calluna vulgaris	*			Pinus sylvestris	*		
Chamerion angustifolium	*		*	Plantago lanceolata	*		*
Carex arenaria	*		*	Poa pratensis		*	
Carex flacca	*	*		Polytrichum sp.	*	*	
Cerastium fontanum	*			Primula vulgaris	*	*	
Centaurea nigra	*			Prunella vulgaris	*	*	
Centaurea scabiosa		*		Prunus spinosa		*	
Cirsium arvense	*			Pseudoscleropodium purum	*		*
Cirsium vulgare		*		Pteridium aquilinum		*	
Clematis vitalba		*		Quercus sp. (sapling)			*
Conopodium majus		*		Ranunculus bulbosus		*	
Cotoneaster simonsii ?	*			Ranunculus repens	*		
Crataegus monogyna	*			Rhytidiadelphus squarrosus	*		
Crepis sp.			*	Rhytidiadelphus triquetrus	*		
Cynosurus cristatus		*		Rosa canina agg	*		
Cytisus scoparius	*			Rosa pimpinellifolia			*
Dactylis glomerata	*	*	*	Rubus fruticosus agg	*	*	*
Dryopteris spp	*			Rubus caesius	*	*	*
Epipactis helleborine			*	Rumex acetosa	*	*	
Equisetum palustris	*			Salix repens	*		
Erodium cicutarium	*		*	Sanguisorba minor		*	
Eupatorium cannabinum		*		Senecio jacobaea		*	
Euphorbia portlandica		*	*	Solanum dulcamara			*
Festuca spp	*	*	*	Sonchus oleracea			*
Galium aparine		*		Stachys officinalis		*	
Galium verum		*	*	Taraxacum sp.	*	*	*
Geranium molle	*		*	Teucrium scorodonia	*	*	
Geranium robertianum		*		Thuidium tamariscinum	*		
Hedera helix		*		Thymus praecox		*	
Heracleum sphondylium		*		Tortula ruraliformis			*
Hieracium spp	*			Trifolium campestre		*	
Holcus lanatus	*	*	*	Trifolium dubium		*	
Homalothecium lutescens			*	Trifolium reptans		*	
Hyacinthoides non-scripta	*			Ulex europaeus		*	
Hypericum pulchrum		*		Urtica dioica	*	*	
Hypochoeris radicata	*		*	Vicia sativa	*		*
Hippophae rhamnoides			*	Viola canina		*	
Iris foetidissima			*	Viola tricolor	*		
Leucanthemum vulgare		*					

TABLE 2

PETER M. RHIND, Coastal Ecologist, Countryside Council for Wales, Plas Penrhos, Ffordd Penrhos, BANGOR, Gwynedd LL57 2LQ

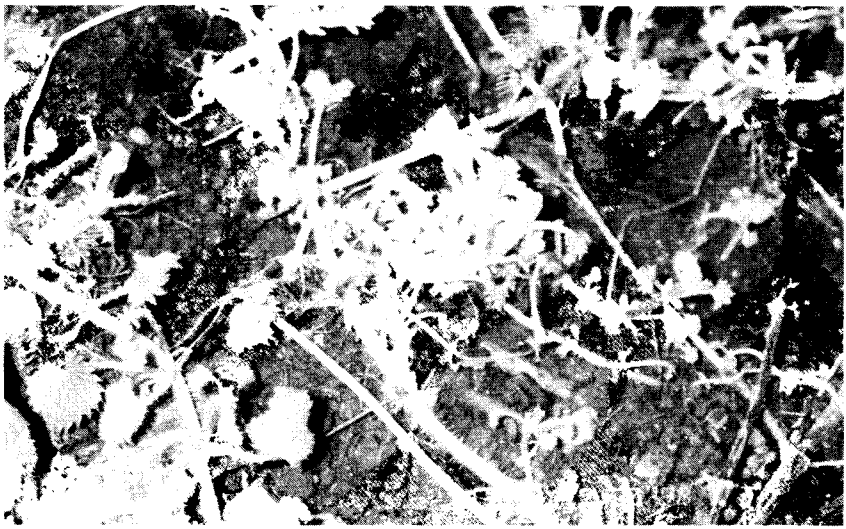
STINGING NETTLE II - MIDWINTER GROWTH

The Stinging Nettle (*Urtica dioica*) is the most widely recorded plant in the new Wiltshire Flora, and is the most abundant farm weed. It is also the most frequently prevalent riverside species for the Rivers Ebble, Upper (W. Wilts.) Avon and tributaries, Upper Kennet, and many (or most?) other Wiltshire rivers.

Frost in December halts *vertical* growth of nettle and browns the leaves - but *horizontal* growth of stems which root at the nodes continues at the expense of surrounding vegetation. This is most obvious under carpeting put around young trees in December (to protect them from weeds in the following spring). Buries residual nettle rhizomes convert in January and February to surface-rooting pink or cream stolons, growing from nothing to 10-40cms either mid-Dec. to mid-Jan., or mid-Jan. to mid-Feb. In uncovered grassland, this process is less obvious: only 2-10cms per month in mid-winter. However, under stones and insulating debris of any sort, 5-30cms per winter month can occur.

The creamy-pink winter stolons not only give the nettle a head-start for next spring, but they usually divide into numerous shooting branches. Other weeds such as Broad-leaved Dock (*Rumex obtusifolius*) only have one shoot, and, Creeping Thistle (*Cirsium arvense*) may put up 2 or 3 from the underground rhizomes. However a buried segment of nettle rhizome can put up 4 to 20 shoots all round the edges of a 30 × 30cm obstructing flat stone by late February, ready to form the monopolostic clump of dense vertical stems which occlude all other competing vegetation by mid-summer. Vertical stems bent over to ground level can also (in any season) give rise to axillary creamy-pink surface-rooting stems with multiple new vertical shoots following.

Do any other plants convert resources from rhizomes (or other stems) to surface-rooting stolons in the winter months?



Rooting stolons of nettle, photo © J. Oliver, Feb. 1993

JACK OLIVER, High View, Rhyls Lane, LOCKERIDGE, Marlborough, Wilts SN8 4ED

LEMNA MINUTA III - MONOCULTURES

Two adjacent ponds, A & B, were partially cleared out in 1990. Pond A was covered by *Lemna minuta*, B by *L. minor*; but after clearance A became the *L. minor* pond and B the *L. minuta* one. Despite frequent mixings, neither species will survive in the other's pond.

Lemna minuta is spreading rapidly in Wiltshire, coexisting in the rivers (Thames, Kennet, both Avons) with *L. minor* - but in enclosed or stagnant waters and in long stretches of the Kennet and Avon Canal, there are only vast dense surface monocultures. Where the water is sluggish, only one of these 2 vigorous species survives. This all implies chemical inhibition by one species of the other, with *L. minuta* getting the edge because of its greater frost-resistance. The same considerations apply to *Elodea nuttallii* appearing to 'drive out' *E. canadensis* (again increased frost resistance, and dense underwater monocultures).

If there are indeed subtle biochemical inhibitors, these would seem far, far more effective in weed-control than broad-spectrum herbicides, skimming, cutting, and all other artificial controls together.

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LEMNA MINUTA IV - GREEN ROOTS

Do (many) species outside the Lemnaceae have green roots? Under the (dissecting) microscope, both *Lemna minuta* and *L. minor* roots seem to be green as a consequence of ?chloroplasts in the cortex and epidermis. There are often small epiphytic filamentous algae on both thalli and roots, but these do not account for the greenness. Serried ranks of active *Vorticella* were seen on all the *L. minuta* (pond) roots. Might this indicate symbiotic association; oxygenating rootlets in stagnant anoxic water, with the *Vorticella* mopping up noxious bacteria and debris?

JACK OLIVER, High View, Rhyls Lane, LOCKERIDGE, Marlborough, Wilts SN8 4ED

BEE ORCHIDS AT LANDBEACH

The correspondence in *BSBI News* **62**: 32, about the occurrence of Bee Orchids (*Ophrys apifera*) near Ely, took me back more than 40 years to that vicinity when, as a child, I listed plants in a square kilometre around The School House, Landbeach (TL/476.652). On one occasion I came across 2 spikes of Bee Orchid. As far as I know it had not been seen in Landbeach before, and I never saw it again. Although ill-equipped for close-up photography at that time, I did the best I could, and rather clumsily tinted the result. [The photograph is perfectly adequate for identification purposes and the tinting is by no means clumsy! Ed.]

In the same kilometre square there was a field generously peppered with Green-winged Orchid (*Orchis morio*). I wonder if this is still found there and if anyone has subsequently found the Bee Orchid at Landbeach?

HILARY ROSE, 16 Kilfield Road, Bishopston, SWANSEA SA3 3DL

HENBANE ON SET-ASIDE

There has been considerable correspondence in the past on the germination of long-buried seed including Henbane (*Hyoscyamus niger*). I have just observed a field full of it; a population of several hundred plants, this time on a set-aside area on a farm on Salisbury plain. The farmer was aware of this and said it had occurred from time to time in the past. I suggested to him that it would be unwise to graze the field now, although the unpleasant smell would probably be a deterrent. Now it has the conditions to grow undisturbed, it has flourished in abundance, presumably from a dormant seed reservoir. One can only guess at its origin; there has been no ancient monastery on the site but maybe it was grown for herbal properties or sorcery by a witch in times past!

BARBARA LAST, The Stables, Berwick St James, SALISBURY SP3 4TN

THE SEARCH FOR W.P. HIERN'S *SORBUS DEVONIENSIS* RECORDS 1864-1922

Hiern's records and herbarium sheets are now lodged at Exeter's Royal Memorial Museum. The list contains some 56 records of *Sorbus devoniensis* which was then known as *Pyrus latifolia* 'Devon Form', of which 39 were usable; the remainder had to be lumped together as the localities could not easily be separated.

Twenty-four sites were searched in the 1992 season and in 17 the *Sorbus* was found at or near the recorded locality. The remaining 7 sites will be visited again in 1993.

On the tetrad distribution map produced for the species by Dr M.C.F. Proctor in June 1992, Hiern records confirm 6 'dots' and provide 5 additional ones.

My unfunded 'work' of 1991, and my Warburg Memorial funding of 1992, has also added a further 7 dots to the map with one more awaiting confirmation.

Only one of the landowners I have spoken to was aware that they had something different and of unusual interest growing on their land.

DAVID C.G. CANN Halbury, Morchard Road, COPPLESTONE, Devon

[The above note was sent by David with many thanks for his grant from the Warburg Memorial Fund. Ed.]

NOTES AND ARTICLES

THE UNIVERSITY OF EXETER HERBARIUM: CHANGES AT LIVERPOOL MUSEUM

The collections of flowering plants and ferns from the herbarium of the University of Exeter (EXR) have been acquired by the National Museums and Galleries on Merseyside and are now being kept in the herbarium of the Liverpool Museum (LIV). The W. Keble Martin Herbarium, which was formerly kept at EXR, has been transferred to the Royal Albert Memorial Museum in Exeter (RAMM).

The newly acquired collections total some 25,000 sheets. Their removal to Liverpool brings about roughly a 15% increase in the size of the British Herbarium and a slightly smaller percentage increase in the size of the European Herbarium. The latter will continue to be arranged according to *Flora Europaea*, but the British Herbarium is being rearranged in Cronquist family order, in line with Stace's Flora and Kent's checklist.

Normally such a major rearrangement and merger would cause considerable upheaval, so to improve access and avoid overcrowding of specimens a new set of herbarium cabinets is being acquired to rehouse much of the British Herbarium. We hope that these cabinets will be installed in the autumn of 1993, and that work on preparing new folders will be completed by the end of the financial year (March 1994).

JOHN EDMONDSON, Liverpool Museum, William Brown Street, LIVERPOOL L3 8EN

A GUIDE TO FIELD MEETINGSHIP

If, like me, you attend Field Meetings, know nothing and, when you learn something, very quickly forget it, you become discouraged. It is, after all, unfortunate if you have, during the day, pointed three times to the same species only to be told that it is still a Dandelion. This is a guide with hints and tips to maintain your morale and self-respect.

The first golden rule is to assume your Leader knows everything. He probably and, relative to you certainly, does. If he insists upon calling an apple a pear then a pear it jolly well is. Never argue with your Leader. Flatter him or her to the best of your limited ability. The Leader is always right. If you take this attitude as basic the Leader will almost certainly not expose your enormous ignorance to the rest of the party.

Having solved the problem of the Leader you may now turn your attention to the rest of the party. It is no good trying to impress all of them especially as most of them will know a good deal more than you. You must identify one who is even more ignorant, a total ignoramus, a beginner who like you doesn't know a Dandelion from a Daisy. Look carefully around the party at the social stage when you first meet. Avoid anyone carrying Stace, Rose, Jermy, Hubbard or CTW, especially if well thumbed. Home in on anyone with an absolutely new copy of *Dolly's Book of Charming Flowers for Little Children* or, best of all, no book at all. Even so, beware, for some experts contain in their memory the entire *Flora Europaea* and probably *Flora Asiatica, Americana* and *Australiensis* as well. Avoid anyone from the Wild Flower Society who are frightfully keen, like earnest joggers, learn fast and should be asked whether they have seen *Pylon repens*: a saprophytic plant, grey, glabrous stem to 70 metres sometimes acuminate, rooting at the nodes, with prominent auricles, long filaments, apetallous, with no leaves; parasitic on *Genera tor*. Pick your mark, ask a few searching questions to confirm a greater ignorance than you, then proceed.

Make friends with your mark, distract and leave them at the tail of the party, then hurry to the Leader at the front which has just 'discovered' another species. Listen carefully. Write the name of the species in your notebook. Look up the species in your CTW Field Guide, a small profound book with a good weight to impressiveness ratio, gather a couple of essential points, kneel down and start examining the weed with your lens. This not only impresses the departing expert front of the party but, if correctly timed, means your mark finds you in an expert position and out of expert earshot.

"What have we here?", you are asked. Although music to the ear, keep reading your CTW with one finger firmly touching the specimen so that you do not make a mistake. After a pause, you may take any one of a number of lines. Quite a good one is: "Well, it keys out to *Taraxacum officinale*." It is important at this moment to guess whether your mark is going to ask the English name and if they are tell them before they do because it scores you an extra deux points in avoiding their embarrassment and increasing their liking and respect. You then follow up with a quick '*sensu lato*', and remark that of course most British forms are apomictic (having just read this on page 431 of your CTW). Neither of you of course knows what this means and the fact that CTW says it means 'fruits ripening independently of fertilisation' does not add to your wisdom one whit, but, by God, it sounds good.

You will by now have established quite an impressive position and it is essential not to lose ground. Hurry away from your mark before they ask you another question. Any question. Never, for example, put yourself in the position of being asked, at random for heaven's sake, 'what is this' for you will demonstrate only that there are at least two species you don't know. If trapped, say it is a difficult genus. Blame Stace and shift subject to *Carex*, Poaceae or *Rumex* - "Isn't it shocking the way *pulcher* is being pushed out by hybrid in Surrey, but I suppose that is typical hybrid vigour". (Useful phrases like this can be gleaned by overhearing Leader talking to expert and should be carefully noted). Talk about non-botanical subjects. If asked, 'Isn't that Water Chickweed?", do not reply. Turn up Water Chickweed in your CTW and say: "Oh! *Myosoton aquaticum*, with its distinctive blue anthers. Of course. I'm so bad with English names; they are so numerous and it all depends on where you are in the country. So useless when you are abroad too. I prefer the scientific names which you can use anywhere in the world." This gains several points and strongly suggests that you travel abroad botanically and are more familiar with the flora of Outer Mongolia. If quoted a Latin name, you play it the other way round. Other defensive measures include an adjective plus the word 'form' e.g. 'sylvan' (not to be used in open downland), 'montane' (not to used below 1,000 feet), 'aquatic' (not to be used on dry land), 'umbral' (not to be used in bright sunlight) and 'depauperate' (can be used anywhere). It is also useful to be a 'loveable lumper' rather than a 'schizophrenic splitter'. Above all try to maintain credibility through pseudo expertise. A knowledge of Latin is invaluable and if you can add Greek you are home and away. It is a tough life trying to demonstrate expertise on a Field Meeting but always bear in mind the old Latin motto "Nil desperandum, non carborundum" - don't let the bastards grind you down [toadflaxes or cabbages? Ed.]

JOHN TOPP, 20 Lupus Street, LONDON SW1

BSBI MEMBERS IN NORTH AND SOUTH CYPRUS

Dr Deryck Viney, who is part-time resident in Cyprus and author of *Endemic Wild Plants of North Cyprus* has set up an herbarium at Alevkaya. He is pleased to welcome visitors, and was able to assist a group - some of them BSBI members and led by Tony Kemp - on a Cox and Kings botanical holiday to North Cyprus in March this year. Their particularly exciting record was a first sighting in North Cyprus of *Orchis papilionacea* L. the Pink Butterfly Orchid. Desmond Meikle in *Flora of Cyprus* 1985 gives this as 'very rare' and 'found only once in Cyprus' (1960, in Southern Cyprus) 'and may no longer grow there.' (Paul Davies also regarded its occurrence on Cyprus as 'suspect' - pers. comm.).

1993 was an exceptionally good year for *O. papilionacea*, and on nearby Crete it was particularly abundant in March 1993 - possibly partly due to the late season and good winter rains.

Dr Yiannis Christofides, mentioned in *BSBI News* **59**: 14 *Going to Cyprus*, is now a BSBI member who is also pleased to welcome visiting BSBI members in Southern Cyprus, and he can offer accommodation too.

This note in *BSBI News* **59** lists alternative field guides and flower books for Cyprus - these are helpful, but the rare opportunity to have a **complete** *Flora* **specific** to the island of the visit, for me far outweighs the small effort in transporting the *Flora of Cyprus* for a botanical visit there - but both Dr Viney and Dr Christofides have *Flora of Cyprus* available for reference.

MARY BRIGGS, Hon. General Secretary

ENGLISH NAMES OF WILD FLOWERS - A REPLY (1)

The article by Messrs Jury, Oswald and Perring concerning *English Names of Wild Flowers* in the last issue of *BSBI News* (**63**, April 1993, p. 43) cannot pass unchallenged. As joint authors of the *Checklist of the Plants of Perthshire*, which we have good reason to believe was one of the three unnamed recent publications dismissed in that article as having taken 'little, if any, notice of *English Names*', we have a number of points to make.

English Names of Wild Flowers (*ENWF*) developed a binomial system of English names. To fit this system, trinomials and higher nomials had to be hyphenated in a complicated, often illogical manner, as is evident if one reads *ENWF*'s introduction e.g. pp 4-7 of the 1st edition of 1974. The effects of this hyphenation are well demonstrated in the example used in the recent article - Common Bird's-foot-trefoil. Looking for this in an English name index under 'trefoil', which is where we expect most sensible unsuspecting botanists, let alone general readers, would seek it, one finds that the authors of *ENWF* have had to include an additional index entry to avoid disappointment:-

Trefoil see also under Bird's-foot-trefoil

while users of Stace's *New Flora of the British Isles* are directed only to *Trifolium* spp. and not at all to *Lotus* spp.

From the authors' comments about the three recent local Floras they consulted as being two from Scotland and one from Ireland, your readers might be excused if they had concluded that it is only a lunatic Celtic fringe that disregards *ENWF*'s recommendations. We have just consulted a number of the BSBI's own Handbook series and find that those on *Sedges*, *Umbellifers*, *Willows and Poplars*, and *Crucifers* all to a greater or lesser extent reject the hyphenated forms, as does Jermy and Camus' recent Fern field guide. Only the *Docks and Knotweeds* handbook appears to conform.

The unwelcome truth for the authors of *ENWF* is that the hyphenated English forms are seen as unaesthetic and unsatisfactory by a significant number (majority?) of botanists. We cannot recall that the omission of hyphens in the Perthshire Checklist was a cause of major debate amongst its authors: we used 'Common Birdsfoot Trefoil'.

Apart from this matter of hyphenation the Perthshire Checklist took care to use the recommended English names for the great majority of species. A count of the first 100 Checklist species common to *ENWF*'s list shows that 72 are identical, 23 are identical except for hyphenation and 5 differ otherwise. Many of the differences are extra or alternative Scottish names which *ENWF* for

understandable reasons does not wish to list. If any readers of the Perthshire Checklist, because of its lack of hyphenation, consider themselves misled by its stated claim to have followed *ENWF*, then we apologise to them. But most, we hope, would join us in totally rejecting Messrs Jury, Oswald and Perring's criticism about ignoring *ENWF*.

Finally we take issue with their belief that their binomial system is *even more pertinent now that Flora-writing is computerised* (our italics). A person wishing, for example, to merge or process automatically two computerised lists, one list perhaps with 'authentic' forms as Common Bird's-foot-trefoil or its rearrangement, Bird's-foot-trefoil, Common and the other list with maybe different forms as Common Birdsfoot Trefoil or Common Bird's-foot Trefoil or their rearrangements, could readily get most word-processors, spreadsheets or other programming languages to - 1) rearrange names with commas, 2) strip all apostrophes, hyphens and spaces and 3) change capitals to lower case - so that all the above forms gave commonbirdsfoottrefoil. After the necessary comparisons and processing the English names can be reconstituted to whatever form desired. Provided authors use names with lettering identical to *ENWF*'s, such a procedure is more foolproof than one relying on correct hyphenation in both lists. A few minor problems (such as St or Saint for St John's Worts) remain. So computers, far from saddling us still more, provide the means to liberate us from the proverbial hyphenation camel designed by this committee.

We hope these views come in time to influence *ENWF*'s 3rd revision.

R.E. THOMAS, R.A.H. SMITH, N.F. STEWART and N.W. TAYLOR,
Orchil House, nr BRACO, Perthshire FK15 9LF

ENGLISH NAMES OF WILD FLOWERS - A REPLY (2)

As one of the authors criticised in *BSBI News* **63** for not conforming in my recent flora to *English Names of Wild Flowers*, could I explain my reasons. I did sometimes prefer the names in this listing to those in CTW/CTM, for example I use 'Smith's Pepperwort' (not 'Smith's Cress') and 'Large Bitter-cress' (not 'Larger Bitter-cress'), but it seems to me that for a local flora there are shortcomings both in the actual names recommended and in using only a single English name.

Firstly a local flora should be a source of facts about the plants and it is important to record what locals call plants. It is silly if people have a name for a plant, or have seen a name in print, for example in poetry or the farming papers, and this name isn't there to help them in the Flora. Indeed this sentiment is supported in the preface to *ENWF* '... wisely insisted that the English names of weeds should be those known to farmers'. Why then should names used universally in a country, like Gean and Blaeberry, be omitted?

Secondly I feel that English names coined recently by botanists are less sacrosanct than real names used by people in general. If coined names are used (shown in parenthesis in CTW 1952 and 1962), then they should be helpful to readers. I therefore tended to avoid 'Common' when this isn't true in NE Scotland (e.g. Comfrey).

Thirdly the binomial system is too restrictive. Even in *ENWF* it is not fully applied, many single names being retained, and ornithologists and foreign botanists have not moved over to this system in their naming. Logically I cannot see why trinomials are ruled out: calling common plants like *Cerastium* spp. by a name not used in the district (Mouse-ear) to avoid a trinomial seems absurd. And altering the form to parallel the scientific classification (Marsh-marigold versus Corn Marigold) when there is no grammatical or pronunciation reason is also undesirable.

I am sure that conservation is hindered if it appears to be being run by outsiders forgetful of local people's needs, and too often this impression has been given in Scotland. Ease of indexing is desirable, but more important is not alienating farmers, landowners and countryside users.

I hope I do not seem perverse. I feel the Working Party were given a difficult task and that if their names were intended to be mandatory rather than recommended then wider consultation was required. But this takes time, time that would probably be better spent studying the flora.

DAVID WELCH, East Fernbank, Woodside Road, BANCHORY, Kincardineshire AB31 3XL

ENGLISH NAMES OF WILD FLOWERS - A REPLY (3)

The authors of the proposed new edition of the BSBI's *English Names of Wild Flowers* have pointed out that three recent checklists and floras have 'taken little, if any, notice of *English Names*' (*BSBI News* **63**, pp. 43-44). It seems likely that authors are ignoring *English Names* because it doesn't provide them with what they want. If so, revision of the book to suit the needs of the users is likely to be much more effective in encouraging its use than any amount of exhortation in *News*.

I can't speak for the authors of floras, but I can explain why I have always disliked *English Names*. I must admit to an initial unease about the whole concept of a standard set of names. Scientific names provide an international standard. The wonderful thing about English names is their sheer variety. I didn't welcome the idea of being told which English name to use. I'm sure that a book of English names might have won me over to the concept of a standard name for use in floras. However, the current one doesn't! I think that it was an error to have a binomial system with English generic, subgeneric and specific names. There's absolutely no necessity for this. The only need is for one English name to be unambiguously linked to one scientific name. No harm would be done if *Epilobium hirsutum* was 'Codlins and Cream' and *E. palustre* 'Marsh Willow-herb'. In any event, the exceptions to English genera are numerous: 'Oxlip', 'Cowslip' and 'Primrose' in *Primula*, for example, and even within a species the yellow-flowered variant of *Carpobrotus edulis* is 'Hottentot-fig' whereas the purple-flowered plants are 'Sally-my-handsome' (intermediates would appear to lack a name).

The worst feature of *English Names* - the plethora of hyphens - derives from the binomial system. This feature of the book seems to attract almost universal disapproval. It can't be a coincidence that the name cited by the authors of *English Names* as ignored in all three floras/checklists, Common Bird's-foot-trefoil, has an apostrophe and two hyphens whereas none of the names which were actually used in these books require so much punctuation. The binomial system has also perpetuated the literal translation of specific epithets or former epithets, which results in such horrors as 'Alternate-leaved Golden-saxifrage', 'Various-leaved Pondweed' and 'Six-stamened Waterwort'. What a contrast these are to the wonderful names coined for plants by J.R.R. Tolkein in *Lord of the Rings*. I often think it's a pity that the first edition of *English Names* wasn't written by Dony, Perring and Tolkein! Finally, one trivial but annoying feature of the binomial system is the abbreviation of the English genus, resulting in the ugly lists containing 'Least B.' or 'Bog P.'.

I shall reluctantly continue to use *English Names* as I am expected to do so by bodies such as ITE and JNCC. If I had the freedom of most flora writers I would not use the official names. I hope that before they prepare ed. 3 the authors will canvass the opinion of potential users, and revise the book accordingly. Let's find out why authors don't use *English Names*, then try to devise something which we are all at least reasonably happy to use.

C.D. PRESTON, ITE, Monks Wood, Abbots Ripton, HUNTINGDON, Cambridgeshire PE17 2LS

MORE *OROBANCHE* RAISED FROM SEED

In the December 1992 issue of *BSBI News* I reported growing and flowering *Orobanche purpurea* Jacq. from seed in a seed tray. Following the flower spike production the host, *Achillea millefolium* looked pale and not very vigorous so I potted the whole tray of *O. purpurea*, *Achillea* and compost into a larger seed tray with additional Chempak potting compost and kept the tray outside.

The *O. purpurea* set seed which was harvested and sown at intervals onto new *Achillea* in seed trays outside and into plots of grassland with *Achillea*. One tray has already produced an *Orobanche* flower spike from seed sown at the end of August last year. Additionally, some seed from the original flowering has self sown into a nearby *Achillea* plant and flowered.

This year, 1993, there are 13 flower spikes of *O. purpurea* in the repotted tray. They are not as vigorous as last years 7 spikes and the *Achillea* does not look very healthy at all.

I have also discovered that to flower *O. purpurea*, in addition to seed, one needs patience: I made two other sowings in October 1990 of seed from Maryport. One of these was into *Achillea* in long grass in a track verge in the botanic garden at Newcastle. This has produced a clump of 3 flower spikes this year.

The other sowing was around *Achillea* plants in a dense *Festuca* turf which had been lifted and put into a deep tray. This has produced 2 flower spikes. These two sowings have taken three years to produce flower spikes.

In March 1992 I gathered seed from Maryport and at the end of June 1992 I sowed this onto *Achillea* in Chempak potting compost in a plastic seed tray. This sowing has produced 19 large flower spikes. Again the *Achillea* in that tray is yellowish and has only one flower head whereas the *Achillea* in trays which have not yet produced *O. purpurea* spikes is green and flowering. The seed of *O. purpurea* is then still viable in the dead flower spikes until the following March and remains viable until the end of June at least.

I now know a few more things about *O. purpurea*.

1. The flower spikes can first appear up to three years from the seed being sown, perhaps longer or they can take as little as 10 months from sowing to flowering.
2. The flower spikes will come up in dense grass or in long grass.
3. The seed is viable for a year at least. It may benefit from a winter chilling in the persistent seed heads.
4. As would be expected it severely debilitates its host.

In field monitoring this Easter I plotted the position of every dead 1992 *O. purpurea* flower spike at one of the sites at Maryport and compared these with the plot of the 1991 flower spikes made by Eric Martin who lives in Maryport. The spikes occurred in greater numbers but in the same position as Mr Martin had plotted them. Frequently I found the previous years dead spikes in the grass and moss at the base of the current dead spike. There were very few spikes found in locations other than those where spikes had been found the previous year.

This indicates that there is little spread from seed. Even if the seed took several years to produce flower spikes, some new locations should be observed each year.

It seems probable that a decline in the population of *O. purpurea* is due to a decline in the *Achillea*. Once the parasite has declined the *Achillea* population can again build up. If *O. purpurea* is still present in the area as plants or seed its population will then begin to build up again. This would cause cyclical expansion and decline in *O. purpurea* populations. The persistence of seed as a seed bank in the soil is as yet unknown.

Out of interest, to see whether other *Orobanche* species could also be grown from seed, I sowed *Orobanche reticulata* seed, obtained from Uppsala University onto the roots of tomato plants - the only host I had in January 1993. This sowing produced 5 flower spikes in one of the four pots in June 1993.

ANNE T. PICKERING, Department of Biological and Nutritional Sciences, University of Newcastle upon Tyne, NE1 7RU

BEATRICE SALKELD (1925-1993)
botanist and artist

Beatrice Salkeld (Mrs Brendan Behan) died at her home in Ballsbridge, Dublin on 9 March 1993.

By training and inclination Beatrice was an artist. She was educated at the Loretto Convent, St Stephen's Green, Dublin and spent a period at the National College of Art, Kildare Street. She entered the Civil Service in the late 1940s and was employed in a clerical post in the Office of Public Works where she issued pay cheques to lock-keepers on the inland waterway system. She recalled a cheque issued regularly to, - the keeper of the Rooskey Sluices in Co. Roscommon. Some years later a post arose in the Botany Section, Natural History Division of the National Museum of Ireland. She was a successful applicant for the post of Technical Assistant.

The duties in the Botany Section involved the drying, mounting, labelling and incorporating of plant specimens collected in the wild. Beatrice sometimes engaged in field work in conjunction with the Dublin Naturalist's Field Club of which she was a member since school-days. She often worked in the Zoological Section and helped to arrange special Exhibitions. One is especially remembered - Early Irish publications on botany. She was engaged in mounting arrears material - collections made in India and other regions in the last century. Specimens collected by Beatrice Salkeld from counties,

Westmeath, Wicklow, Dublin and Donegal are in the National Herbarium (DBN). She was most active in 1953-1954.

Beatrice resigned her post on marriage to Brendan Behan, poet and playwright but her interest in plants continued. When on holidays she collected specimens and sent them to the Herbarium. In the mid-1950s species collected about Gort na gCapaill, Aran Islands (H9) proved of interest to David Webb when he compiled a list of Aran plants in 1980.

Beatrice Salkeld was a painter in oils, chiefly landscape but sometimes portraits. She exhibited at the Royal Hibernian Academy and at the Oireachtais Exhibition. She travelled much in Italy in the interest of art. Trees featured in her landscapes and occasionally flowers but she made no detailed plant studies, no plant portraits, as part of her work in the Museum.

It is necessary to correct a statement made by Joan Littlewood in *The Guardian*, 3 April 1993. There it was stated that Beatrice "painted grasses, leaves and flowers with an accuracy which would have graced the pages of a Linnaeus botany". This is not so. There is no art work by Beatrice Behan in the National Herbarium at Glasnevin.

Beatrice Salkeld was an excellent Technical Assistant, with a great interest in plants. She was good too at garden plants. She did not own a car and did not drive.

She is survived by two children, Blanaid and Paudge.

MAURA SCANNELL, DUBLIN 4.

A CURE FROM SIR HANS SLOANE (1660-1753)

Sir Hans Sloane was a medical doctor. He was from Killyleagh, Co. Down. He prescribed for Lady Fermanagh the following treatment for what was probably influenza or a chill (undated):

> Sir, -I just now received your letter and am sorry that I cannot comply with your desire in coming to my Lady Fermanagh presently, but a hoarseness and cough hinders me from being able to venture so late upon any account whatsoever. It is very plain that my Lady should be immediately bled at the arm, to about nine ounces, and two hours after if her lightheadednesse continue, she should be blistered. If the colic pains remain ... she ought to take 20 drops of laudanum. She may drink some Bath waters and wines of Portugall or Madera for her ordinary drink and a Lambiteve of Syrup of Marshmallows and Oil of Sweet Almonds should be made for her to take a spoonful every six hours, drinking after it a draught of Bath Waters. These are all the things that I foresee necessary and if my Lady's circumstances require it, I will be with my Lady as soon as I can in the morning provided I know it by eight o'clock. I am your most obedient and most humble servant,
>
> HANS SLOANE

The source of the above information is given as,

Margaret, Lady Verney (ed.). *Verney letters of the eighteenth century from MSS. at Claydon House*. (Benn. 1930)

and is included in the book.

Harrison, M. & Wells, A.A. (1961). *Picture Source book for Social History, eighteenth century*. London. Allen & Unwin. pp. 129-130.

MAURA J.P. SCANNELL, DUBLIN 4

THANK YOU

When I was Field Meeting Secretary, a frequent complaint from meeting leaders was that of members who booked for meetings and then, without apology, failed to attend.

I must therefore say thank you to those members who booked for the meeting in Monk's Dale, Derbyshire on May 22nd; of the 26 who booked, 23 attended and the other 3 gave their apologies well in advance of the day. This all helped towards a very enjoyable day.

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CHAMOMILE - *CHAMAEMELUM NOBILE*

I would like to thank everyone who has kindly sent in records for the Chamomile distribution study (*BSBI News* **63**, April 1993). The study has unfortunately confirmed a number of presumed extinctions in many vice-counties.

Field studies have been undertaken in southern England, revealing that some commons and coastal heaths, whilst herb-rich, no longer support chamomile. The cessation of grazing is the primary reason for chamomile decline. However it appears that chamomile persists on cricket pitches and sports fields where the weekly mowing and rolling routine mimics the traditional grazing practices of old heaths and village greens. It is hoped the final report will be accepted for publication.

HEATHER R. WINSHIP, The Hampshire Wildlife Trust, 71 The Hundred, ROMSEY, Hampshire SO51 8BZ

THOUGHTS ON MISTLETOE

As a new member of the BSBI and a gardener at the University of Exeter, I wonder if the following information on mistletoe hosts will be of interest.

Over the last few years I have recorded it on a number of different host plants at Exeter:

Robinia pseudoacacia (False-acacia), *Juglans regia* (Walnut), *Sorbus aucuparia* group (Rowan), *Salix alba* group (White Willow), *Populus* sp. (Balsam-poplar group), *Crataegus monogyna* (Hawthorn), *Malus* cultivars (Apple)

All single plants only except on the *Malus*.

At the Somerset College of Horticulture I have seen it on a large leaved *Cotoneaster*.

DAVID CANN, Halbury, Morchard Road, COPPLESTONE, Devon

ALIENS

ALIEN NEWS

FOREIGNERS IN OUR MIDST

corrections added

Eyebrows usually raise when I reveal to interested newcomers to our subject that London probably turns over more wild species per annum then any other British city or indeed county. They wonder how maximal plant diversity can correlate with maximal human activity. But it does, of course. And from this hotbed of botanical intrigue, I again reflect upon the observations of recent months and choose particular items to write about.

Single examples of Dandelions matching or closely resembling *Taraxacum pectinatiforme* occur sporadically in our city. Presumed alien, they are distinctive by virtue of leaf lobes narrowing into "many long, very narrow linear processes" (Richards 1972); these give the plants a gracefully slender and ragged outline quite unlike our common members of section *Ruderalia*. Many of our 'common members' could be alien as well. They comprise the largest flowered, most conspicuous and most abundant representatives of the genus, they characteristically flourish in disturbed and urbanised habitats and they defy specific identification. One roadside form with dark-bordered interlobes seems reasonably constant from place to place. Others grow huge and lettuce-like in the enriched soil of allotments and rubbish heaps. Others again prefer compact clayey soils and produce regularly back-curved leaf lobes, these are most likely native and may justify separation into section *Hamata*. For over thirty years, I have gazed ambivalently at our springtime panoramas of beautiful golden yellow, as flummoxed by their taxonomy as by the paradox that they attract countless insects to effect self-pollination. Do I chose publicly to worry about unknowable Latin labels, or do I choose privately

to enjoy quests for unusual-looking patterns to create artistic herbarium sheets with? The latter, I think, more deeply touches the heart.

Two yellow-flowered crucifers deserve highlighting. Each is new to L.B. Hackney, each is a second record for v.c. 21 and each astounded me while strolling innocently through residential streets which, on the face of it, could scarcely have looked more boring. *Sisymbrium irio* even presented itself on a miserable November morning, comprising over a hundred specimens (stunted plants and seedlings) on a pavement in Hawksley Road, Stoke Newington. However casual may occurrences of this genuine London Rocket be elsewhere - and indeed its future here is as precarious as could be imagined - there is no denying the tenacity of our single classic location around the old London Wall near Tower Bridge where I first made pilgrimage to see it in the tri-centenery year of 1966.

The other yellow crucifer is *Rorippa* × *armoracioides*, a notably drought-resistant cross between *R. sylvestris* and *R. austriaca*, which I first discovered as new to Great Britain by Walthamstow Reservoirs, Essex, in 1971 (Jonsell 1968, Rich 1991; also Stace 1991 where it is incorrectly given native status). Its identity was confirmed in 1975 (Jonsell, pers. comm.) and it was suggested that introduction by seed was quite possible since Scandinavian examples show partial fertility. In the late seventies, Thames Water erected a protective fence around the main colony which then, deprived of a mowing regime, almost entirely succumbed to the vigour of native vegetation. Later, in the early eighties, Thames Water constructed a huge tunnel main on the same ground instead; this upheaval spread propagules of the hybrid cress over a wider area, more than doubling the original population. Today, in the early nineties, it continues to survive in more modest quantity, despite being heavily overgrazed by Canada Geese. [A drawing by Brian appears on the front cover. Ed.].

In June 1991, David Bevan found a sturdy patch of this plant topping freshly excavated earth by the new North-South Route on the opposite (Middlesex) side of the River Lea in Tottenham. It lasted but one season until roadside landscaping was completed. In April 1993, I found another colony forming vigorous stands and pavement weeds around gardens on a newly built housing estate next to North Millfields open space, Clapton; this is the old Latham's timber-yard site, roughly a mile south of both the Tottenham and Walthamstow stations. Thus *R.* × *armoracioides* now assumes ecological significance within a broad section of the southern Lea Valley Region.

Our alien Solanaceae could fill pages of text, so rich is their potential for ecological discussion, taxonomic argument, culinary adventure and sheer black humour. The "Black" aspect relates not least to the almost cosmopolitan *Solanum nigrum* aggregate whose morphological variations are as controversial as their gastronomic attributes. No more informative or entertaining discourse on these weeds and "Wonderberries"(!) exists than Heiser 1969 and 1987. I warmly recommend it.

In September 1992, Gordon Hanson escorted me to a sewage dump near Rye House, Herts, where, for many years in succession, he has known prolific displays of Solanaceae, including *Datura stramonium* var. *tatula*, *Nicandra physalodes*, *Physalis peruviana* and *P. philadelphicus* amidst literally hundreds of thousands of tomato plants. The two *Physalis* species were in exceptionally fine fettle last autumn, and I've since seen the cherry-like berries of the former one sold expensively in supermarkets under the label "Physallis" (sic). Pick of the bunch at Rye House, however, were two robust examples of *Solanum scabrum*, the Garden Huckleberry, (not to be confused with those North American species of *Gaylussacia* and *Vaccinium* whose fruits may loosely be called "huckleberries"). An upright, large-fruited relative of *S. nigrum*, this novelty was formerly called *S. guineense* and may have been honoured only with one or two Kentish records prior to last year (John R. Palmer, pers. comm.). General stature apart, it may best be distinguished from *S. nigrum* by having pale chocolate brown (not yellow) anthers.

Two other alien Solanaceae continue to increase their naturalised ranges in London. The glandular *S. nigrum* ssp. *schultesii* from southern Europe (not described by Heiser) is now so frequent in central, north-east and south-east London as not to merit individual records any more (does it introgress with native ssp *nigrum*, I ask myself?). *S. chenopodioides*, first recorded by John R. Palmer in L.B. Southwark, now ranges sporadically between Potter's Field, Bermondsey and Russia Dock Woodland, Rotherhithe. And, although slightly off the subject, I can't resist the pleasure of inserting here that a strikingly variegated *S. dulcamara* with the outer two thirds of each leaf-blade cream, has spontaneously reappeared in Abney Park Cemetery, L.B. Hackney, ten years after the original example of this unique variety materialised, only to survive one season.

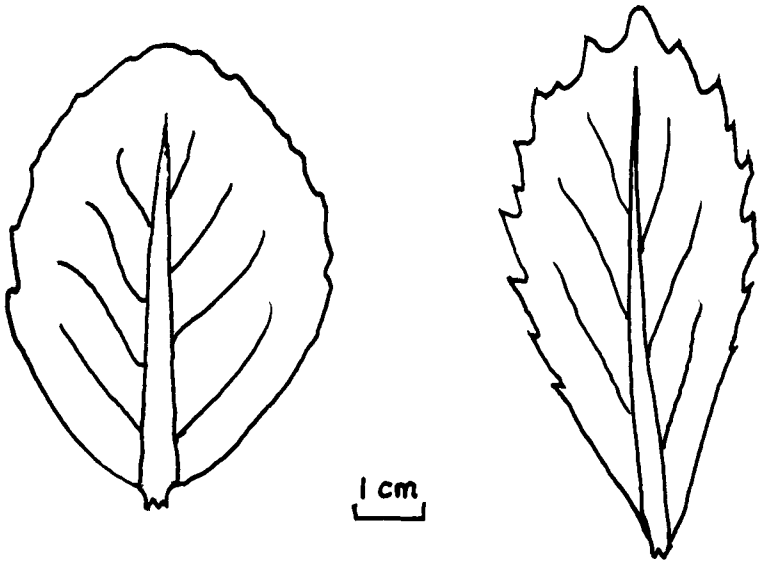
Still true to family, chewed remains of the slenderly tubular lemon yellow form of *Capsicum annuum* frequently litter urban pavements, especially where residents of ethnic origin are highly concentrated; seeds spilt from these discarded fruits continually germinate between flagstones and kerbs lasting but a month or two at most. *Atropa belladonna* persists and self-sows, with uncompromising defiance, in the grounds of Tottenham hospitals, churchyards and council housing estates. So prolific

were seductively fruiting specimens around one such estate in 1972, again where residents of ethnic origin were highly concentrated, that I informed upon them by visiting the nearest police station to advise that they present a serious danger in an area where few people are like to know what they are. I returned to the site a week later to find that our worthy guardians of the law had correctly identified and thoroughly removed the unfortunate offenders. A month later, the disturbed ground was covered by *Conium maculatum* seedlings instead, so nature still had the last laugh. And twenty years later the Deadly Nightshades are keeping them company once more ... but a London record of *Cyphomandra betacea* must surely cap all.

This remarkable arborescent *Solanum* relative hails from highland Ecuador and neighbouring countries where it is much grown and its fruit widely marketed; it is little cultivated elsewhere except as a greenhouse ornamental (Heiser 1969, 1987). The spontaneous appearance of a plant in L.B. Sutton was reported to me last January by Rodney Burton, and I quote from his letter which refers, in turn, to John Archer's draft text for a London Ecology Unit handbook. The Tree Tomato, *Cyphomandra betacea*, is "a solanaceous crop from the Andes of Colombia found at Beddington Sewage Farm in September 1989 by Mike Prime. It is very distinctive and tall with huge, hairy heart-shaped leaves. The specimen he found at Beddington was in flower and about five feet tall. I don't think this had been recorded before, although we may have seen seedlings of it on tips a long time ago and not known what they were."

It is the turn of other families to be discussed now. *Sedum spectabile* should be recorded with caution. The true species bears leaves sparsely and shallowly toothed, rounded at their base and with conspicuously concave laminae. Similarly robust plants bearing leaves more deeply and regularly toothed with cuneate bases and almost flat laminae are referable to *Sedum* 'Autumn Joy' (=S. 'Herbstfreude'), a probable and convincing-looking hybrid between *S. spectabile* and *S. telephium* (Wright 1984). Some 20% of cultivated populations answer to this description in North London parks and gardens, and they will occur correspondingly frequently as outcasts.

Middle cauline leaves of *Sedum*



Sedum spectabile *Sedum* 'Autumn Joy'

Del. Brian Wurzell, © 1993

Our mixed teasel colony at Parkland Walk Extension (*BSBI News* **62** & **63**) has increased its numbers and extended its area this year, comprising *c.* 40 *D. laciniatus* and *c.*20 *D. fullonum*. The former species shows extraordinarily variable leaf-shapes, but no speculations about new-to-science hybrids will carry weight until they flower in July/August. Readers wishing to admire these dramatic and much-publicised plants *in situ* should cross Stroud Green Road from Finsbury Park tube, British Rail or bus station and enter Parkland Walk by the footpath next to the railway bridge. The steep earth slopes hereabouts are now so rampantly overgrown that there would no longer be any way of ascertaining whether the solitary *Cornus nuttallii* struggling in the middle of it all were planted or not - but I know that it was.

Small urban public gardens are always promising hunting grounds. In St James's Gardens, between Hampstead Road and Euston station, I found planted and established thickets of *Mahonia pinnata* × *M. aquifolium* (= *M.* × *wagneri*), a taxon differing markedly from the latter parent with its paler green, more crisped foliage which mostly bears leaflets down to the base of the petiole. (Why, I muse, has no-one yet found seedlings of the abundantly fruiting *M. japonica*?). Amongst these were plentiful *Sisymbrium officinale* var. *leiocarpum* (with spreading, glabrous fruits) and from a concrete crevice nearby sprouted a self-sown *Fatsia japonica* seedling 15cm tall. Even more remunerative was a long derelict council nursery at Friern Barnet last autumn, where *Cyrtomium falcatum*, the House Holly-fern, *Adiantum* species and *Pteris cretica* had thoroughly naturalised themselves on old, sheltered broken walls (the latter species was also noted low on a house wall in Gough Square, near Chancery Lane tube station). Together with these ferns there were many *Trachelium caeruleum*, *Cyperus alternifolius* and masses of sprawling, self-seeding *Eccremocarpus scaber*, a hardy Chilean climber in the Trumpet-Vine family Bignoniaceae.

South Tottenham back streets are closest to home and are correspondingly most often monitored. The *Tradescantia virginiana* (× *ohiensis*?) Spiderworts known for two years on pavement edges in Norfolk Avenue continue to break vigorous shoots from the base despite constant trampling and herbiciding. In Wargrave Avenue, planted *Jasminum officinale* produces a heavy crop of black berries each winter, and self-sown seedlings to 10cm tall are now plentiful both in neighbouring gardens and at wall bases outside. Turning to some of our local trees, *Acer palmatum* seedlings were noted beneath mature specimens, during April only, in Springfield Park, L.B. Hackney; having tuned my eye into these, I went on to detect similar short-lived regenerations widely in central London (Kensington Gardens, Westbourne Park, Islington), so clearly the reproductiveness of Japanese Maples in Britain has been under-observed. Two seedlings of *Fagus sylvatica* intermediate in colour between typical green and the Copper Beech were detected in woodland at Alexandra Park near Wood Green, although I have not yet seen any of the incised or fern-leaved Beeches produce seedlings true to variety. There is actually a school of thought that *Fagus sylvatica* is not native in England anyway, based partly on absence of post-glacial fossil pollen until it was too late for heavy beech mast to cross the Channel unaided. Finally with trees, staff at Friern Hospital (formerly Colney Hatch) assured me in October that their magnificent *Cedrus atlantica* self-sows in surrounding grass, with specimens usually dug up for people's gardens. Unbelieving at first, I was inclined to assume that any juvenile conifer in the vicinity would come from *Chamaecyparis lawsoniana*, but closer investigation revealed two stout seedlings 20cm tall which were undoubtedly Cedars. A similar tree again in Springfield Park was observed shedding viable seeds in May, a few of which were beginning to sprout in the lawn before perishing from drought.

A word about native sedges in alien places may be of interest. *Carex divulsa* has occurred on a mown lawn in West Dulwich (L.B. Southwark), *C. remota* on the R. Lea wall at Clapton, *C. sylvatica* in an urban roadside shrubbery also at Clapton, *C. otrubae* on a rubbish dump at New Southgate (L.B. Barnet) and *C. pendula* persists as a garden escape in native-looking woodland niches around Finchley and Highgate. All self-sow as weeds in my own garden, so their adaptability to secondary habitats is well demonstrated. But the most sensational out-of-its-element sedge has got to be *Scirpus maritimus*. During an ecological survey a year ago, I found it thickly fringing the lower lake at Scout Park, Bounds Green (L.B. Haringey), and entirely choking a feeder ditch. The rhizomatous aggressiveness of this brackish dyke pioneer proves quite daunting when transferred to freshwater swamp, and notwithstanding the novelty of seeing it there, I found myself duty-bound to counsel drastic reduction if a wider diversity of inland plants and animals were to be encouraged.

Two rare herbaceous aliens tend to come and go in association with introduced garden plants, and are undoubtedly dispersed with soil of horticultural origin. I am indebted to David Bevan for drawing my attention to *Veronica peregrina* in Broomfield Park, Southgate, where, last year, several dozen examples had sprung up in herbaceous borders and along gravel paths in a rather damp, shady area. My only previous encounter with this species was at Syon Park in 1980, on stony ground next

to the car park outside the butterfly house; with a large nursery only yards away, its mode of introduction was evident enough. The other plant in mind is *Cotula coronopifolia*, a rather familiar ephemeral visitor to the damper parts of university botanic gardens and the subject of other articles coincidentally submitted for this issue (see below and page 43). Additionally I saw it in 1987 and 1989 by the landscaped pond at Gillespie Park, Highbury, and small numbers of obscure origin used to pop in and out of mud bowls on my own roof garden at intervals in the early eighties. It seems that seed can remain viable buried in soil or mud for many years before germinating when the light or disturbance signals are just right. The most recent record which has come to my notice hails from East Sussex where my aunt Mrs Debbie Boder discovered a number of specimens on a gravel footpath in the Meridian Nurseries, Peacehaven. They were already flowering by late May 1993.

Meanwhile, if anyone wants the distinction of adding another new species - even another new family - to the British alien list, try naturalising *Houttuynia cordata* (Saururaceae) in shady scrub or woodland gardens. If its performance in my own tiny back yard is anything to go by, it will romp away forever. You may then emulate part of a traditional Vietnamese diet by consuming cautious quantities of its foliage under a name I shall not attempt to reproduce.

And last but not least, may I again remind readers that what you get depends on how you ask for it. Rules are rules (*BSBI News* **57**) and any requests for identification **MUST** be accompanied by an adequate specimen and an adequate s.a.e. To the person who sent me a three-page description of a North American Hawthorn and nothing else, I can only say ... whew ... please try again. See you all at the Annual Exhibition Meeting, in Reading don't forget!!

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COTULA CORONOPIFOLIA ESTABLISHED IN YORKSHIRE

Clive Stace's *New Flora of the British Isles* (p. 869) suggests that *Cotula coronopifolia* L. (Buttonweed) is only naturalised in the vice-counties of Cheshire and W. Cork. This article presents the evidence for adding SW Yorks to this list.

First found at Newton Ings v.c. 63 (SW Yorks) in 1959, the adventive *Cotula coronopifolia* is now an established part of the flora of the lower Aire valley in Yorkshire. Subsequently recorded from Mickletown Flash v.c. 63 in 1960, the species has continued to spread, if somewhat slowly along the marshlands in these two areas.

Distribution

The Yorkshire sites for *Cotula coronopifolia* all appear to be in the lower valley of the River Aire, East of Leeds, between the villages of Mickletown (SE 40 28) and Fairburn (SE 47 28). All the sites are the result of mining subsidence with subsequent flooding of previously drained marshland. Three main areas are known:

R.S.P.B. Fairburn Ings Nature Reserve
Mickletown Ings
Hickson's Flash

Newton Ings is now part of the R.S.P.B. nature reserve at Fairburn Ings. From Newton the species has spread to establish colonies by most of the water bodies on the reserve.

Mickletown Flash is now largely covered by colliery spoil, but the plant has spread to a limited area of the adjacent Mickletown Ings.

Hickson's Flash lies just west of the Fairburn reserve. It was found here in 1992 by Geoffrey Wilmore. This is a recent flash and I understand the habitat is similar to the other sites.

Habitat

This is a species of open wet mud exposed by receding water levels in summer. These areas are often winter-flooded, sometimes to a depth of a few feet. At Fairburn the mud is often but not always of a sandy nature. *Cotula coronopifolia* does best in areas which are freshly exposed each year as bare substrate. It seems to be soon crowded out by other colonists in areas where water levels are stable and more permanent plant populations have become established. One of the main areas at Fairburn is a meadow edge where grazing stock help retain the open nature of the shore.

Other plant species which occupy this open habitat include:

Schoenoplectus tabernaemontani, *Eleocharis palustris*, *Agrostis stolonifera*, *Juncus effusus*, *J. inflexus*, *J. acutiflorus*, *Carex elata*, *Myosotis scorpioides*, *Ranunculus sceleratus* - these are all present at one of the newer areas at Fairburn. At Mickletown *Juncus gerardii* is also present.

Status

Cotula coronopifolia is well established at its Aire valley sites and has been so for at least 30 years. It is slowly increasing, as evidenced by the spread to the new flashes at the western end of the Fairburn reserve and the nearby Hickson's Flash, where there was a 'good population' in 1992.

The plant usually occupies many yards of shoreline around Village Bay at Fairburn in late summer and early autumn. At Mickletown it is less extensive, but here the water levels are more stable. It could be that winter-flooding effects the area of shore available for *Cotula* the following year.

Chronological Summary of Yorkshire records

1959	Newton Ings, Fairburn, v.c. 63	J Morley per F. Murgatroyd
1960	Mickletown Flash, v.c. 63	Mrs W.E. Grainger
1965	Lawn weed, Langdale End, v.c. 62	A. Wallis
1975	Fairburn Ings, v.c. 63	C.A. Howes
1992	Hickson's Flash, v c. 63	G. Wilmore

The word 'Ings' as used on O.S. maps strictly means water meadows subject to winter-flooding, but it has come to be applied also to the floodwater or 'flashes' which form on them, often as a result of subsidence.

Acknowledgements

1) Y.N.U. Records supplied by Eric Chicken (Aliens Recorder).
2) Details concerning Fairburn Ings supplied by Robin Horner - Warden R.S.P.B. quoting 'Botanical Survey of R.S.P.B. Fairburn Ings Nature Reserve', 1988 [unpublished].
3) Information concerning the finds at Hickson's Flash was supplied by Geoffrey Wilmore, Ecological Advisory Service.
4) E.J. Clement, for encouraging me to write this short note.

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BUTTONWEED (*COTULA CORONOPIFOLIA* L.), NEW TO S. HANTS (v.c. 11)

On 14 August 1991 Mr D.P.J. Smith stumbled across a small colony (34 plants, in two main clusters) on sandy shingle forming the driftline of a tidal harbour on the north coast of The Solent in S. Hants. The precise locality is withheld, *pro tempore*, as the colony is fragile and this appears to be almost the only locality for this plant in southern England. Indeed, the next year only 11 plants reappeared and

these were nearly all exterminated by human disturbance; later a new group of 15 were discovered nearby. The natural hazards encountered by this species establishing itself in NW Europe are vividly detailed in *Acta Oecologica* **3**: 409-418 (1982) - see *BSBI Abstracts* **13**:29.

Mr R.P. Bowman tells me that this species has never been recorded before for S. Hants (v.c. 11); in N. Hants (v.c. 12), however, it has occurred as a wool alien on two or more occasions at Blackmoor (e.g. collected by T.B. Ryves, 1970, **Herb. E.J. Clement**).

The S. Hants habitat is not unlike many other coastal spots around England. The associated species were largely annuals that revel in muddy places, comprising *Atriplex littoralis*, *A. prostrata*, *Beta vulgaris* subsp. *maritima*, *Elymus pycnanthus*, *Hordeum murinum*, *Juncus bufonius*, *Poa annua*, *Polypogon monspeliensis*, *Puccinellia maritima*, *P. rupestris*, *Ranunculus sardous*, *R. sceleratus*, *Sagina maritima*, *Spergularia marina* and *Suaeda maritima*.

Although there is much shipping and boating traffic within the harbour, the area is also frequented by many ducks, geese, waders and other bird species, and dispersal by avian means seems to be the more likely means of introduction. Surprisingly, this rather curious but weedy, South African composite has also been recorded, elsewhere, as a garden weed or escape, e.g. at Hougne Nicolle, 1978 (*Supplement Wild Flowers Guernsey*, p. 36) and at Dyke, Moray, 1982 (*Watsonia*, **15**: 137).

No description of the plant is presented here, since the one given in *CTM* is adequate, but a few points may be worthy of mention. The S. Hants plants all appear to behave as annuals and do not perennate, presumably disliking our cold winters; the leaf lobes are dark-tipped and pointed; the flower heads always face the sun (unless the stem is damaged); the outer row of female florets are long-stalked, whereas the disc florets are short-stalked. The two different forms of the achenes are well documented, the winged ones probably being more suitable for dispersal by water. In addition, however, the two sides of the achene also have differing adhesive properties, one side being almost smooth. Why do not more species of plants adopt such diverse dispersal strategies? But, the most extraordinary feature of the S. Hants plant, contrary to all literature that I have seen, is that the anthers were NOT united into a tube around the style - they were free, a feature traditionally reserved in the British compositae for *Xanthium* species only. Can any reader comment on this? - several florets were examined by DPJS.

Detailed analytical drawings of this species in the literature are few, so no apology is made for adding another (see page 45). It is based solely on the S. Hants colony. A key to the drawing follows:

A Plant × 1
B Detail of leaf × 2
C Involucre × 3
D Involucral bracts × 10
E Section through rim of flower head, showing long-stalked female marginal flower and short-stalked hermaphrodite disc flowers × 20
F Female marginal floret × 30
f Hermaphrodite disc floret × 30
G Marginal achene × 30
g Disc achene × 30
H Stigma and style of disc floret × 30
h Stamens of disc floret, showing open and closed anthers × 30

This species is undoubtedly spreading in Britain and on the Continent, too, and is worth looking out for in any muddy places, especially in saline areas. On one of Mary Brigg's countless holidays abroad, her party found this species in Corsica, a country not listed in *Flora Europaea* **4**: 177. In its traditional home in Britain, Cheshire, it continues to spread and is now abundant at Frodsham marsh, according to Alan Newton. At present, I am aware of only four other recent records for southern England - they are:

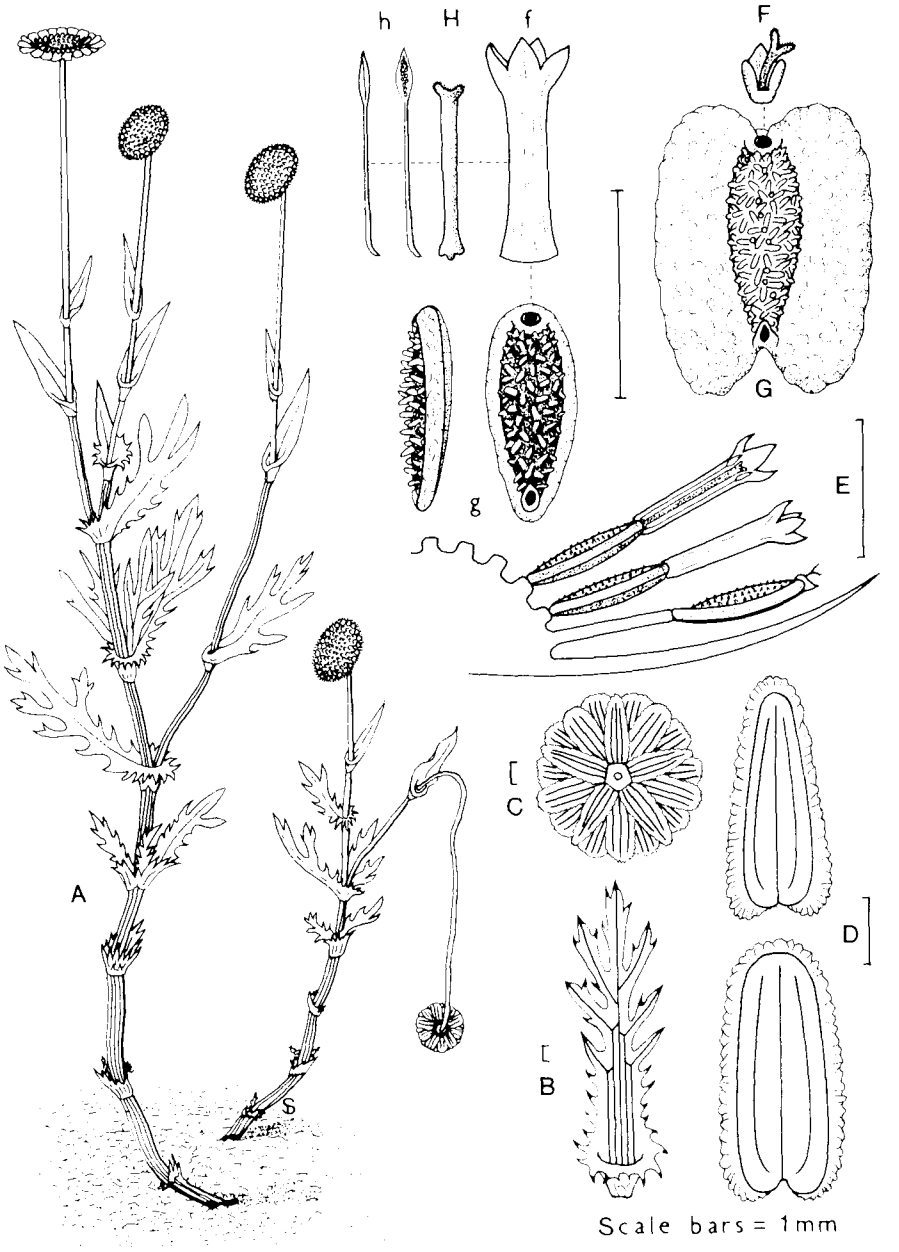
v.c. 3, S. Devon: Woodbury. One small patch in 1980; first found here in 1954. *Rep. Trans. Devon. Ass. Advmt Sci.*, **113**: 166 (1981).

v.c. 18, S. Essex: Stanford [-le-Hope] Warren, 1991. *Wild Flower Mag.*, **422**: 21 (1991).

v.c. 22, Berks: Owlsmoor Bog, Sandhurst, 1988. *Reading Nat.*, **41**: 27 (1989).

v.c. 39, Staffs: Stafford, 1989. *Watsonia*, **18**: 224 (1990).

A small voucher specimen has been deposited in **Herb. R.P. Bowman**. It will be interesting to monitor the progress of this species in Hampshire



Cotula coronopifolia L. del. D.P.J. Smith © 1993

I am much indebted to Delf Smith for not only supplying most of the information contained herein, but also for the very professional drawing that accompanies it.

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ST ANDREWS AND ITS LINKS WITH ALIENS

> 'As with the game of golf, the Old Course remains both enchanting and maddening ... among the coverts of gorse there are traps for the unwary golfer in the tall spiky marram and sea lyme grasses ... But as he waits to play through, the golfer can enjoy the wide variety of plants - from the blue fleabane to the harefoot [sic] clover - ... and visitors can admire the yellow flowering tree lupin.' (1)

Although a Fifer born and pretty well bred, I'm not a golfer, so that until recently I'd not really visited St Andrews much, and seldom for botanical purposes. As part of my ongoing recording, during 1992 I decided to pay particular attention to the 10km square that embraces St Andrews and area. On my second trip, in May, I visited the West Sands - the links that comprises the golf courses - and was amazed to find that the tree lupin mentioned above (*Lupinus arboreus*) in fact outshone the whins on some of the dunes and the rough. Not only that, there were clumps of the most incongruous species accompanying the tree lupin, including its relative *Lupinus polyphyllus*, soapwort (*Saponaria officinalis*), horse radish (*Armoracia rusticana*), winter heliotrope (*Petasites fragrans*) and mountain bluet (*Centaurea montana*) while nearby, in a yard, were several unusual weeds, among them flixweed (*Descurania sophia*), mignonette (*Reseda lutea*), eastern rocket (*Sisymbrium orientale*) and much spring beauty (*Claytonia perfoliata*) (which proved to be all over St Andrews).

I was bemused at first to find these alien plants, until I remembered that for many years the West Sands had housed the local coup (refuse tip). I realised that this must be the source of these species and this was confirmed by reference to *Watsonia* and several records made in 1960 by the late Betty Beattie (as indefatigable in her pursuit of 'foreigners' as Mary McCallum Webster was), including tree lupin. This had actually been recorded as far back as 1936, when it was described as being 'well established and covering some acres between the links and the sea' (2). The coup was filled in during 1986 and the area landscaped but obviously over the years many plants had found their way out and established themselves. Subsequent visits yielded sweet william (*Dianthus barbatus*), red hot poker (*Kniphofia* sp.), oriental poppy (*Papaver orientale*), several patches of Michaelmas daisy (*Aster* spp.) and an *Iris*; despite Stace, I could not make much of the last two. All looked quite out of place but nevertheless quite happy. Elsewhere, on made-up soil, occurred drooping brome (*Bromus tectorum*) and white mignonette (*Reseda alba*) while another site produced musk thistle (*Carduus nutans*), unlikely to be native.

Some years earlier, I'd visited the Lade Braes, a den leading into St Andrews from the west. It was soon obvious that there were many aliens present, some quite naturalised. Enquiry revealed that the area had been planted up early in the 20th century and that further species had been introduced after the second world war. Visits in 1992 confirmed that there were indeed a variety of unusual and uncommon species. I'd been told there were three *Allium* species present: broad-leaved garlic (*A. ursinum*) (native), few-flowered garlic (*A. paradoxum*) (now a weed in several parts of v.c. 85) and three-cornered garlic (*A. triquetrum*). I was disinclined to believe the last as apparently it had not been seen in Scotland before, but sure enough a search revealed a small but thriving colony. I verified too a report that nettle-leaved bellflower (*Campanula trachelium*) was well established: the floras say that this occurs north to Fife, but this was the first time I'd seen it, and obviously an introduction.

There were also good spring colonies of winter aconite (*Eranthis hyemalis*), snowdrop (*Galanthus nivalis*), blue anemone, squill, periwinkle, a *Chionodoxa* and various species of *Narcissus*; and, later, mountain valerian (*Valeriana pyrenaica*), a few drooping sedges (*Carex pendula*) and an umbrella plant (*Peltiphyllum peltatum*), accompanied by two of the three large Polygonums, *Fallopia japonica* (Japanese knotweed) and *F. sachalinense* (Giant knotweed). Rather unexpectedly, loganberry (*Rubus loganobaccus*) was discovered near the burn. Until recently, I would have been at a loss to know which of these many plants to include as now being part of the local flora (some being markedly less at home than others) - but Stace's *New Flora* has made the decision much easier as all are mentioned! Lest it be thought that there were nothing but introductions, among native 'goodies'

were water figwort (*Scrophularia umbrosa*) and wood stitchwort (*Stellaria nemorum*) along with, in the vicinity, moschatel (*Adoxa moschatellina*) and meadow saxifrage (*Saxifraga granulata*).

Back in St Andrews itself, an early June visit produced another crop of established introductions. The grounds of St Mary's College confirmed that slender speedwell (*Veronica filiformis*) still flourished on the lawn where it had been first detected in 1935. Accompanying it, more recent invaders were yellow sorrel (*Oxalis corniculata*), mind-your-own-business (*Soleirolia soleirolii*) and least trefoil (*Trifolium micranthum*), the last probably the first definite record for Fife, older ones almost certainly referring to *T. dubium*. Later, small balsam (*Impatiens parviflora*) was found in a border while nearby water fern (*Azolla filiculoides*) floated on a tiny pool. Adorning walls were red valerian (*Centranthus ruber*), purple toadflax (*Linaria purpurea*), wall lettuce (*Mycelis muralis*) and *Buddleja*. 12 species of bramble were encountered, including robust clumps of the escape Himalayan Giant (*Rubus armeniacus* (*procerus*)); new for the square were *R. dasyphyllus*, *R. elegantispinosus*, *R. laciniatus*, *R. mucronulatus* and *R. tuberculatus*.

In the opening quotation, mention is made of haresfoot clover and blue fleabane. The reference to the latter (*Erigeron acer*) is intriguing; the plant had indeed been found on one part of the links in 1982, in great quantity. However, by the time the book was published in 1989 the species had all but died out and it has now completely disappeared (I think the same thing happened in East Lothian some years ago). On the other hand, the native haresfoot clover (*Trifolium arvense*) was flourishing at the beginning of this century - and probably long before then - and still is: will the tree lupin and the other aliens noted above survive as long, I wonder?

References

(1) Lamont-Brown, R. (1989). *The life and times of St Andrews*. Edinburgh, p.187.
(2) Cooke, P.H. (1935-37). *Rep. Bot. Exch. Club*, **XI**, p.246.

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MT. ETNA BROOM IN W. KENT

In September 1982 a colony of *Genista aetnensis* (Raf. ex Biv.) DC. was observed near Northfleet. A number of bushes from one up to eight feet high were on rough ground on a roadside where it runs along the side of an old chalk pit, apparently deriving from a planted specimen on the other side of the road. Determination was simple, even in autumn, as the pods have a distinctive downward-curving "tail" (illustration in *Dictionary of Gardening* Vol. II).

In May 1993 the plants were destroyed by the erection of a metal fence to enclose a new industrial site, but since then I have seen further small specimens in the area. Plants flower profusely when only about one foot high which makes them attractive to be taken by the general public.

In chalk scrub nearby are bird-sown specimens of an uncommon black-fruited *Cotoneaster*, *C. ellipticus* (Lindley) Loudon. Although first noticed in the Northfleet area in 1970, it is thought to have been naturalised there for at least 50 years (Bulletin of Kent Field Club No. 24 (Jan. 1979)).

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TRANSLOCATION AND REINSTATEMENT OF PLANT SPECIES

The following papers have been received from three of the speakers at this successful one-day conference, which was organised jointly with the Linnean Society and held at their rooms on 18 March.

Other topics covered were *English Nature's species recovery programme* (by Andrew Deadman); *Some recent developments and activities in plant reintroduction worldwide* (by Peter Wyse-Jackson); *Reintroductions specialist group of the Species Survival Commission (IUCN)* draft guidelines (by Michael Maunder).

VICKY MORGAN, Secretary Conservation Committee

REINSTATEMENT OF RARE PLANTS AT BEN LAWERS NNR

Abstract

Monitoring of Red Data Book and other rare species since 1980 has confirmed decline of some populations, and resulted in predictions of probable extinctions within the NNR. To comply with agreed management objectives to maintain both populations of rare species, and species and community diversity, a programme of reinstatement of selected species was established in 1990. Because of the constraint of heavy sheep grazing, reinstatement of montane shrubs is restricted to two sites protected by exclosure fences. Species planted during 1991 and 1992 include *Salix lapponum*, *S. myrsinifolia*, *S. arbuscula*, *S. repens* and *Juniperus communis*. Additional species for which reinstatement projects are not yet implemented include *Salix lanata* and *Saxifraga rivularis*. A number of species of trees, shrubs and tall herbs are being reinstated within one exclosure to restore an area of submontane woodland. The projects are the result of a management partnership between Scottish Natural Heritage (SNH) and the National Trust for Scotland (NTS).

Introduction

The Reserve. The National Nature Reserve (NNR) covers about 4,000 hectares, is 9 miles/14 kilometres long, and includes 10 mountain peaks over 900 metres in altitude. It was designated by four Nature Reserve Agreements with owners. The National Trust for Scotland owns about three quarters of the area, with the remainder in private ownership. Management involves a partnership between SNH and NTS, with the Trust employing the staff, and the funding for conservation work provided by SNH.

The principal constraint on all conservation work in the Reserve is sheep grazing. Eleven farms hold grazing rights for sheep on the NTS land. The effects of this management, probably including burning in the past, has been to confine many species of plant to ungrazed ledges on cliffs. Another threat to certain plants is that of trampling by walkers, although this is largely confined to the main path systems.

The Flora. Lichens are a major component of the flora. Recent surveys by Oliver Gilbert *et al.* and Alan Fryday have recorded *c.*500 species on the Reserve, of which 25 are known from no other British site. Bryophytes are also distinctive, with several rare species and a Red Data Book list of 22 species. However, no reinstatement projects for lichens or bryophytes are under consideration at present. The vascular plants of the Reserve include 18 Red Data Book species, of which 4 are scheduled. The scheduled species only are included in the NCC Recovery plan (Whitten, 1990). These are asterisked below.

Management and monitoring

The NNR Management Plan includes objectives 'to maintain, and, if possible, increase population sizes of rare species ....', and 'to maintain species and community diversity'. It is these objectives which our reinstatement projects are designed to serve. Decisions on individual projects have been derived from a programme of survey and monitoring of the rarer species carried out since 1980. This programme has provided information on selected species as follows:

*Gentiana nivalis**. The Ben Lawers population cannot be counted precisely for objective reasons, but is probably in the region of 1,000 to 5,000 plants. Long term monitoring of the population size has therefore not been carried out. Research is being carried out on the effects of grazing, but there is no reinstatement work on this species.

*Saxifraga cernua**. The Ben Lawers population has been estimated at approximately 1,500 plants of which approximately 150 are mature, bulbil-producing plants, although objective difficulties exist in counting methods. Fluctuations occur but are considered to be natural. No reinstatement project on this species is envisaged at present.

The populations of *Woodsia alpina**, *Erigeron borealis**, and *Minuartia rubella* have been counted three times during the period 1981-1992. More or less discrete plants (or 'clumps') occur, such that consistent population counts are possible. The results indicate there is probably no need for reinstatement of any of these species, although the figures for *Woodsia alpina* indicate the need for further monitoring. The high count for this species in 1981 is explained by the inclusion of more sites,

whereas the lower count of *Minuartia rubella* in 1981 was a less targeted search than the later counts.

Population Counts

	1981	85-87	90-92
Woodsia alpina	438	172	167
Erigeron borealis	532	538	639
Minuartia rubella	485	920	954

Sagina nivalis is confined to Breadalbane, with most of the population on Ben Lawers NNR. It has not been precisely counted because of objective difficulties, but, a detailed study of samples of the population has been carried out over 12 years. Large fluctuations recorded, although influenced by sheep, are probably largely natural. No reinstatement project is envisaged for this species at present.

Saxifraga rivularis. The population about 30 years ago was around 25 plants. Now only 2 plants survive on the Reserve, and a third was collected in 1989. The joint management committee have decided to reinstate this plant, but this decision has not yet been implemented, largely through lack of time. There are, however, some concerns about availability of suitable material, the nearest site being in Glencoe, some 33 miles (53 km) to the west.

Bartsia alpina is probably extinct on the Reserve, in spite of several searches during the 1980s and 90s. It is a likely candidate for reinstatement although no project has yet been decided.

Reinstatement of montane shrubs

Reinstatement projects have been carried out with some species which are not national rarities, but which are declining and face extinction on the NNR. Factors contributing to this decline have been described in more detail in Mardon (1990). These species are all dioecious. Their ability to form seed is restricted when individual plants are too far apart for pollination to occur.

Juniperus communis has declined from a population of 8 to 6 plants during the 1980s. An attempt to reinstate this has begun, but difficulties arise from access to the plants and a lack of suitable seed source. It may be necessary to introduce material from another site, but none is known in the vicinity.

Salix lapponum. The population is known to be at least 60 to 70 plants, perhaps more, but many of the sites are difficult of access and precise counting has not been possible. A decline in some colonies has been observed. Very little seed production has been observed and very few seedlings can be found within the Reserve. The decision to reinstate this species and reverse the decline, to ensure its survival on the Reserve, required seeds to be collected on another site in the Breadalbane range.

Salix lanata. The population within the Reserve consists of only two female plants, separated from each other by 10 kilometres and respectively, 10 and 20 kilometres from the nearest known male plant. Pollination and seed production are therefore not possible. One plant has been monitored annually since 1980 and its future survival is very doubtful. It was damaged seriously by a rockfall in 1990 and is now separated from the cliff on which it grows by a gap of 6 inches. Its demise could be imminent. Reinstatement of this species is now under consideration, but again seed material must be collected from another site in the Breadalbane area.

Salix arbuscula is a local species, distributed mainly in Breadalbane. The population cannot be counted precisely, but there are some dense stands on the Reserve. However, other plants are isolated and, in some cases, too far from the nearest plants to produce seed. These are interpreted as remnants of a once bigger population and are very likely to have declined as a result of grazing. In some areas goats were grazed during the last century, which may explain the absence of willows on certain otherwise 'inaccessible' ledges. Reinstatement of this species is being carried out within the two exclosures.

Salix myrsinifolia, or probably *S. myrsinifolia* × *S. phylicifolia* occurs at high altitude, in small numbers, restricted mostly to ungrazed sites. To restore these small populations to a viable size, planting has been carried out within our exclosures.

Exclosures

All reinstatement of shrubs needs protection from sheep and deer, and therefore projects are carried out within fences. One exclosure, built in 1989, encloses 5 hectares at an altitude of 700-800 metres

above sea level. A second exclosure, built in 1990, encloses 25 hectares at an altitude of 430-630 metres above sea level.

The first, high altitude, fence encloses a gorge with cliffs, subject to persistent snow-lie, and on which a very few willows remain, including *Salix lapponum*, only 2 female plants, and *Salix myrsinifolia*, 3 plants, including both sexes. One plant of *Salix arbuscula* survived within this exclosure. Steep ground within this area is subject to landslip, thereby creating the niche suitable for seedling establishment. Our project aims to boost the population of montane willows on this site, to produce sufficient seed to re-establish themselves within these niches as they occur.

Our largest exclosure includes the gorge of the Edramucky Burn and extends to approximately the natural tree limit. There is a surviving willow population which includes *Salix arbuscula*, *Salix aurita*, *Salix myrsinifolia*, *Salix caprea* and *Salix repens*. However, in all cases, little or no seed is produced, and there are few niches available for seedling establishment. Our aim is to restore the entire community associated with the endangered shrubs and trees, submontane woodland including shrubs and tall herbs native to the site. Species such as *Geranium sylvaticum* and *Trollius europaeus* are included in the programme.

Propagation and planting for reinstatement

Reinstatement work has included propagation from seed, collected within the NNR if possible, but outwith the Reserve if necessary, and planting within the exclosures.

Juniper seed is not available within the Reserve, or, as far as I know, on any other site in Breadalbane. Therefore an attempt to propagate plants from cuttings has been made, but has met with limited success. The few source plants within the Reserve limits the variation.

Willows have been propagated mainly from seed, with considerable success. Propagating from cuttings is possible in some species, but the amount of source material available limits the potential, and the number of plants required is best obtained by seed. Germination and growth requires considerable care, as small seedlings are subject to fungal infections and predation by slugs. Seedlings are grown in root trainers, which permit planting at one year old.

The total numbers planted in both exclosures during 1991 and 1992 indicate the scale of the operation, as follows:

Salix lapponum	1,800
Salix arbuscula	800
Salix myrsinifolia/phylicifolia	1,200
Salix repens	160
Juniper	36
Betula pubescens	50

Monitoring success of reinstated plants

Numbers are too large for all plants to be monitored, but a sample of 100 plants of two species in the higher exclosure was measured and monitored one year after planting. During their first year, 1991 to 1992, survival was at a rate of not less than 93% and growth at a mean rate of 5%. Presumably their first year is needed to establish roots amongst the established vegetation.

Summary

1. Reinstatement projects are now established as part of the repertoire of management techniques on Ben Lawers National Nature Reserve, to achieve the objectives of maintaining the populations of rare species, and the diversity of species and communities within the NNR.
2. The criteria for selecting species for which this is necessary are their status and decline on the National Nature Reserve rather than national or international considerations.
3. Work has begun with mostly non-Red Data Book species, but is expected to develop to include other species, some of which are listed in the Red Data Book.
4. The main constraint on the development of this work, the sheep grazing, is assumed to be inevitably continued for the foreseeable future, requiring reinstated trees or shrubs to be protected by fences.

Acknowledgement

The propagation of seedlings for reinstatement of the montane willow species has been strongly supported by voluntary work by Dr Richard Marriott. I am also grateful to other Reserve staff and numerous conservation volunteers for help with the planting.

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PROPAGATION AND TRANSLOCATION OF ORCHIDS*

Introduction

The Sainsbury Orchid Conservation Project was initiated at the Royal Botanic Gardens, Kew in 1983 with the generous backing of Sir Robert and Lady Sainsbury. Since 1985 the Project has been supervised by the Sainsbury Orchid Fellow who also liaises with English Nature, several county naturalist trusts, and other landowners who support and take great interest in it.

The aim of the Project is to develop methods to propagate from seeds those British and European orchids whose numbers are greatly reduced for reintroduction to the wild. One of the inspirations for its inception was a visit to the Orchid Garden at Gerendal in the Netherlands by Lynne Farrell from English Nature. Here, on grassy slopes not far from Maastricht, there is a natural population of several calcicole orchid species and others have been introduced successfully.

The techniques of raising terrestrial orchids from seeds were introduced to Kew by Mark Clements who was seconded from the National Botanic Garden, Canberra (Clements, Muir and Cribb, 1986). They were developed by Harriet Muir (1987; 1989) and Robert Mitchell (1989). Today, they are being used and refined by Margaret Ramsay and Grace Prendergast with an ever-increasing range of orchid species. A total of 46 British and European and 17 other terrestrial species have germinated in the laboratory, and the plantlets are at various stages of growth and development. Forty four species have been raised and transferred to pots in the greenhouse. Five orchid species have been re-established in wild situations in England and already four of them have flowered and set seed. There is still much to do, but this paper reviews the basis of the project and the considerable progress that has been made so far.

Orchids and mycorrhizal fungi

Orchids produce a very large number of minute seeds which are as fine as dust and among the smallest seeds of all flowering plants. The difficulties of germination and early development of a small and fragile embryo have been overcome, in the wild, by an intimate symbiosis between the orchid and an appropriate fungus.

The dispersal of orchid seeds by wind ensures that some will land not too far from the parent plant. These have an excellent chance of encountering the right fungus. Suitable fungi are widespread in the soil, though research has indicated that some orchids are specific in their fungal partner. Others appear to be capable of using various fungi, and we have isolated several fungi from the roots of mature orchid plants which will assist the germination of various orchid species.

The fungus penetrates one end of the embryo, usually through its large suspensor cell. As the fungal hypha grows into the inner cells of the embryo, it forms coils called pelotons which, in turn, are gradually digested by the orchid plant. As the infection proceeds, the orchid embryo grows rapidly to form a protocorm which, in due course, develops a shoot from which the leaves and roots arise. The fungal hyphae also infect the young roots and form pelotons in the cortical cells of the root.

In wild orchid plants, the mycorrhizal fungi are found as pelotons in live and healthy roots which appear cream or yellowish. Usually the coils of hyphae are linked via root hairs to the soil or

substratum. It is believed that the fungus digests organic materials in the surrounding medium and the resulting nutrients diffuse into the pelotons from which they are obtained by the orchid.

The underground parts of terrestrial orchids are quite varied, but the fungus is usually present in the roots rather than the tubers or rhizome. The degree of infection varies in different species and it also appears to be somewhat seasonal. In many species there appears to be heightened activity of the fungus while the orchid is at the peak of its vegetative growth. Orchids with tubers usually do not hold the fungal infection through the dormant season, and the new roots of these plants become infected from the soil when vegetative growth resumes each year. Orchids with rhizomatous growth, like *Cypripedium*, seem to harbour fungal activity after the leaves have died down, while for much of the year their roots contain masses of starch but no pelotons. The extent of the dependence of the mature orchid plant on the fungus is still unknown, but it has been interesting to find that the fungal isolates that are most effective for germination have been obtained from the most vigorous orchid plants.

Fungal isolation

Mycorrhizal fungi have been isolated at Kew from the roots and, rather rarely, the protocorms of European orchid species in cultivation. A few roots have been obtained from wild plants, with the landowner's permission, and from three of the scheduled endangered species under licence from English Nature. Fungal isolation is not a destructive technique, as a sample of root can be collected with minimal disturbance to the plant (Mitchell, 1989; Stewart, 1992).

So far the fungi have been identified rather tentatively as they have only been seen in the vegetative state. In the past they were all referred to the form genus *Rhizoctonia*, but it appears that at least two different genera of Basidiomycetes are active as mycorrhizal symbionts with the European orchids. For the time being all the fungi at Kew are known by numbers only, and F414, isolated from *Dactylorhiza iberica* growing in the Gardens, is the most useful and vigorous that has been isolated. We have also used commercially available cultures of the Basidiomycete, *Ceratobasidium cornigerum*.

Media for seed sowing and germination

The major differences between the symbiotic method of raising orchids from seeds and the asymbiotic techniques which are commonly used for tropical orchids (Thompson, 1977; Fay *et al.*, 1992) relate to the presence of the fungus in the culture. For symbiotic sowings the medium must contain sufficient nutrients for the fungus as well as the developing orchid seedlings. The seeds must be sown thinly, to allow each protocorm space to develop and to ensure that there are sufficient nutrients for both fungus and seedlings. Cultures must be watched carefully so that transfers to new media are made at the optimal time for continued growth. For asymbiotic sowings, which are often made as a control, the media used for tropical orchids appear to be too rich for the terrestrial species, but some success has been achieved with 1/2 and 1/4 strength of several well known media. A commercially available medium called TGZ-N is particularly useful. For the immature seeds from green capsules, which has been a successful technique with *Cypripedium calceolus*, a new medium called Kew-A has been devised. It is dilute but complex and contains peptone and potato extract. Full details of the media and laboratory procedures developed and tested have been published recently elsewhere (Mitchell, 1989; Stewart, 1992).

Establishing the seedlings in the wild

Several successful attempts have now been carried out to introduce one and two-year old plants emerging from the dormant period into the wild. The highest survival rates were obtained with plantings made in the late autumn.

The first trial was made at Wakehurst Place, Kew's satellite garden in Sussex, in the autumn of 1987 with *Orchis laxiflora*. The lax-flowered, or Jersey orchid, does not occur in mainland Britain, so it was chosen because it would be easily recognised among the *Orchis morio and Dactylorhiza* species in 'The Slips' if plants survived the winter. In May 1988, there were seven plants in flower, followed, in 1989, by 35 tall spikes. The survival rate is excellent, more have been introduced, and a total of 350 plants had been planted by the end of 1989. Eighty of these were in flower in May 1992 and 135 in May 1993.

Seventy five seedlings of *Dactylorhiza fuchsii* were added to the wild flower plantings in 'The Slips' in 1989. These seedlings were derived from seeds collected at Wakehurst Place. *Dactylorhiza praetermissa* seedlings have also been used in the area known as 'Hanging Meadow' where Sheena McKendrick, a postgraduate student from Cambridge University is studying the ecological factors affecting orchid seedlings. The plants raised at Kew serve as one of her study groups and the monitoring of the plants that she will do in the course of her studies will provide further information about restocking and the conditions required for its success.

Meanwhile, a few plantings of *Ophrys apifera*, *Orchis morio* and *Dactylorhiza praetermissa* have been tried in a secluded grassland site at Kew, where, on the generally gravelly soils, conditions for orchids are much less favourable. Several plants have survived and flowered.

Six seedlings of *Cypripedium calceolus* were planted at the wild site in autumn 1989, all of which have survived and increased in size. Three out of six planted in spring 1990 have also established well.

In the autumn of 1990, surplus seedlings of several common species were distributed to the Royal Horticultural Society and the National Trust who will try to establish them in wild flower gardens.

Future work

Much remains to be done. As might be expected, the rarer orchids are proving more difficult to raise than the less threatened ones. Work in the laboratory and glasshouse continues to be carefully co-ordinated with observations of plant growth cycles in the wild and in gardens, at all seasons of the year. New observations may lead to small changes in method which could generate a marked improvement in growth or treatment of seedlings.

There has been tremendous interest in this Project since its inception from a wide variety of sources in the British Isles and Europe. Visitors from Finland, Switzerland, France, Germany, Italy, Sweden, Denmark, Portugal, Canada, United States of America and Japan have come to the laboratory and glasshouses to learn details of the work. Similar projects have subsequently been established in several of these countries. A special poster exhibit describing the work has been used at Orchid Congresses in Cheltenham, Milan and Geneva, and at the exhibition 'A Vision of Orchids' at the Sainsbury Centre for the Visual Arts in Norwich. A display of the poster combined with seedlings at various stages of development, including a few in flower, gained a Silver-Gilt Lindley Medal from the Royal Horticultural Society at the British Orchid Growers' Association Show at Westminster in March 1989. A similar exhibit, combined with examples of Kew's work on tropical orchids by the Micropropogation Unit, was staged at the 14th World Orchid Show in Glasgow in April 1993, where it was awarded the Ahmed Sheikhi trophy for the best Scientific/Conservation exhibit in the show.

Perhaps the most significant visitors to the Project have been a few dedicated commercial orchid growers who plan to follow the methods Kew has developed and raise hardy orchids for sale. Negotiations are proceeding for a 'royalty' on these sales to be paid to Kew. We hope that this will acknowledge and advertise the results achieved by the Sainsbury Orchid Conservation Project and help to support further research.

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* Based on a paper by Joyce Stewart (1993). 'The Sainsbury Orchid Conservation Project: the first ten years' published in *The Kew Magazine* **10** (1): 38-43

JOYCE STEWART, Sainsbury Orchid Fellow, Royal Botanic Gardens, Kew

GENETIC DIFFERENCES BETWEEN POPULATIONS OF RARE PLANTS - IMPLICATIONS FOR RECOVERY PROGRAMMES

Nearly all the rare plant species that are listed in the British and Irish *Red Data Books* are only local rarities, rare here, but common elsewhere in Europe. We have very few endemic species, and very few absolute rarities, except among critical taxa. The patterns of genetic variation in the scattered populations of our local rarities are often clues to their history, and may tell fascinating evolutionary and ecological stories, but are still largely unknown.

Patterns of genetic differentiation in rare plants depend on several factors: their breeding system, reproductive biology and life-history; the history, size, structure and degree of isolation of their local populations; natural selection; and perhaps also hybridization with other taxa. Nearly all these factors vary much more in plants than in animals. Effects related to breeding system and population structure range from the near-complete absence of genetic variation in apomicts (for example *Hieracium*, *Limonium* and *Sorbus* microspecies) through the stepped pattern of variation of autogamous species with poor dispersal (for example *Ononis reclinata*), to the interrupted clines and extensive stochastic variation of partial or complete outbreeders with small isolated populations (for example *Mibora minima*). A few geographically restricted or sparse outbreeding rare species with exceptionally good dispersal (for example some orchids with dust-like seeds, and some waterside plants dispersed by waterfowl) may maintain overall gene-flow and more normal patterns of continuous ecoclinal variation and local adaptation, but most outbreeding rare plant species are likely to show patterns of variation which are disjunct, partly stochastic and often highly diverse.

In plant conservation and recovery programmes, knowledge of the breeding system and the pattern of genetic variation of the species that are involved is a basic and essential requirement (Falk & Holsinger 1991, Karron 1991) and should be regarded as a priority. Since these fundamentally important biological factors can be so different in plants, concepts of minimum viable population size, sample size and breeding strategies derived from studies of animal populations may be totally inappropriate and misleading in plant conservation work (Templeton 1991).

Knowledge of the breeding system, reproductive biology and pattern of genetic differentiation of a rare plant taxon is essential not only for a recovery programme to have a real chance of success, but also to avoid endangering existing populations and losing, contaminating or distorting the existing pattern of variation. This is often in itself an evolutionary and historical document of great interest and value, not only in absolutely rare species, but also, and perhaps especially, in locally rare species, for example in *Draba aizoides*, *Ononis reclinata* and *Mibora minima* in Britain (John & Kay 1989, 1990, John 1992).

Patterns of genetic variation in and among local populations can now be screened and monitored rapidly in plant species by modern molecular techniques, especially the inexpensive and non-invasive technique of isozyme electrophoresis (e.g. Lack & Kay 1987, 1988, Schaal, Leverich & Rogstad 1991). Analysis of DNA polymorphism by various techniques, particularly those involving PCR amplification (Amos & Hoelzel 1992) is potentially more sensitive than isozyme electrophoresis but is at present impracticably expensive and time-consuming.

Genetic adaptation and the causes of rarity: the hazards of translocation and unconscious selection in recovery programmes

Although the patterns of genetic variation in disjunct populations of rare plant species are of great interest in themselves and are of basic importance in conservation programmes, most conservation and monitoring studies of rare plants in Britain have been concerned mainly or exclusively with their demography and ecology (e.g. Synge 1981, Whitten 1990) and have considered genetic variation only incidentally, if at all. Failure to screen or monitor genetic variation is a serious omission, and creates a variety of risks in translocation and recovery programmes, including the introduction of inappropriate genotypes and the distortion of unique, informative and irreplaceable natural patterns of variation.

Plant species may be rare for a variety of reasons, often combined in various ways. Some species are rare or absent because of a lack of dispersal. This group includes potential colonisers; introduction of such species to an area or site where they were previously absent may be easy, but often has unforeseen and undesired consequences, which can include the reduction or perhaps extinction of species that previously grew there. The species that are displaced are likely to be those that were already rare. It is not always appreciated that translocations of rare species between refuge sites may also have this effect, displacing other rare species.

Large-scale examples of the effects of introducing previously absent alien species are provided by the fate of the native floras of oceanic islands like Hawaii and New Zealand, which have been devastated both by the introduction of alien herbivores and pathogens and by the introduction of competitively superior alien plant species. A familiar example of the same effect in Britain is provided by the spread of *Rhododendron ponticum*.

In the second and third groups, rare plant species that grow in specialised and rare habitats, and local rarities at the edge of the range of the species, individual populations are likely to consist of genotypes that are particularly well-adapted to local conditions, especially in genetically variable outbreeding species. In addition, the genotypic composition of such populations may be a unique and irreplaceable document of their history and relationships, as for example in *Draba aizoides* and *Minora minima*. Such populations are particularly vulnerable not only to the introduction of alien genotypes of the same species, but also to the genetic changes that may take place among native genotypes during both *in situ* and *ex situ* breeding and recovery programmes.

The introduction of inappropriate alien genotypes (which should, in the absence of genetic screening, be assumed to include genotypes from other populations of the same rare species, even within the same local geographic area) is an obvious hazard, which should now be well understood from examples in animal conservation programmes. The risks of changes among native genotypes are less widely understood. They may result either from stochastic changes due to sampling error during collection of breeding material and the various stages of propagation, or from unconscious selection for poorly-adapted genotypes. This may occur both during active *in situ* conservation programmes, for example by relaxation of selection through measures which favour the survival of the target species, and during *ex situ* breeding programmes which will favour genotypes adapted to succeed in artificial conditions.

Examples of poorly-adapted genotypes that may be favoured include those with small but numerous seeds, those with reduced seed dormancy, those with low allocation to defence, those with precocious growth and flowering, and those with increased self-compatibility. Such altered genotypes may be unable to establish new populations, and their reintroduction to the original population may overwhelm its precariously well-adapted gene-pool.

The genetic hazards of well-conducted active conservation programmes are much smaller in homozygous inbreeders with monomorphic populations, like *Ononis reclinata* in Britain (John 1992) or *Saxifraga cespitosa* in North Wales (Parker 1981) and in apomictic microspecies like *Sorbus leyana*.

In addition to the likelihood of unconscious selection, in all except the best-conducted breeding programmes there is much potential for confusion, genetic contamination (especially hybridisation in outbreeders) and mislabelling, if plants from several populations of the same species, or of related species between which gene-flow is possible, are grown or processed together. A simple solution is to grow plants from only one population of each species at any one time, perhaps combined with precautionary genetic screening.

Dangers of a different type arise in all active conservation programmes involving *ex situ* cultivation, from the unintentional introduction of alien species of plant, herbivore and pathogen to vulnerable populations of rare species, or their inclusion in newly established populations. At the genetic level, some populations of genetically variable rare species may be able to adapt to new pathogens or herbivores (including newly introduced genotypes of existing pathogens or herbivores) but in general rare species are likely to be particularly vulnerable.

Population size and structure in declining species

In species that have been rare for a long period of time, population size and structure are often essentially stable, or change only slowly. Species that have recently become rare ('new rare' species, Franklin & Soulé 1981), or are declining towards rarity, show different and much less stable patterns of population structure. In these, genetic drift, inbreeding and other potentially deleterious small-population effects tend to hasten the extinction of small populations. Genetically variable outbreeding species show these effects most seriously. Various estimates have suggested that effective sample or population sizes of at least 50 are required to avoid harmful loss of genetic variation in the short term, although it has recently been argued that small populations of plants growing in stressful conditions may lose variation more slowly than those growing in more benign conditions, because of the greater survival of heterozygotes (Lesica & Allendorf 1992).

Non-genetic effects may also cause extinction of populations below a certain size, and it should be remembered that if two rare species that co-occur in extensive sites share much the same ecological niche, or interact in other potentially mutually exclusive ways, only one of them may be able to

maintain a viable population in a refuge of limited area. Both genetic selection and stochastic variation are likely to affect the chances of survival of an individual population, but populations that survive, and especially those that maintain or increase their numbers, are likely to be those that are genetically best adapted to do so.

Species that are rapidly declining towards rarity, for example *Vicia orobus* and other lowland ancient-grassland species, present the most severe conservation problems; their decline is often due to rapid and progressive ecological changes which are difficult to halt and may be impossible to reverse. The rate and extent of their decline may not be realised because of the time-lag and historical bias of plant records. Here again, genetic screening is the most effective means for detecting the pattern of variation and the seriousness of the genetic problems, and for evaluating and monitoring possible conservation measures (Kay & John 1992).

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QUENTIN KAY, School of Biological Sciences, University of Wales, SWANSEA SA2 8PP

NOTICES (NON BSBI)

STACE'S *NEW FLORA of the BRITISH ISLES*

A Dutch correspondent has pointed out to me a very unfortunate error in the 1992 reprint that was introduced by the printers. The caption on page 974 (the third page of *Carex* utricles) is a repeat of the one from page 967 (the second page of *Carex* utricles). This error remained undetected because I was not given the opportunity of checking proofs of the 1992 reprint, which I greatly regret. The original 1991 printing is correct. A second error introduced by the printers occurs on page 214 of the reprint, where the right hand edge of the page was cut off; the marginal **R** and **RR** should read **RR** and **RRR** respectively.

Copies of the correct caption for page 974 may be obtained from me FOC on receipt of a SAE.

CLIVE A. STACE, Cringlee, Claybrooke Road, Ullesthorpe, LUTTERWORTH, Leicestershire LE17 5AB

REHABILITATION OF RIVERS

An international workshop to be held at the International Centre of Landscape Ecology, Loughborough University
16-18 December 1993

River managers, ecologists, engineers, hydrobiologists and related professionals will find this workshop of value in coming to terms with the implementation of river rehabilitation. Topics to be included are:

Limitations to river rehabilitation.
Incentives and objectives.
European case studies with examples of channel, riparian zone and flood plain projects.
Developing strategies and defending the way forward.

There will also be site visits to experience rehabilitation projects first hand.

Papers (presentations and posters) are also invited which it is planned to publish as a volume in the Wiley *Landscape Ecology* series.

For further details please write to the address below.

GILL GILES, ICOLE, Dept of Geography, Loughborough University, LOUGHBOROUGH, Leics., LE11 3TU (Tel. 0509-223012; Fax 0509-260753

DR A.N. BERKUTENKO

Further to my note in the last issue of *BSBI News*, Dr Berkutenko wishes to inform prospective correspondents that, because the post to her in Russia takes 2-3 months to arrive, any correspondence in connection with her botanical tour to Misunderstanding Island should be addressed to her as follows:

Dr A.N. Berkutenko, c/o Richard L. Baldwin, Seeds of Alaska, Box 3127, Kenai, Alaska 99611, USA.

Dr Berkutenko is also involved in a commercial venture (The Luny Seed Company, Box 14, Ekaterinburg 620008, Russia) to market seeds of wild flowers of Siberia and Russian Far East, including Russian Far-Eastern alpine and rock garden plants and would be grateful for any advice members may be able to offer on how to reach the retail market in the UK.

C. JEFFREY, Royal Botanic Gardens, Kew, RICHMOND, Surrey, TW9 3AB

CAREERS IN THE ENVIRONMENT

National Conference - 13 October 1993
Workshop - 16 November 1993
BP Britannic Tower, London

Background
The environment is an area which has gained increasing public attention over the past few years. It is also an area where career opportunities have been expanding and diversifying, yet there is little readily available information on career routes, suitable qualifications, and the types of work available in the environment.

Target audiences
All those interested in careers with environmental aspects
Careers advisors in HE/FE
Course providers
Local authorities careers services
Trainers in industry and employment agencies
Training and Enterprise Councils (TECs)
Personnel managers

Topics
Environmental careers opportunities
Qualifications required for industry, environmental, NGOs, government and statutory bodies
Professional organisations
Sources of information, including publications, databases and organisations
For further information please contact:

MONICA HALE, Faculty of Human Sciences, London Guildhall University, Calcutta House, Old Castle Street, LONDON E1 7NT. Tel. 071-320-1124. Fax: 071-320-1121

WOODBINE - FLORA BRITANNICA NEWSLETTER

Woodbine is the newsletter from Flora Britannica. It's intention is to give a progress report on the project and to encourage wider participation.. Copies of the original handbook are also available, as are Flora Britannica posters, intended for display in public places, these are monochrome and come in A4 and A3 sizes.

For a FREE copy of any or all of the above, please write to:

FLORA BRITANNICA, Common Ground, 41 Shelton Street, LONDON WC2H 9HJ

LICHENS FOR VEGETABLE DYEING

I was interested to read Maura Scannell's note on Eileen Bolton in *BSBI News* **62** (1992). I had the pleasure of co-editing the new edition of her book *Lichens for Vegetable Dyeing*, that was published in 1991. Anyone interested in ordering a copy should write to: Robin and Russ Handweavers Inc., 533 North Adams Street, McMinnville, Oregon, USA 97128, price approx. $12.00 US.

I am working on a history of lichen dye use from 3000 B.C. to the present day and would be delighted to learn if there is any interest in this subject amongst BSBI members.

KAREN LEIGH CASSELMAN, Research Associate, Natural History, Nova Scotia Museum, 1747 Summer Street, HALIFAX, Nova Scotia B3H 3A6

[Ms Casselman has been kind enough to donate a copy of her book to the BSBI Library, anyone interested in borrowing it should write to me. Ed.]

REQUESTS

ORCHIS USTULATA

I have been researching into the life-cycle of the Burnt Orchid (*Orchis ustulata*) for a number of years. This has been carried out under strictly controlled conditions.

I would welcome correspondence with any members who may have undertaken similar research. My particular interest is in the seed-pod success rate. The production of seed-pods by 'my' plants is very poor and I would be extremely interested in the experiences of others in different parts of the country.

RONALD KELL, Birdwood, Harmby, LEYBURN, N. Yorkshire DL8 5PE

OROBANCHE SEED WANTED

I would be most grateful if any BSBI members could supply me with a small quantity of fresh seed of any *Orobanche* species which they may have in cultivation.

Thank you.

ANNE T. PICKERING, Department of Biological and Nutritional Sciences, University of Newcastle upon Tyne, NE1 7RU

STELLARIA MEDIA AND *S. NEGLECTA*

At Lancaster University I am working on elucidating the cause(s) of the ecological separation of the closely related *Stellaria media* and *S. neglecta*. The fact that these two taxa are closely related is undeniable and has often resulted in their confusion where large *S. media* is found growing at the shady end of its range of habitats. Generally though, there is a significant ecological separation which is quite striking, with the former the familiar weed and the latter a somewhat rarer woodland edge/hedgerow species. I would be extremely grateful if anyone would be prepared to let me have some living material (plants or seeds) of *S. neglecta*, so that this investigation can usefully proceed. Grid references, or other means of locating the collection points would also be valuable.

ANDREW FAIREY, Department of Biological Sciences, University of Lancaster, LANCASTER LA1 4YQ

BETTY SWAINSON'S PLANT-RECORDS - A LOST BOOK

In Liverpool nearly ninety years ago A.A. Dallman bought for twopence a copy of Mavor's *The Lady's and Gentleman's Botanical Pocket-Book* (1800) which had belonged to Betty Swainson, eldest daughter of J.T. Swainson and half-sister of the naturalist William Swainson. She had annotated the book with her plant-records for Merseyside, dating from 1816 onwards. These records considerably antedate the earliest Liverpool Flora (1839) and are of historic interest.

I should like to locate this book which did not reach Liverpool Museum with much of Dallman's library. It was still in Dallman's possession in 1949 when he wrote to me about it, but its present home is unknown.

Can anyone help?

NORA McMILLAN, The Nook, Uplands Road, BROMBOROUGH, Merseyside L62 2BZ

SYMPHORICARPOS ALBUS, DOES IT SPREAD BY SEED IN THE BRITISH ISLES?

I am preparing an account of this species for the *Biological Flora* and there are still some very basic questions that remain unanswered, for example, does it spread by seed in the UK? I wrote to ten of the most active members of the BSBI whom I knew had an interest in alien species, two of them reported having seen occasional seedlings in SE England but did not know if they ever grew into mature plants.

I would like to hear from any members who have observed seedlings of this plant in the UK or who have germinated seed collected in this country.

OLIVER GILBERT, 42 Tom Lane, SHEFFIELD S10 3PB

BUTCHER'S-BROOM

In the account for Butcher's-broom (*Ruscus aculeatus*) in W.J. Beans' *Trees and shrubs hardy in the British Isles*, Bean states 'The flower bud forms early in the year and opens in spring', which is rather vague. Butcher's-broom was certainly in flower here (Exeter) at the end of January. Some forms appear to be good at producing fruit but in Exeter not a single plant has produced more than a few fruits in the last few years. Some plants I saw in the Crimea, near to Yalta, in May 1992 also showed little evidence of fruiting.

I am interested in the genus *Ruscus*, and would be delighted to hear from anyone who grows any of the species or cultivars with a view to discovering how widely cultivated they are. I would also be grateful for information on yellow or white fruited specimens or any with variegated leaves.

DAVID CANN, ESC, Clydesdale Road, University of Exeter, EXETER, Devon

RSEARCH AND TRAVEL GRANTS

FINANCIAL SUPPORT FOR SMALL PROJECTS
WILF NELSON RUM BURSARY

On 14 September 1989 Wilf Nelson suffered a fatal fall while carrying out routine survey work as NCC warden on the Island of Rum NNR.

Wilf had already contributed a great deal to nature conservation, both on Rum and elsewhere, in his short career and such was the widespread feeling of loss amongst his many friends and colleagues that a memorial fund was established. This fund, which is still open for donations, now stands at around £6,000 and with the support of Wilf's widow, Rosemary, it was decided to establish a Bursary which will be used to support small research/survey projects centred on Rum.

Applications for financial support are therefore invited for individual projects to be carried out during 1993. Preference will be given to studies on the natural environment of Rum, particularly its wildlife, but consideration will also be given to projects dealing with conservation management, including education and interpretation. It seems likely that around £600 will be available for dispensing during 1992.

A brief summary of the project proposal and estimated costs should be sent initially to the Reserve Manager, The Reserve Office, Isle of Rum, PH43 4RR and should arrive by 31 March 1994.

Further inquiries to:

MARTIN CURRY Reserve Manager, Rum (0687 2026)
CHRIS EATOUGH, Area Manager - Lochaber, Skye and Lochalsh, SNH, Mamore House, The Parade, FORT WILLIAM PH33 6BA (0397 704716)

THE OLEG POLUNIN MEMORIAL FUND

Applications are again invited for awards from The Oleg Polunin Memorial Fund. Full details of the Fund and application details were given in *BSBI News* **58**: 47, Sept. 1991.

Applicants should apply in writing to the Headmaster of Charterhouse at the address below, giving a clear statement about their proposed field studies, where they will be undertaken and when. Priority will be given to applicants with Charterhouse connections but other persons with strong botanical or biological interests will also be considered. The closing date for applications is 1st February each year.

Recent recipients of awards

1991 - Karold Marhold, Institute of Botany of the Slovak Academy of Sciences, Bratislava, Czechoslovakia. Grant towards his own project 'The genus *Cardamine* L. in the Carpathian and Pannonian region (biosystematic study)'.

- Palmer Newbould, taught by Oleg Polunin. Ecological research in northern Majorca. Also hopes to produce an annotated plant list for the Albufera.

- David Bagley, Cambridge BA. Research volunteer in the Seychelles for the Royal Society for Nature Conservation on the island of Aride. Example of tropical island in near pristine state.

1992 - Roger Hyam, Photographer, Reading University. To study plant life in the Western Himalayas where Oleg Polunin visited in 1960.

-Jonathan Miller, Undergraduate Botanist in second year at Oxford University. University Expedition to Nepal to study Orchid Ecology.

- Sally Francis, Scientific Officer of the Oxford University Expedition to Fireweed Mountain in Alaska.

- Five undergraduate biologists from Oxford aiming to study vegetation and small herbivorous mammals in the South West slope of Fireweed Mountain.

1993 - Rebecca Rowe. First year PhD student at Oxford University studying the population biology of the endemic flora of St Helena.

- Dr Virginia van der Lande University Research Fellow studying velvet worms and leeches in New Guinea.

- Martin Gardner. Manager of the Conifer Conservation Programme, Royal Botanic Garden, Edinburgh - grant towards expedition to Chile to continue work already undertaken on conifer conservation and collection of seeds etc.

PETER ATTENBOROUGH, M.A., Charterhouse, GODALMING, Surrey GU7 2DJ

BOOK NOTES

Reviews of the following books will be included in the February 1994 issue of *Watsonia* vol. 20(1):

The concise Oxford dictionary of Botany. Edited by M. Allaby. Pp. vi + 442. Oxford University Press, Oxford. 1992. Price £18.95 h/b (ISBN 0-19-866163-0); £6.99 p/b (ISBN 0-19-286094-1).

The vegetation of ultramafic (serpentine) soils. Edited by A.J.M. Baker, J. Proctor & R.D. Reeves. Pp. xx + 509; illustrated with 7 colour and numerous b/w plates. Intercept, Andover. 1993. Price £47.50 h/b (ISBN 0-946707-62-6).

The eternal yew. T. Baxter. Pp. 192; ill. The Self-Publishing Association, Hanley Swan. 1992. Price £19.50 (ISBN 1-85421-148-X). Jointly reviewed with *The yew tree. A thousand whispers. Biography of a species*. H. Hartzell jnr. Pp. xvi + 320; ill. Hulogosi, Oregon. Price US$ 19.95 (ISBN 0-938493-14-0 p/b).

Phylogeny and classification of the Orchid family. R.L. Dressler. Pp. 314; 96 colour & numerous b/w ill. Dioscorides Press & Cambridge University Press, Cambridge. 1993. Price £35 (ISBN 0-521-45058-6).

Kvetena Ceske Republiky (Flora of the Czech Republic). Edited by S. Hejny & B. Slavik. Vol. 1. Huperziaceae - Urticaceae. 1988. Pp. 557 with numerous line drawings. Vol. 2. Fagaceae - Empetraceae. Pp. 540 with numerous line drawings. 1990. Vol. 3. Brassicaceae - Malvaceae. Pp. 542 with numerous line drawings. 1992. Academia, Praha. Price not stated (ISBN 80-200-0256-1).

Nouvelle flore de la Belique, du nord de la France et des régions voisines. 4th edition. J. Lambinon, J.-E. De Langhe, L. Delvosalle & J. Duvigneaud. Pp. cxx + 1092; ill. Editions du Patrimonie du Jardin botanique national de Belgique, Meise. 1992 (rec. 1993). Price BEF 1,720 (ISBN 90-72619-07-2).

The fern guide. A field guide to the ferns, clubmosses, quillworts and horsetails of the British Isles. J. Merryweather & M. Hill. Pp. 101-188, with numerous drawings and 29 colour plates. AID-GAP, Field Studies Council, Preston Montford. 1992. Price £5.25 incl. P&P. (ISBN 1-85153-211-0).

Supplement to Flora of Cheshire. A. Newton. Pp. 52; privately published, Leamington Spa. 1991. Price £5.75 p/b. No ISBN.

Marianne North at Kew Gardens. L. Ponsonby. Pp. 128, with 128 colour and 4 b/w illustrations. Webb & Bower, in association with the Royal Botanic Gardens, Kew. 1990. Price £15.95 (ISBN 0-86350-309-8).

Stearn's dictionary of plant names for gardeners. W.T. Stearn. Cassell, London. 1992. Pp. [viii] + 363. Price £16.99 (ISBN 0-304-34149-5).

Red data books of Britain and Ireland: Stoneworts. N.F. Stewart & J.M. Church. Pp. 144; 14 colour photographs. Joint Nature Conservation Committee, Peterborough, 1992. Price £15 (ISBN 1-873701-24-1).

Flora Europaea, vol. 1: Psilotaceae to Platanaceae. 2nd edition. Edited by T.G. Tutin, N.A. Burges, A.O. Chater, J.R. Edmondson, V.H. Heywood, D.M. Moore, D.H. Valentine, S.M. Walters & D.A. Webb, assisted by J.R. Akeroyd & M.E. Newton. Appendices edited by R.R. Mill. Pp. xlvi + 581, with 5 maps. Cambridge University Press, Cambridge. 1993. Price £lO0 (ISBN 0-521-41007-X).

Origin and geography of cultivated plants. N.I. Vavilov; translated by D. Love. Pp. xxxiii + 498; 28 line drawings, 33 half-tones. Cambridge University Press, Cambridge. 1992. Price £75 (ISBN 0-521-40427-4).

The following publications have been received recently. Those that will not be reviewed in *Watsonia* are marked with an asterisk; unsigned notes are by J.E.

Wild orchids of Scotland. B. Allan & P.J.B. Woods; photography by S. Clarke. Pp. [vii] + 135; ill. H.M.S.O., Edinburgh. 1993. Price £24.95 (ISBN 0-11-494246-3). [Published on the occasion of the World Orchid Congress in Glasgow in May 1993, this photographic guide to the species of orchid which are native to Scotland was prepared at the Royal Botanic Garden, Edinburgh.]

The sand dunes of the Sefton coast. Edited by D. Atkinson & J. Houston. Pp. xiv + 194; 12 colour & numerous b/w illustrations. National Museums & Galleries on Merseyside, Liverpool. 1993. Price £19.75. [This is an account of the proceedings of the Sefton Coast Research Seminar, held in Liverpool in 1991. It contains chapters on the history, geomorphology, soils, vegetation, flora and fauna of the Sefton coastal dunes, which constitute the largest area of open dune landscape in England, and ends with a section on dune use and management. There is a 22-page bibliography.]

Greek wild flowers and plant lore in ancient Greece. H. Baumann; translated & augmented by W.T. & E.R. Stearn. Pp. 252; 482 illustrations, most in colour. The Herbert Press, London. 1993. Price £16.95 (ISBN 1-871569-57-5). [This is a pocket-sized account of the economic botany and ethnobotany of Greece, ancient and modern. It will appeal to a wide readership on account of its meticulous scholarship and lavish colour photographs, the plate numbers of which are cross-referenced in the text. The role of plants in Greek art, medicine and science is recounted in considerable detail, and there is an excellent bibliography and index.]

Mediterranean wild flowers. M. Blamey & C. Grey-Wilson. Pp. 560, with 173 pp. of colour plates illustrating 1,500 species. Harper-Collins, London. 1993. Price £25 (ISBN 0-00-219901-7). [This attractive book will give enormous pleasure to all interested in the wild flowers of the Mediterranean; with over 2,500 species described, it is splendidly compact and comprehensive (but ill-advisedly described on the dust jacket as a "complete" guide). The definitions of Eastern

and Western Mediterranean in the introduction and some of the species distribution notes are somewhat confusing, with Crete and the Aegean Islands being included as Western Mediterranean.] - Mary Briggs.

British Plant Life: a new series of booklets produced by the Botany Department of the National Museum of Wales. The first two titles are:

**Mosses and Liverworts of Woodland; a guide to some of the commonest species*. A.R. Perry. Pp. 41; 29 b/w photographs. N.M.W., Cardiff. 1992. Price £2.95 (ISBN 0-7200-0362-8). ["A simple, photographic guide to some of the more common mosses and liverworts to be found in woodlands in the British Isles." - from Introduction.]

**Aliens in the British Flora: an account of some of our plant invaders*. R.G. Ellis. Pp. 48; 44 colour photographs. N.M.W., Cardiff. 1993. Price £3.50 (ISBN 0-7200-0374-1). [A selection of some of the more interesting examples of plant introductions, with short descriptive paragraphs accompanied by high-quality colour photos, sketch maps of distribution and frequency in the British Isles, and a world map showing area of origin. Inexpensive, and attractively designed, this booklet deserves to be widely disseminated.]

**The wild flowering plants of Bahrain: an illustrated guide*. M.D. & C.D. Cornes. Pp. 272; ill. Immel, London. 1992 (ISBN 0-907151-41-8). [A lavishly illustrated field guide, with colour photographs of over 160 different species. A simple tabular key chart is provided to assist identification, but the species descriptions are narrative rather than critical and contain information on habitat and uses. It is notable for including photographs of less photogenic species such as grasses which are often overlooked. The book ends with a glossary and a short bibliography.]

The Flora of Ditchley: wild flowers of an Oxfordshire estate. A.J. Dunn. Pp. xi + 68; 1 map, 11 colour plates. Catherine Wills, Sandford St. Martin. 1993. Price £16.45 (ISBN 0-9521310-0-5). [This is a truly local flora, in the best tradition of such publications. Nine introductory chapters and a bibliography are followed by a list of flowering plants and ferns recorded between 1985 and 1992 totalling more than 400 species, several of which are nationally rare. The book has been nicely produced by Alan Sutton of Stroud.]

**Endemic wild plants of North Cyprus*. D.E. Viney. Orman Dairesi Müdürlügü, Lefkosa, 1992 (publ. 1993). Pp. 54; 19 colour plates. Price £3 + P&P. [Environmental education in Mediterranean countries, for visitors and residents alike, is dependent on the availability of local guides to the special plants of the region. Affordable books of this type are seldom available. One must therefore welcome this first attempt to highlight the plants which are endemic to the Turkish-controlled northern part of Cyprus. This pamphlet, printed in Turkey, is in "Curtis's Botanical Magazine" format: each species is covered by a description and habitat notes in English and Turkish on the page facing the colour plate.]

JOHN EDMONDSON, Botany Dept., National Museums & Galleries on Merseyside, Liverpool Museum, William Brown St, LIVERPOOL L3 8EN.

ADVERTISEMENTS

PRESIDENTIAL PERAMBULATION ON MOUNT OLYMPUS

I would like to invite up to 20 members to join me on a walking and wild flower holiday on Mt Olympus from 11-20 June, 1994. If you have never been before (or have - this will be my third visit) this should be a wonderful opportunity to enjoy this magical place. At nearly 10,000ft it is the highest mountain in Greece - and some 1700 species of flowering plants have been recorded and 6-700 will be seen during the excursion.

If you come on this holiday you can be helping to protect the Mount Olympus National Park. Local inhabitants need to be constantly reminded of the importance to their economy of green tourists who come to enjoy their heritage. There is now a threat of building a 9,000-bed complex and ski centre on the mountain. The visit of a strong group from the BSBI could help demonstrate further the importance of conserving the area.

All profits from the holiday will be shared by BSBI and RSNC, The Wildlife Trusts Partnership (see page 7). I would wish the BSBI portion to be put towards our publications.

As long as the party is 16 or more the cost will be £650 (twin), £745 (single room) for all transport, bed and breakfast. For further details and a Booking Form write to me at the address below:

FRANKLYN PERRING, 24 Glapthorn Road, Oundle, PETERBOROUGH PE8 4JQ

FIELD STUDIES COUNCIL OVERSEAS COURSES - 1994

FSC Overseas courses offer expert tuition in a wide range of subjects including botany, butterflies, landscapes, ornithology, photography and painting. Destinations range from the Scilly Isles and the Isle of Man to the Pyrenees, Burren, Canary Islands, Iceland, Poland and Switzerland and as far afield as Seychelles, Thailand, the U.S.A. and Ussuriland. The courses are designed to suit all levels of experience, including some specifically for families. Several other courses of a more general nature are also included in the 1994 programme, all with the aim of providing

ENVIRONMENTAL UNDERSTANDING FOR ALL

For a copy of our full programme contact:

FSC OVERSEAS (BSBI) Montford Bridge, SHREWSBURY, SY4 1HW Tel: (0743) 850164

1994 BOTANY TOURS AT HOME AND OVERSEAS

(Led by BSBI Members)

The following botanical tours and courses have been organised by the Field Studies Council Overseas:

26 April - 10 May	Flowers and Birds of Andalucia	Ros and John Bennett
28 May - 4 June	Exploring the Southern Aegean: Landscapes, Natural History and Painting for the Family	Ros Bennett
11 - 25 June	Butterflies, Flowers and Natural History Photography in the Swiss Alps	Anne Bebbington
25 June - 09 July	Summer in Poland: Mountains, Marshes and Primeval Forest	Ruth Dawes
23 July - 11 Aug.	Wild Flowers of the Olympics and Cascades	Chris Grey-Wilson
July	Flowers of Ussuriland	Anne Stephens
3-10 August	High Summer in the Pyrenees: Flowers and Butterflies for the Family	Ros Bennett
October	Down Under and Outback: The Natural History of South Australia	Anne Bebbington

Full details of these and other overseas courses run by the Field Studies Council are available from:

FSC Overseas (BSBI), Montford Bridge, SHREWSBURY SY4 1HW (tel. 0743-850164)

27 May-3 June	Wild flowers of Devon	Ailsa Burns
12-19 August	Grasses, sedges and rushes	Ailsa Burns

Lots of good plants, beginners and the experienced equally welcome

Further details from: Slapton Ley Field Centre, Slapton, Kingsbridge, S. Devon TQ7 2QP (tel. 0548 580466).

Tony and Helen Titchen (both keen botanists), will be organising and leading botanical tours to the following destinations:

March (one week)	Madeira	Tony & Helen Titchen
April (two weeks)	Crete	Tony & Helen Titchen
May (one week)	Turkey	Tony & Helen Titchen
July (1 week)	Pyrenees	Tony & Helen Titchen
Sept./Oct. (3 weeks)	Canaries (2/3 islands)	Tony & Helen Titchen

For more information about dates and costs, etc., please contact:

TONY & HELEN TITCHEN, 29 Nore Road, Portishead, BRISTOL, Avon BS20 9HN (tel. 0275-848629)

The following botanical tours and courses have been organised by Cox and Kings.

14 - 25 March	Northern Cyprus	Tony Kemp
21 - 28 March	Southern Cyprus	Mary Briggs
28 March - 8 April	Crete	Mary Briggs
5 - 19 April	Greece - Peloponese	Tony Kemp
27 April - 11 May	Western Turkey	Mary Briggs
22 May - 5 June	Spain - Berdun	Peter Jepson
14 - 28 June	Austria - Carinthia	Tony Kemp
16 - 30 June	Switzerland - Weingen	Mary Briggs
25 Sept. - 15 Oct	Western Australia	Mary Briggs

Full details of these and all other tours run by Cox and Kings are available from:

Cox and Kings Travel Ltd., St James Court, Buckingham Gate, LONDON SW1E 6AF
Tel. 071-834-7472

WALKS AND WILDFLOWERS
in the Cretan Spring

Escorted walks in late March, and through April; intended primarily for those new to the Mediterranean flora.

Further details are available from me at the address below:

JEFF COLLMAN, 21 Beechwood Avenue, Milber, NEWTON ABBOT, Devon TQ12 4LJ

INDIVIDUAL OR SMALL GROUP FIELD STUDY VISITS TO THE FRENCH PYRENEES

Pyrenean Field Study Services is working closely with the Ariège Naturalists Association to encourage amateur and professional naturalists to visit this seriously under-researched, and unspoilt reservoir of European wildlife.

The Ariège is the central region of the French Pyrenees where the Atlantic and Mediterranean climates overlap to maintain high densities of forest and pasture vegetation between 300 and 3,000 metres altitude.

As a financially poor area the uptake of Agro-chemicals has been low or non-existant leaving extensive areas of unimproved grassland and an unbroken food chain.

The Ariège Naturalists Association welcomes and supports any field work in any way it can. There is a real need for discovery and identification of species and their location.

Pyrenean Field Study Services identifies and provides access to sites and expertise relevant to a visitors general or specific interests. Clients indicate their individual requirements, preferences and objectives on which quotations can be based. At this point availability of local expertise, and activities of local associations can be given.

For more information please contact me at the address below.

NICK GOLDSWORTHY, La Baquette, 09420, Lescure, RIMONT France

NEED HELP?

Do you need help? I can help with drafting, word processing, editing, polishing, proofing, indexing etc. Theses, papers for publication, dissertations and assessments (e.g. Health and Safety and **COSHH**) are stock-in-trade. If you do, contact me at the address below.

PETER J. COOK, 15 Park Avenue, Withernsea, HULL, E. Yorkshire HU19 2JX (tel. 0964 614466)

The Editor Gwynn Ellis can be contacted by phone on 0222-397951 ext. 218 (NMW) or 0222-496042 (home).

Articles can now be Faxed to the Editor on 0222-239829 or 0222-373219.

Offers and special terms apply only to members of the Society and copies are not available on an exchange basis.

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

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