

BSBI NEWS

Edited by R. Gwynn Ellis

41 Marlborough Road, Roath

Cardiff CF23 5BU

September 1999

No. 82



Asteriscus maritimus, Eastbourne, Sussex, del. Anon. © 1999 (see page 52)

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CONTRIBUTIONS INTENDED FOR

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should reach the Editor before

NOVEMBER 1st 1999

OFFICERS, COUNCIL & COMMITTEES TO MAY 2000

(Dates given are those of election for present service)

President:	Mrs M. Briggs, 1998
President-elect:	Dr G. Halliday, 1999
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Honorary General Secretary:	Mr R.G. Ellis, 1996
Honorary Treasurer:	Mr M.E. Braithwaite, 1997

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In order of seniority in accordance with Rule 11:

1996:	Mrs P.P. Abbott, Dr F.J. Rumsey, Dr M.C. Sheahan
1997:	Mr C.R. Boon, Prof. M.J. Crawley
1998:	Miss A. Burns, Mr A.O. Chater, Mr T.J. James
1999:	Mr P.H. Oswald, Mrs J. Robinson, Dr B.S. Rushton

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1995: Ireland	Dr D.W. Nash
1998: Scotland	Miss L. Farrell
1998: Wales	Mr R.D. Pryce

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Hon. Receiving Editor <i>Watsonia</i> :	Mr M.N. Sanford 1998
Hon. Editor <i>BSBJ News</i> :	Mr R.G. Ellis, 1986
Hon. Field Secretary:	Mrs M. Lindop, 1994
Youth Officer	Miss A. Burns, 1998
Project Manager	Mr D.A. Pearman, 1999

ex officio:

Chairman Meetings Committee:	Dr S.L. Jury, 1993
Chairman Publications Committee	Dr C.D. Preston, 1997
Chairman Records Committee:	Mr D.A. Pearman, 1999
Chairman Science & Research Committee	Prof. J.S. Parker, 1998
and Hon. Minuting Secretary:	Mr P. Thomson, 1995

PERMANENT WORKING COMMITTEES TO MAY 2000

The President, President-elect, Hon. Treasurer and Hon. General Secretary are *ex officio* members of all Permanent Working Committees.

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Dr S.L. Jury, Prof. J.S. Parker, Mr D.A. Pearman, Dr C.D. Preston, Dr M.C. Sheahan (Minuting Secretary).

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Dr S.L. Jury (*Chairman*), Miss A. Burns (*Hon. Sec.*), Mrs M. Lindop (*Hon. Field Sec.*), Dr D.E. Allen, Mr J.M.W. Topp, Mrs S.J. Taylor, Dr N.K.B. Robson, Mr A.R. Vickery, Mrs J.M. Croft, Dr A.J. Showler, Dr T.D. Dines (Atlas 2000), Mrs S.J. Whild (Co-ordinator).

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Prof. J.S. Parker (*Chairman*), Mr A.C. Jermy (*Hon. Sec.*), Dr R.J. Gornall, Dr F.H. Perring, Dr A.J. Richards, Mr F.J. Rumsey, Mr R.M. Walls, Mrs S.J. Whild (*Co-ordinator*), Miss R. Davies (*Plantlife Observer*), Dr R. Fuller (*BTO Observer*).

OTHER COMMITTEES

STEERING COMMITTEE for CO-ORDINATORS

Mr D.A. Pearman, Dr G. Halliday, Mr M.E. Braithwaite.

BSBI DATABASE (LEICESTER)

Mr M. Walpole (*Chairman*), Mr C.R. Boon (*Hon. Sec.*), Mrs M. Briggs, Prof. M.J. Crawley, Dr R.J. Gornall, Dr R.J. Pankhurst, Dr C.D. Preston, Prof. C.A. Stace.

VICE-COUNTY CENSUS CATALOGUE

Mr R.G. Ellis, Mr G.M. Kay, Mr D.J. McCosh, Dr C.D. Preston, Prof. C.A. Stace, Mr G.T.D. Wilmore.

IMPORTANT NOTICES

INCREASE IN SUBSCRIPTIONS

Our recent Covenant campaign produced very disappointing results and in order to continue to cover expenditure by income a modest increase in subscriptions is needed. At the AGM in May the following rates were agreed, to take effect from January 1st 2000 (current rates in parentheses).

For members in Britain and Ireland	
Ordinary	£20.00 (£18.00)
Family	£2.00 (£2.00)
Junior	£10.00 (£9.00)
Senior	£13.00 (£12.00)
Institutional Member	£20.00 (£18.00)
For other overseas members	£22.00 (£20.00)

Please remember that subscriptions should be sent Mr M. Walpole (*Membership Secretary*), quoting your membership number (see address label of this mailing, or membership list in current *Year Book*).

GWYNN ELLIS (*Hon. General Secretary*)

ATLAS 2000 ANSWER-PHONE ERROR

Unfortunately, due to an error with my answer-phone, all the messages recorded whilst I was on fieldwork in Scotland have been erased. If, therefore, you have not had a reply to a message left between 22nd July and 8th August, please get back in touch with me and I'll deal with your query straight away. I hope this has not caused too many problems and I apologise for the inconvenience.

TREVOR DINES, Rhyd y Fwch, Bethel, Nr Caernarfon, Gwynedd LL55 3PS. Tel: 01248 670789.
Email: Trevor@rhydyfwch.co.uk

BRITAIN AND SCANDINAVIA – SOME BOTANICAL LINKS
THURSDAY MARCH 9TH

Joint Meeting with The Linnean Society of London

This one day meeting will be held in the rooms of the Linnean Society, Burlington House, Piccadilly, London from 10.30 a.m.

Dr Bengt Jonsell, Honorary Member of BSBI (and Honorary Fellow of the Linnean Society of London) has agreed to give the keynote lecture, with other invited speakers. A full programme with details of all the papers and speakers, and application instructions will be sent out with the January mailing. Meanwhile a date for your Millennium diary?

MARY BRIGGS, President

BSBI PUBLICATIONS – BACK NUMBERS

The Society's agents, Dawsons UK Ltd, of Folkstone, Kent, hold substantial stocks of back numbers of *Watsonia*, *Proceedings* and *Abstracts*, typically around 100 copies of each issue.

Dawsons have given notice that they wish to be relieved of holding stocks in view of the extremely slow sales. From the stocks of *Watsonia* before 1970, they have sold one or two copies of each issue since 1987, and up to five of each issue since 1970. From stocks of *Proceedings* they have sold 20 copies since 1978 (only one since 1987!) from stocks totalling 2700 copies. From stocks of *Abstracts* they have sold three to five copies from each year from stocks totalling 2700 copies.

The Society proposes to keep 10 sets of all issues up to 1990, all spare issues from 1991 onwards, and pulp the rest. Sentiment should not rule common sense!

Members will have a last opportunity to acquire back numbers, the offer expiring on 31 December 1999. The cost will be postage plus a handling fee (£5 up to 10 issues, £10 for 10-50 issues and £20 for over 50 issues).

The following parts are available.

WATSONIA

Vol. 1 All Parts	Vol. 5 Parts 1-4 +6 + index	Vol. 18 Parts 1, 3, 4 + index
Vol. 2 Parts 1-3 + index	Vols 6-15 All Parts	Vol. 19 Parts 2, 3 + index
Vol. 3 Parts 1-4 & 6	Vol. 16 Parts 1-3	Vol. 20 All Parts
Vol. 4 Parts 2-5 + index	Vol. 17 All Parts	

PROCEEDINGS

Vols 1-7 All Parts (except Vol. 5 Part 1)
 (only 2 copies of Vol. 2 Part 4)

ABSTRACTS

Vols 1-26 All

CHRIS BOON, Secretary, BSBI Publications Committee, 68 Mill Lane, Greenfield, Bedford K455DF
 chris.boon@which.net

DIARY

N.B. These dates are supplementary to those in the 1999 Calendar in *BSBI Year Book 1999*.

1999

October 30th Workshop on Mediterranean Plants, tutored by Franklyn Perring, at the South London Botanical Institute. Prior booking essential on 0181 674 5787.

November 6th Scottish AGM, Stirling (v.c. 86) *Not* November 1st as published in *BSBI Year Book 1999*.

2000

March 9th *Britain and Scandinavia – some botanical links*. A one day meeting at Linnean Society, London (see page 4)

EDITOR

EDITORIAL & NOTES

Those members who signed a Get Well card for David McClintock at the AGM, will be pleased to hear that he has fully recovered and since mid-summer he has resumed his many botanical activities.

New post code and telephone dialling code for Editor and Hon. General Secretary: Please note that my postcode has changed **from** CF2 **to** CF23 with immediate effect (the 5BU suffix remains the same) and my telephone dialling code will change on 22 April 2000 **from** 01222 **to** 02920 (again the number 496042 remains the same). Until the change over next year both dialling codes will work.

Congratulations to: Mr Dick Roberts, an Honorary Member of this Society, for receiving the prestigious Bloomer Award from the Linnean Society of London for his work on dactylorhizids and polypodies.

To: Dr John Edmondson, appointed as Botanical Secretary to The Linnean Society of London at the 1999 Anniversary Meeting. We wish him well in this new assignment, and also send to John many thanks for his valuable help as an editor of *Watsonia* for many years, from which he has now resigned.

To: Professor Stephen Blackmore (Keeper of Botany at The Natural History Museum) who has been appointed the new Regius Keeper of the Royal Botanic Garden Edinburgh (RBGE) by HM The Queen and he will take up his new post in October 1999.

Also to our sister organisation Plantlife on the agreement of HRH The Prince of Wales to become their Patron.

And Since announcing Geoffrey Kitchener and Douglas McKean as the winners of the *Presidents' Award* for 1998 for their work on finding new hybrids of *Epilobium*, a paper by D.R. McKean publishes the name *E. × kitcheneri* in 'A new *Epilobium* hybrid from Scotland, *E. pedunculare* A.Cunn. × *E. montanum* L.', *Watsonia* **22(4)**: 417-419.

AEM 1999 – With this mailing you will receive the notice for Annual Exhibition Meeting 1999 – again in London, as when we asked for members' views on this, the replies were 2:1 in favour of London against other centres. So Meetings Committee decided on two years in London, followed by an out of London Exhibition Meeting in 2000. We hope that you are considering possible exhibits for the occasion and to see many of you at Baden Powell House on 27th November 1999.

Apologies to Eva Crackles, John Presland and Peter Thomas for some errors that crept, uninvited, into their papers in the last issue. Details for those in Eva's and John's papers are given in *Corrigenda Corner* on page 73, while Peter has put his corrections into a new paper (page 49).

Is it a plant? No it's a potato! – my thanks to Richard Addington for the following gem from the April issue of *Accounting Technician*:

‘When is a prawn cracker not a prawn cracker? This and other fishy tales have been taxing officials at UK Customs and Excise recently as they tried to establish its VAT rating. For the record, products that are packaged for human consumption and made from potatoes are standard rated; products made from tapioca are zero rated because tapioca is a plant not a cereal.’

Richard adds ‘My understanding is that tapioca comes from the tuber of *Manihot esculenta*, a member of the Euphorbiaceae.’

Genetically Modified Plants: In *Kew Spring* 1999, Stephanie Pain writes on the dangers of introduced genes from manipulated crops grown commercially finding their way into wild plants, and that new hybrids carrying novel genes can cause a loss of genetic diversity. She reports that in Switzerland the wild *Medicago falcata* (sickle medick) once widespread, now survives in one small corner of the Country only. It has been replaced by assorted hybrids, the result of breeding with *M. sativa*, the forage crop alfalfa. Repeated backcrossings produce plants with more alfalfa genes and eventually little trace of the genes of the wild species remains.

And finally, A note in the Daily Telegraph reports that ‘The loos at the offices of *Gardener's Question Time* have new signs. Instead of Ladies and Gents, there are horticultural watercolours marked: *Lathyrus odoratus* and *Allium porrum*. In English, that's sweet pea and leek.’ (with thanks to Dorothy Lousley for sending this.)

Among the inserts with this mailing are: *BSBI News*, AEM Notice, Scottish Annual Meeting Notice, *BSBI News Index* to Nos. 61-70 (if ready in time), *BSBI Books* catalogue and two leaflets with book offers.

GWYNN ELLIS, Editor & MARY BRIGGS, President

OBITUARY NOTES

With regret, since the Notes in *BSBI News* 80, we report the deaths of:

Alan Underhill who died on April 8th 1999, aged 62. Chris Pogson writes of Alan – ‘He became a member of the BSBI only in 1994, but the four years since then were filled with botanical forays and discoveries of plants new or unusual for the British flora. Alan's interest in the natural world started with birds and he remained a keen ornithologist to the end of his life. In the late 1980s, however, he started to photograph British orchids and his enthusiasm for the larger flora grew from this. In the past ten years, Alan spent most of his free time travelling extensively throughout the British Isles in search of plants to photograph for his collection. He was perhaps one of the most successful ‘twitchers’ in the country, recording seeing over 3,700 taxa (excluding *Hieracium*, *Taraxacum* and *Rubus* species). A ‘twitcher’ maybe (for those of a judgmental inclination), but Alan's detailed notes of sites form a solid record which will serve our successors well in recording for future updates of the UK flora. Many, including senior members of this Society, owe Alan gratitude for his willingness to provide this information to serious botanists.

In recent years, Alan recorded widely, and particularly on Tresco in the Scilly Isles, his name occurring frequently in the lists of new aliens published in *BSBI News*. Alan's knowledge of particular habitats in the British Isles was formidable; he knew most of the interesting municipal ‘tips’ as well as the mountain tops and seashores. He botanised from Hermaness in Unst to St Agnes in his favourite Scilly Isles, and from the machair of South Uist to the cliffs of Dover. Many members will remember fondly having been with him on these expeditions. Better to take food with you and be prepared to eat it as and when – for, with Alan, you were likely to be botanising non-stop from seven in the morning until sundown after ten at night in the Scottish summer, and this was a serious business!

One sunny and warm cloudless April morning in 1996, Alan and I stood on the grassy sward just above the seashore on Bryher. We were looking for the dwarf pansy, *Viola kitaibeliana*, but it seemed to be eluding us that day. Until we sat down – for then we saw the myriad of perfect miniatures surrounding us for yards in each direction. It was a moment of joy, a time to treasure, as we looked out over the Atlantic waves nearby. Alan's botanical trips gave him many such experiences, shared with others who travelled with him. Those who visit 'Alan's sites' will remember him kindly as their guide.

Also, at the age of 84, **Dr Albert G. Long**, the former BSBI Recorder for Berwickshire v.c. 81. Michael Braithwaite writes – 'Albert Long contributed to the Atlas field work, compiled a meticulous card-index of the historical literature records of v.c. 81 and, with his son David working the bryophytes, carried out field work that was to be the foundation for *The Botanist in Berwickshire*, a checklist of the flora, published by Michael Braithwaite and David Long in 1990. A Yorkshireman, Albert Long taught for many years at the Berwickshire High School at Duns. In addition to field botany he was a keen lepidopterist, working a light trap for moths, but his special interest was fossil plants and in his retirement he devoted himself fully to the Carboniferous flora of the rocks along the Whiteadder Water which offer a window on the evolution of the first flowering plants. His work won international respect. He fascinated his visitors with superbly presented expositions of his fossil flora work, after which his wife Gladys would serve splendid teas.'

Also **Gordon Knight** of Haverfordwest, Pembrokeshire, a member since 1978 and a frequent contributor to *BSBI News*, indeed two of his notes are published in this issue (see page 29). An extensive obituary appears in *Wildlife* No. 80 (Summer 1999), the magazine of the West Wales, Wildlife Trust and I can't help quoting from two paragraphs. 'Most of all Gordon enjoyed being out in the field. He was the most careful of observers, . . . but above all someone who was a delight to be with . . . His expeditions with Dr John Etherington, Stephen Evans and Roy Lewis . . . have been described as being a bit like a natural history version of 'Last of the Summer Wine'.

'A great love was Real ale on which he was an expert and would travel huge distances in a constant quest. On arrival in Pembrokeshire he quickly established a branch of CAMRA and could always be relied upon to know the best hosteleries. Indeed he would often terminate his evening lectures early in his eagerness to sip a few jars before closing time.' (Gwynn Ellis).

Also ***Joan Clark** of Onich by Fort William, who was congratulated in the January *BSBI News* for attaining her 90th year; ***David Coombe** of Cambridge, known to many members and particularly for his long informative letters full of taxonomic and ecological interest; ***Michael Mullin** who sadly did not make a final recovery. Mike will be remembered by many members, especially possibly for his organisation of the Exhibition meeting at the Natural History Museum for so many years, and for his wide knowledge of plants.

Also ***Paul Bowman**, for many years v.c. Recorder for S. Hants; ***Dr Karl-Heinz Rechinger** of Vienna, an Honorary Member of BSBI, a member since 1938 and an outstanding taxonomist of this century; ***Bill Smythies**, joint author with Oleg Polunin of *Flowers of South-West Europe a field guide*; **Dr Ursula Smith** of Brighton – Eileen Howard writes of Ursula that most of her working life was spent in education, with particular interests in ecology and the historical origin of wild plants. Her PhD thesis was on the distribution of *Tephrosieris integrifolia* (Field Fleawort) in relation to Iron Age archaeological sites, and with the Sussex Biological Society she was a keen recorder for *Sussex Plant Atlas*.

Also **Prof. Brian Fox** of Stockport who had been a BSBI member for 43 years, and **Ron Clough**, who since retirement had been an active member of the Sussex Botanical Recording Society, assisted the W. Sussex Recorders with computerisation of records for Atlas 2000, and his paper '*Arum italicum* (Italian Lords-and-Ladies) in Sussex' was published in *BSBI News* 79.

An Obituary in *Watsonia* is in preparation for those marked *; for Dr Rechinger, an Obituary has been published in *Watsonia* 22(4). You are reminded that for Duggie Kent the Obituary will be published in the Kent Memorial Volume of *Watsonia*, 23(1) March 2000.

BSBI was represented at the funerals of many of the above.

PROFILES OF NEW HONORARY MEMBERS

At the Annual General Meeting in London, three new Honorary Members were nominated for election. The sponsor for each candidate gave a short profile of the nominee and these are published here, more or less as they were presented. Two of the sponsors were unable to attend the AGM (John Richards and Bruno Ryves) and their contributions were read out.

E.J. Clement

Eric Clement joined the Society in 1963, several years before I first met him, and his botanical zeal remains undiminished to this day. He quickly established himself, serving on several BSBI Committees, and became a popular leader of field meetings in the UK. Later he led meetings in the Mediterranean region, including the annual expeditions to S. Spain with John Carr, whence his knowledge of foreign plants rapidly developed. This led quite naturally into a keen interest in British alien plants, and I had the pleasure of assisting him in taking large coach loads of members to scour selected London rubbish dumps ('the dirtier, the better') in 1970 and 1972, following in the footsteps of the classic alien hunts organised by John Dony. We also visited the shoddy fields of Bedford and Blackmoor (Hants.) under the auspices of Lady Anne Brewis and Ted Lousley in their halcyon days. In the early *BSBI News* he wrote the Adventive News sections Nos. 1-23, and always managed to organise a beautiful cover illustration of an alien plant drawn by some friend, often Graham Easy.

He and Sally Foster will ever be remembered for the BSBI's 1994 publication *Alien Plants of the British Isles*, a truly magnificent *magnum opus*, the result of over 20 years work, which has achieved world-wide recognition. The *Alien Grasses of the British Isles* followed in 1996. For this work he and Sally received the first BSBI and Wild Flower Society *Presidents' Award*.

On a personal note, Eric is one of the most modest people I know, always unwilling to push himself forward into the limelight, but always ready to help others to identify exotic, garden or alien plants, and to encourage new-comers to study plants. As Clive Stace writes in his recent *New Flora of the British Isles*, 'David McClintock and Eric Clement[']s . . . knowledge of British alien plants is unparalleled, and shared freely'.

At the time of writing this appreciation, he is about to describe a new alien, *Ludwigia* × *kentiana*, named in honour of the late Duggie Kent and I am delighted to propose Eric Clement as an Honorary Member of the BSBI.

BRUNO RYVES

Dr B.S. Rushton

Brian Rushton, a Reader in Biological Sciences at the University of Ulster in Northern Ireland, joined the BSBI in 1971. He has served the society well in a number of capacities, a member of Council from 1991 to 1998, on Publications Committee from 1984 to 1998 and as a member of the editorial panel of *Watsonia* from 1984 until 1998. He initiated the publication of *Irish Botanical News* which he has edited since 1991.

Brian undertook the position of Honorary Receiving Editor of *Watsonia* in 1991 and it is largely through his attention to detail that the Journal has continued to be produced to such a high editorial standard and scientific quality. The position of Receiving Editor is not an easy one, requiring tact when papers have to be rejected, patience when referees fail to meet deadlines, perseverance when promised papers fail to appear, broad shoulders when confronted with criticism from members over content – to name but a few of the attributes which Brian has so ably displayed for he has had more than his fair share of problems in these directions over the past 7 years. Our publications committee spent considerable time in discussions over the format and illustrations which now appear on the cover of *Watsonia*, Brian was responsible for commissioning many of the drawings which were considered in

committee over a number of years and forcefully brought seemingly endless discussion to a close by choosing the illustrations which now appear on each issue of the journal.

All the above has been carried out despite a busy and demanding teaching role at university and involvement with many other interests and it is fitting that we should acknowledge, by his election to Honorary Membership, the very substantial contribution Brian has made to the affairs of the BSBI. We have been most fortunate in enjoying his considerable expertise for so many years.

MICHAEL WALPOLE

Professor G.A. Swan

George Swan has been closely identified with the botany of Northumberland for more than forty years, and over these years he has acquired an intimate and detailed knowledge of the flora of this large, wild and remote county which has never been surpassed. During his four decades as County Recorder, he has been largely responsible for the huge progress that has been made in the study of the particular floristics of this region, and this was brought to magnificent fruition in 1993 with the publication of the *Flora of Northumberland*. More, perhaps, than for any other recent County *Flora*, this was very definitely the work of one man; a superbly accurate and scholarly account which depended to an astonishing extent on his own records. Swan's discoveries in Northumberland are legion; to mention a few *Alchemilla gracilis* (now *A. monticola*) new to the British Isles, *Lathyrus japonicus* (Sea Pea), *Epipactis phyllanthes* (Green-flowered Helleborine), *Diphasiastrum complanatum* (Issler's Clubmoss), *Carex aquatilis* (Water Sedge), *Dryopteris expansa* (Northern Buckler-fern), *Linnaea borealis* (Twinflower), *Eleocharis austriaca* (Northern Spike-rush) and *Persicaria minor* (Small Water-pepper). He has also been indefatigable in his quest for long-lost plants, and in his scrutiny of newly recorded ones. Newly recorded species are inevitably followed by '1S' for the same year in Swan's *Flora*. He still possesses the stamina and agility of his youth; not many born during the First War can still cover many miles over rough moorland during successive days! Before the war, he regularly visited high remote Pennines such as Mickie Fell and Cross Fell by taking a train from Newcastle to Middleton (those were the days!) and returning the same day having covered 28 miles and ascended nearly 3000 ft on foot.

Professionally, George was an organic chemist who spent his whole career at the University of Newcastle (formerly Kings College), just north of his native Gateshead. He was first introduced to field botany by J W Heslop-Harrison during undergraduate classes. Much later, Katy Blackburn, then lecturer at Kings College, rekindled his enthusiasm for botany at the time of the Atlas field work in the early 1950s. Such was his enthusiasm and natural ability that he became Vice-county Recorder within a few years. The natural curiosity of a trained scientist has led to detailed studies which have done much to clarify taxonomic problems relating to several of our upland species. In particular, critical species 'pairs' have attracted his attention, so that he has made notable contributions to our knowledge of *Vaccinium microcarpum* (Small Cranberry), *Empetrum hermaphroditum* (Mountain Crowberry), and, most recently, *Scirpus cespitosus* (Deergrass). The lattermost painstaking study recently culminated in two illuminating *Watsonia* papers in which he demonstrated convincingly that the true *S. cespitosus* occurs in Northumberland, and that many plants previously so-called are in fact hybrids. Increasing maturity has not impeded his grasp of complex technique. His recent *Scirpus* studies have involved the microscopic measurement of stomatal sections and pollen dimensions using his home microscope, also used in the study of another enthusiasm, *Sphagnum*.

In his single-minded study of the plants of north-east England, George Swan has become one of our most influential botanists, leading by example and sought out by specialists. He is truly deserving of the honour of honorary membership of the BSBI.

JOHN RICHARDS

ATLAS 2000

PROGRESS REPORT

The final season of fieldwork for the Atlas 2000 has prompted a huge amount of activity in Britain and Ireland. The number of hours being put into the project by recorders is phenomenal, and we are thrilled that the level of enthusiasm seen at the start of the Atlas has not only continued but increased.

Our 'final push' for this last season has certainly been a success, and we are confident that many areas we feared would be under recorded have now received at least reasonable coverage. This fact is mirrored in the data that has been submitted so far. For example, some areas of Scotland for which we were quite prepared to accept 1970+ records have actually produced good 1987+ coverage. This encouraging fact, however, does not mean that we are without problem areas and some counties will be less well recorded in the 1987+ date class than we had hoped, despite our best efforts to galvanise help.

Much progress has now been made on the publication front, and also with the production of species captions (see below). Obviously, there is still much to do and still many areas where help would be appreciated, but we are certainly on target, and confident that we have every chance to make the Atlas a success.

Final Dates for Records

Please remember that **all records have to reach Vice-county Recorders by 1st October** (but not 1st September, as I said in the *Strategy for the Final Year* booklet!). I cannot stress how important this date is, as the Recorders face a huge data processing task between then and 1st November, which is when all their Atlas data has to be submitted to us. Neither the Recorders or us will be able to process dribs and drabs of data after these dates, so please stick to them rigidly and help us all!

Some records will require determination by a BSBI Referee. If this is the case, please get specimens to them as soon as possible. For taxa that are best identified towards the end of the season, this could be a problem. For roses, however, Tony Primavesi has offered to determine all material sent to him in time for the Atlas.

Data Submission

Once again, a stunning amount of data has been submitted in the last few months, despite the demands of the field season. In Britain, data for 2284 hectads (81% of the total) has now been received (see map page 12.)

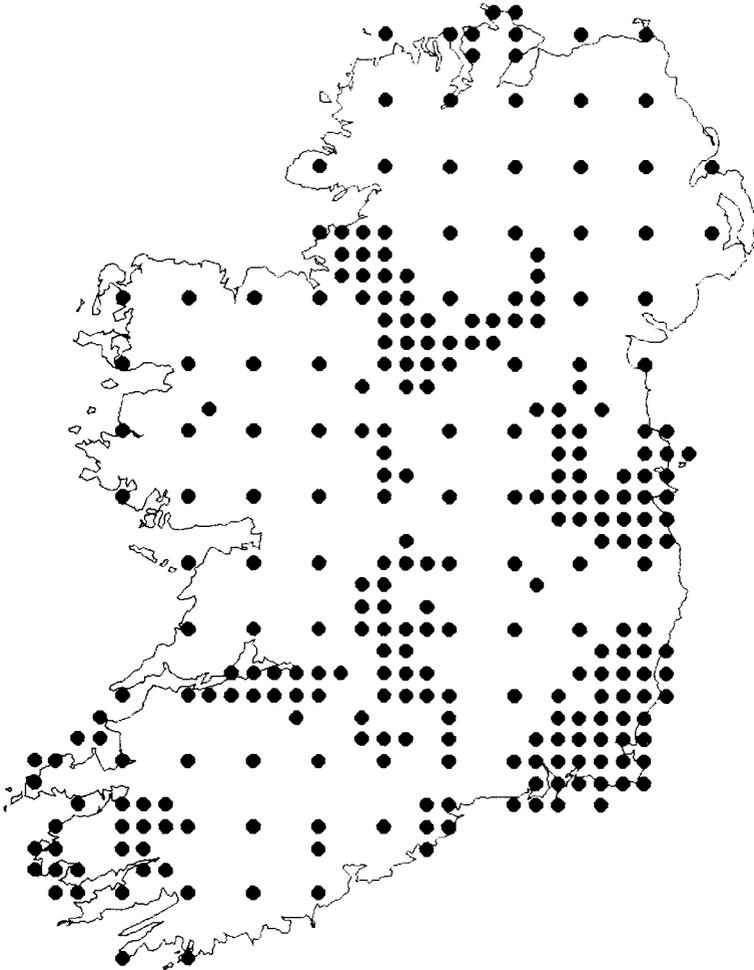
An additional 18 counties have now 'completed' (or very nearly completed) the bulk of their Atlas 2000 submissions. These are:

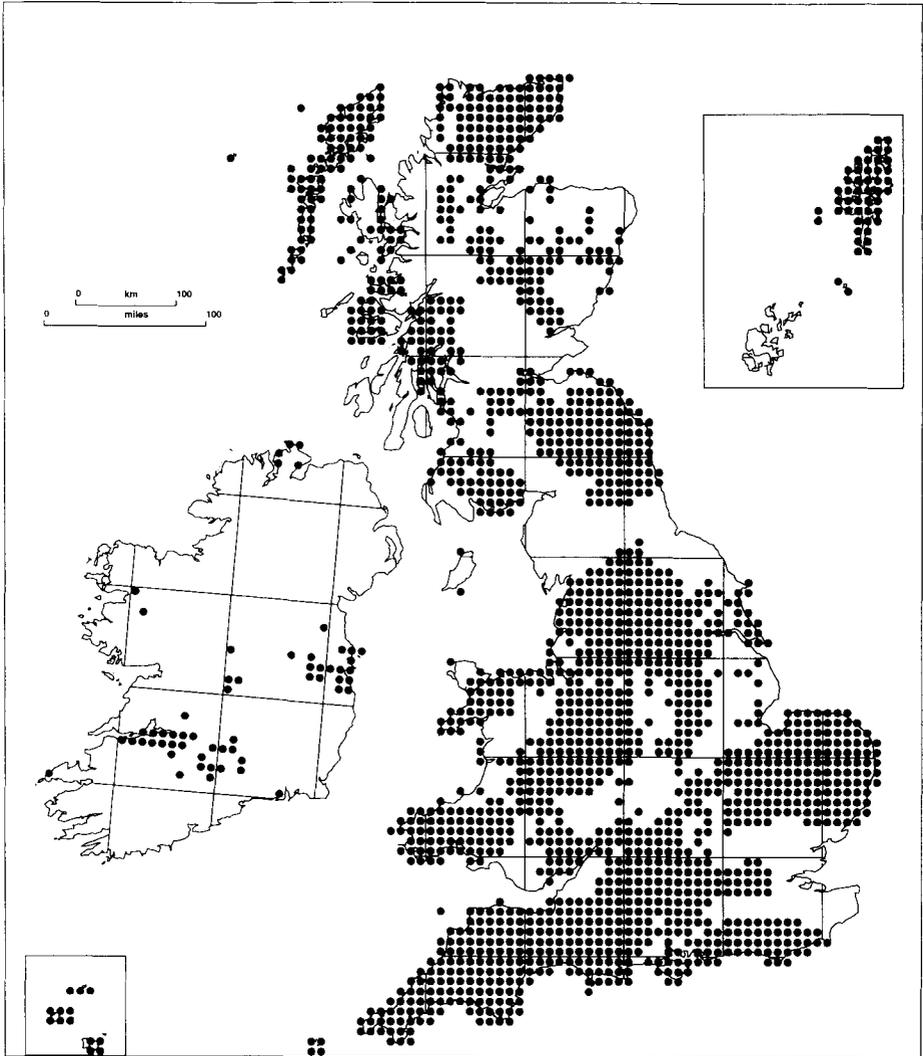
<i>Vice-county</i>	<i>Submitted by</i>	<i>No. of Squares</i>	<i>Method of Submission</i>
Jersey	Joan Banks	6	Mastercard
W. Cornwall	Colin French	24	Disk (using Erica)
Scilly	Rosemary Parslow	4	Disk (using Recorder)
Wilts.	Sally Scott-Wight	36	Disk (using BioBase)
Bucks.	Roy Maycock	18	Disk (using Aditsite)
Camb.	Derek Wells	29	Disk (using Recorder)
Gloucs.	Mark & Claire Kitchen	32	Mastercard
Herefs.	Jon Mallabar, Stephanie Thompson	21	Disk (using Recorder)
Cards.	Arthur Chater	20	Mastercard
Leics.	Michael Jeeves	24	Disk (using Aditsite)
S.E. Yorks	Peter Cook & Eva Crackles	40	Mastercard
Co. Durham	Alec Coles	28	Disk (using Recorder)
Man	Larch Garrad	14	Mastercard
Stirlings	Edna Stewart & Allan Booth	11	Disk (using Recorder)
Angus	Barbara Hogarth	26	Disk (using Aditsite)
Kintyre	Pat Batty	23	Disk (using Aditsite)
Mid Ebudes	Lynne Farrell	27	Mastercard
W. Ross	Douglas Henderson	40	Disk (using Aditsite)



Most counties have now submitted the bulk of their data. For those that have not (currently 40 counties), the data is mostly on its way. Several counties are, however, causing concern and we will be actively chasing these as the deadline approaches.

In the Republic of Ireland, data is now arriving as both Mastercards and on disks. A huge amount of recording is being done this year, so many Vice-county Recorders are leaving data submission until the end of the project, but data for 281 squares (28% of the total) have now been received (see map below).





ATLAS 2000: total coverage on 23 June 1999

Three counties have finished submitting their data:

<i>Vice-county</i>	<i>Submitted by</i>	<i>No. of Squares</i>	<i>Method of Submission</i>
Co. Wexford	Ro Fitzgerald & David Humphreys	40	Disk
Co. Dublin	David Nash	16	Mastercard
Co. Leitrim	Don Cotton	23	Disk

Data Entry at Monks Wood

An additional 1.4 million records have now been added to the 'Trevor Table' on the Monks Wood database, bringing the total number of Atlas 2000 records to an astonishing 2.8 million. Some 2.4 million of these records have arrived on disk. The map on page 14 shows the 1864 squares (66% of the total) that have been entered at Monks Wood.

Verification and Discrepancy Lists

As data is entered at Monks Wood, Verification and Discrepancy lists are produced and returned to Vice-county Recorders. These give the records they have submitted (allowing them to check and correct them) and any additional records that Monks Wood have but they apparently do not.

The production of these list has, in some cases, not been as fast as we would have liked, with some Recorders not receiving their lists until July or August. I'd like to apologise for this delay, caused by a combination of slow computers and my own workload! At particularly busy times, Monks Wood staff have helped produce extra lists, for which I am extremely grateful.

The lists produced by me are done so using a link to the ITE Monks Wood database that has been established at ITE Bangor. I'd like to thank the staff at ITE Bangor (particularly Adrian Thomas) for being so helpful and welcoming.

Once Vice-county Recorders have checked their Verification and Discrepancy lists, they are returned to Jane Croft at Monks Wood, who alters the records on the database. These changes include deleting historical records that have been rejected, changing status classifications and correcting errors that have arisen during Mastercard entry.

Pink Cards

Jane Croft will also soon be starting on entering the more detailed records for Rare and Scarce taxa that have come in on Pink Cards. All Recorders are encouraged to submit pink cards for records of Rare and Scarce that are not already at BRC, and this will considerably increase the value of the final database.

Species Captions

Captions for the Atlas 2000 maps continue to arrive from our volunteer authors, and we have currently received 625. The final number of captions is unknown, as we can only decide which taxa will be mapped once all the data has arrived, but it will probably be around 2300. This means that only 27% of the captions have been submitted. If you have volunteered to write captions, **please get them done as soon as possible**. Editing and formatting the captions is a lengthy process, and we must therefore have them in time.

We still urgently need help with writing some captions, and there are several families needing authors (Brassicaceae, Chenopodiaceae and several alien families). Any offers of help (which will be greeted with extreme enthusiasm) should be addressed to David Pearman (The Old Rectory, Frome St Quintin, Dorchester, Dorset DT2 0HF, tel:01935 83702).

To give you an idea of the captions being produced, two examples are reproduced below:

Calamagrostis stricta (Timm) Koeler

Narrow Small-reed

A tufted rhizomatous perennial herb of near-neutral mires and lake margins. Lowland, ascending to 340 m at Kinside Loch.

It is hard to assess trends in the distribution of *C. stricta* as it has been confused in the past with *C. scotica*, *C. purpurea* and hybrids with *C. canescens* (including *C. × gracilescens*). It has certainly been lost from some sites through drainage, but is easily overlooked and may still be extant in several squares for which only pre-1987 records are available.

References: Crackles (1995, 1997), Stewart *et al.* (1994), Wigginton (1999). S.J. LEACH

Berberis vulgaris* L.*Barberry**

A deciduous, spiny shrub that is frequently cultivated and used for hedging. It is found in hedgerows, banks, coppices and waste ground. Lowland, reaching 395 m on Wanthwaite Crags, Cumbria.

The status of *B. vulgaris* in Britain and Europe is under debate; although widely planted for hedging, it is regarded as native at some sites (e.g. Wanthwaite Crags, Cumbria). In the 19th Century it was found to be the alternate host for a rust fungus (*Puccinia graminis*) that attacks wheat, and was consequently eradicated from many hedgerows.

References: Halliday (1997)

T.D. DINES

Publication

Several constructive meetings have been held between representatives of BSBI, ITE, DETR and DoC (the publication branch of DETR) regarding publication. As a result, a consultant (Mr Jerrold Baldwin) has produced several sets of design briefs, which are now being shown to potential publishers.

The final maps (of which there will be two per page, side by side) will have native records in blue and alien records in orange. The various date classes will be shown using a large square for 1987+ records, a small triangle for 1970-1986 records, and a small dot for pre-1970 records (this places emphasis on the 1987+ records, for which we have better coverage than anticipated). The number of records in each date class in Britain and Ireland will be tabulated at the base of the map. For taxa not being mapped, such data will appear in a tabular appendix. The species caption will appear below each map. A sample page layout will appear at the Exhibition Meeting.

For a selected suite of taxa, their current maps will be reproduced in a separate chapter alongside their map from the 1962 *Atlas*. This will illustrate increases and decreases in distribution, and will include discussion of the reasons for these changes.

We are extremely pleased with the design briefs, and would like to thank Jerrold Baldwin for producing them. We sincerely hope that the next stage of the process, the appointment of a publisher, will be completed quickly; DoC advises us that we can expect publication early in 2001.

Change of email Address

Please note that my email address has changed to the following.

Trevor@rhydyfowch.freeserve.co.uk

The unpronounceable bit is the name of the house where I live, not a swear word as some people have suggested.

Acknowledgements

The Atlas 2000 project is funded by the Department of the Environment, Transport and the Regions (in Great Britain) with additional support from the Environment and Heritage Service (Northern Ireland) and the National Parks and Wildlife Service (Republic of Ireland). Additional support has come from numerous other sources, particularly Scottish National Heritage and the Wild Flower Society. We are grateful to all these bodies for their support.

TREVOR DINES, Rhyd y Fowch, Bethel, Caernarfon, Gwynedd LL55 3PS. Tel: 01248 670789.

Email: Trevor@rhydyfowch.freeserve.co.uk

CO-ORDINATORS' CORNER

With fieldwork for the Atlas drawing to a close this autumn, members of the Society are beginning to ask 'what next?' At least, some are: others are probably saying 'phew! Glad that's out of the way!' The Atlas has taken an incredible amount of work by a very large number of people, and it is unlikely that anything like it will ever be done again – more than half the work of processing and analysing the data has been done by hand. The final product will owe little more to computers than did the original

Atlas, back in the 1950s. But all that is set to change, as the BSBI moves into the digital age. In a few years' time it will be unimaginable that so much work was performed using nothing more than pen and paper.

Computerisation Strategy

The main development this year has been the launch of our NBN accreditation scheme, which all sorts of information managers, from amateur v.c. recorders to professional records centres, can sign up to. Those joining the scheme receive training, workshops, access to a whole variety of data, quality control procedures, cash, computers, assistance with grant applications and bidding for contracts, and a source of volunteer help: a whole range of services that help them get the job done properly. In return, these 'nodes' manage the botanical data for their county or area on behalf of the Society, and supply us with the information we need for national projects.

The scheme has had a successful start. At first we were terrified that no-one would join, and the time-honoured tradition of hoarding away a secret cache of data would prevail; but in the first 6 months we have been delighted that 20 organisations and individuals have joined. Of particular help in establishing it and setting procedures were Martin Sanford at Ipswich Museum, Roger Riddington of the Shetland Records Centre, Chris Boon at Bedford Museum, Alec Coles at Tyne & Wear Museums, and Jon Mallabar of the Herefordshire Botanical Society. Not all the participating organisations are county based: Margaret Cole is computerising the Birmingham University herbarium and at the Natural History Museum Alison Paul and Rosemarie Rees are getting the process started (more about that below). Between them, these 20 data sets contain 2 million records on computer, and the total is rising fast. In the next year we would like to have 20 more nodes join the network; we have numerous candidates, but if anyone is interested we would welcome additional enquiries. The network is mostly restricted to Recorder users at the moment, but we are working on transfer procedures that will allow users of other software to change over painlessly.

Volunteers needed at the NHM

The Natural History Museum has a herbarium comprising approximately 6 million plant specimens. Of these, c.350,000 are British flowering plants. The process of computerising the British Herbarium collections started in the 1980s, when Richard Pankhurst and others put details of all 16,000 specimens of the Caryophyllaceae on a database. More recently a new system has been set up to database rare and endangered British plants using Microsoft Access. Much of the data entered will also be fed into the TPDB. What is needed, however, is botanically-minded people to give some time to working on the collection. It is not demanding work: the task of typing in details requires some knowledge, and especially interest, in botany and botanical history, but no particular expertise. If any Londoners (or members from further afield) are willing to help, please could they contact either us, the co-ordinators, or Alison Paul at the Museum (Botany Department, Natural History Museum, Cromwell Road, London SW7 5BD, tel. 020-7942-5756, e-mail a.paul@nhm.ac.uk. You could combine it with checking out the Museum's collections from your area of interest!

Threatened Plants

Firstly, many thanks to everyone who contributed records of Pillwort, *Pilularia globulifera*, and Grass-wrack Pondweed, *Potamogeton compressus*, following our appeal in *BSBI News* 81. The most interesting record was of *P. compressus* in the River Dove, by Chris Walker; but that still leaves perilously few semi-natural stations for this plant. Lots of people have helped with the Pillwort records; but new information is always welcome.

We would like to make an appeal for entirely different information this time. The Threatened Plants Database contains very little information on sites for rare arable weeds. We have lots of individual records, but often it is not possible to tell whether these are from arable fields or quarries, spoil heaps, and other locations where these plants tend to turn up as casuals. If anyone knows of any arable farmland with regular crops of interesting weeds, we'd like to know more about it. Ideally, we would like to know the name of the farm, and the details of crops and weeds in the relevant field(s). Species of interest include *Agrostemma githago*, *Adonis annua*, *Centaurea cyamus*, *Filago lutescens*, *F. pyramidata*, *Fumaria occidentalis*, *F. purpurea*, *Galeopsis angustifolia*, *Melampyrum arvense*, *Silene gallica*, *Scandix pecten-veneris*, *Torilis arvensis*, *Valerianella ramosa* and *Ranunculus arvensis*.

Historical records

Tim Rich will be running a course on collating and using historical records, at the National Museum of Wales in Cardiff, on 26th February 2000. The course will concentrate on literature sources and herbaria, and give advice on dating old records, identifying the collector from often partial information, and trying to find the locality from which the specimen was taken. There are numerous pitfalls, so it is not as simple a task as it might seem. The workshop is priced very reasonably at £15: if you would like to attend, please send a cheque (made out to the National Museum of Wales) and your name and address to us (the co-ordinators) or to Dr T.C.G. Rich, Dept. of Botany, National Museum of Wales, Cathays Park, Cardiff, CF1 3NP.

SARAH WHILD & ALEX LOCKTON, 66 North Street, Shrewsbury SY1 2JL.

Tel. & Fax: 01743 343789; e-mail: s.j.whild@whild.icom-web.com or alex@whild.icom-web.com

RECORDERS AND RECORDING

AMENDMENT NO. 2 TO BSBI YEAR BOOK 1999

Panel of Referees

With the tragic death of Mike Mullin through cancer, we have lost a very loyal and competent referee. Mike had been refereeing aliens in general and also *Chenopodium* for some fifteen years, and in that period determined hundreds of specimens for members. He will be sadly missed.

Changes of address:

Dr Trevor Elkington, who referees *Erophila*, has pointed out that his address in the list of referees is no longer correct. This will be corrected in the 2000 Yearbook, but meanwhile please note that specimens should be sent to: 91 Parkhead Road, Whirlow, Sheffield S11 9RA

Mr N.F. Stewart, who referees general **Charophyta** has moved to: Cholwell Cottage, Posbury, Nr Crediton, Devon, EX17 3QE. Tel.: 01363 773779; Email: nstewart@eurobell.co.uk

MARY CLARE SHEAHAN, 61 Westmoreland Road, Barnes, London SW13 9RZ; tel. 0181 748 4365
E-mail: m.sheahan@rbgkew.org.uk

V.c. Recorders

V.c. 11 S. Hants. We are very sorry to report the death of Mr Paul Bowman, who had been the recorder since 1973. He was a tireless accumulator of records, an excellent correspondent, and a joint author of the recent first-rate *Flora of Hampshire* (see also p. 8).

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

NOTES AND ARTICLES

CALLITRICHE PALUSTRIS L. NEW FOR BRITAIN AND IRELAND

In July 1999, whilst on a botanical holiday in western Ireland, John Bruinsma (JB) found a *Callitriche* growing on clay in the dry bed of a turlough which Richard Lansdown (RVL) was subsequently able to confirm as *C. palustris*. *C. palustris* is included in most texts covering British aquatic plants, however there is no evidence that a specimen has been confirmed. Schotsman (1967) lists England in a review of the distribution of the species ('Angleterre [1 localit e seulement]') without precision, however Preston and Croft (1997) suggest that the only specimen of this species reported from Britain had been redetermined as a terrestrial form of *C. stagnalis*. RVL has reviewed over 500 British *Callitriche* specimens to-date and this is the first *C. palustris*, it is likely that if it occurs in Britain, it will be at best

rare. However, few Irish *Callitriche* specimens have been reviewed and it would not be surprising if more specimens come to light from Ireland.

Although many botanists will be less than thrilled to hear that a species of *Callitriche* has been added to the British and Irish list, we feel that it is sufficiently important to merit some (restrained) excitement. This note is intended to draw attention to this find and provide brief guidance of identification of the species, a more detailed account will be submitted to *Watsonia* for publication in the near future.

After emergent forms of *C. lusitanica*, which is restricted in Europe to the Iberian Peninsula, *C. palustris* is probably the most distinctive *Callitriche* species in Europe. However as with almost all *Callitriche*, it cannot be confidently determined without fruit (in spite of RVL's claims in *Plant Crib 1998*).

C. palustris is the **ONLY** *Callitriche* species in Europe which combines the following fruit characters:

Fruit are initially pale green, becoming steel grey then black. When viewed from the side, the fruit is:

- significantly higher (or longer) than wide.
- significantly narrower at the base than the apex.
- the wing is fairly broad at the apex (or top), very narrow on the upper part of the side and **ABSENT** at the base.

RVL would be delighted to see specimens identified as *C. palustris* on the basis of these characters.

C. palustris appears not to tolerate flowing water or wave action. Most populations seen by RVL have been either on mud in the draw-down zone of lakes, in small, ephemeral pools or on poached mud on woodland rides. It normally fruits abundantly, particularly in the terrestrial form and is consequently easy to identify. It often occurs with *C. brutia* (fruit cannot be seen on terrestrial *C. brutia* unless the plant is picked) and will occur with *C. stagnalis*. It has most often been recorded in oligotrophic habitats however, although no details are yet available, the Irish site is likely to be on limestone.

RICHARD V. LANSDOWN, Floral Cottage, Upper Springfield Road, Stroud, Glos. GL5 1TF
JOHN BRUINSMA, Thorbeckelaan 24, 5694 CR Breugel, The Netherlands

VARIATION WITHIN *POLYGALA* SPECIES

I was delighted when asked to become the BSBI referee for *Polygala* but on receiving my first enquiry I hardly knew how to respond. I recognised the plant but it was apparent, from the enquiry, that since my time it had been accorded a new name and status. In one sense I was out of touch, but in another – well, let me explain.

I studied *Polygala* as a postgraduate student at Durham, 1952-54, and by invitation at Neuchâtel in Switzerland, 1954-55, working on Swiss species when otherwise I should have been writing up. The immediate task was to delimitate species and explore their relationships; serious attention to infra-specific variation would have to come later and I hoped to return to this following my obligatory period of National Service. But an opportunity arose to substitute Colonial for National Service and I became a plant breeder, initially working with cocoa in West Africa and subsequently with potatoes, never getting back to *Polygala*. My thesis remains incomplete and little has been published.

Most field-work in Britain was done in N.E. England but with visits to Kent and Devon. Seed samples and occasional plants were provided from other places and several herbaria were examined.

Six species were then recognised in Britain. Studies revealed ever more seemingly fundamental differences between four of them, but similarities rather than differences between the *P. amara* of the Pennines and the *P. austriaca* of Kent, now combined under *P. amarella*, and even more so between *P. vulgaris* and *P. oxyptera* from many places. All differences between the latter appeared to involve size, *oxyptera* forms tending to be smaller in all respects, with the petaloid inner sepals ('wings') being reduced more than the 'essential organs' and, due to their venation being essentially linear, being reduced more in breadth than in length. While some populations could be classed as *oxyptera* and

others as *vulgaris*, many were intermediate and the overall variation was continuous. It tended to be habitat-related and could be found within populations if conditions varied within them. Thus *oxyptera* plants growing in shallow dusty soil on quarry-face ledges near Durham clearly belonged to the same population as the *vulgaris* in the surrounding grassland and on the quarry floor, and in Kent a population was found which varied continuously from *vulgaris* at the bottom of a hill to extreme *oxyptera* on the wind-swept hill-crest. These findings were demonstrated at BSBI meetings in 1953 (Glendinning 1954a, b). Subsequent studies showed that, while seedlings from *oxyptera* plants tended to be smaller than those from *vulgaris*, the latter could be modified in the direction of *oxyptera* by growing them in small pots, or in less fertile soil, or in shallow boxes in competition with grass, and even more by clipping to simulate grazing. Trueman (1968) also found that *vulgaris* and *oxyptera* form a continuum and, like myself (1954a), found parallel variation in *P. serpyllifolia*.

But this is not to say that these species, which as anyone widely acquainted with them will know are highly variable, cannot be sub-divided. Once one looks beyond the sort of habitat-related variation on which *oxyptera* was previously separated from *vulgaris* other more fundamental variation starts to become apparent. I make some suggestions below, but first, some notes on the biology and population-structure of our species.

Each plant appeared to have originated as a separate seedling (no vegetative spread). As the flower opens pollen is shed into a scoop at the end of the style, and a column behind the scoop subsequently bends forward to thrust the stigma, at its tip, into the pollen-pile. In consequence setting is virtually 100% (two seeds per flower) even in an insect-proofed glasshouse, and most seed is selfed, leading to individual-plant progenies usually being uniform. However, butterflies moths and hive-bees occasionally visit and may cross-pollinate flowers before the selfing mechanism operates, and occasional outcrosses and even species-hybrids do occur.

Ripe capsules fall from the plants; whether they open before or after falling may depend on weather conditions (wind) but it is doubtful whether they are often blown far while still containing the relatively heavy seed (excepting, perhaps, the small seeds of *P. amarella*). Quantities both of loose seed and open capsules still containing seed can often be collected from the ground below large plants. Ants have been seen carrying seeds, but only rarely, and they could effect only local distribution. Thus most seed remains close to the parent plant, but seed must at times be transported long distances for the establishment of isolated populations. Birds may be involved in this as they have been known to strip plants of capsules, and I found plants on river-banks and lake-margins which apparently were from water-borne seed, in a recent case from seed which had seemingly been brought to a reservoir from a distance, presumably by birds, and washed ashore.

Flower colour is the most readily observable of various characters which may vary within populations. There appear to be two pigments, pink and a light but somewhat variable blue; if neither is present the flowers are white and a combination of both usually gives what may actually be a purple but looks like a dark blue. Rare mauve or reddish-purple colours may be due to heterozygosity for one of the colour-genes and indicate outcrosses or their descendants; a mauve-flowered *vulgaris* gave pink, mauve and dark blue seedlings.

Small colonies, probably descended from single inbred seedlings, are usually uniform and where there is variation the colours tend to occur patchily rather than to be randomly intermingled. Variation may tend to be cumulative; for example, on Dartmoor in 1953 patches of *P. serpyllifolia* with dark blue or with pink flowers occurred widely, patches of light blue in only a few places, and it was only in one of those places that some white-flowered plants were found, all four colours then occurring within a few yards of each other.

Seedlings of most stocks developed three equal semi-prostrate slow-growing main stems (two from the axils of the cotyledons), with only minor branches from these, and flowered only sparingly if at all in the autumn of that year. They commenced normal flowering in the second summer and appeared capable of re-growing indefinitely. However in a few stocks (see below) the central stem was dominant, upright, and came into flower early in the first summer. Such plants generally did not survive the winter, effectively being annuals.

As explained, I could not give formal attention to sub-division of species in the time available. Accessions were treated as components of species with a view to identifying characters in which

species consistently differed from each other, or were unique to (if not necessarily universal in) certain species, rather than being compared with other accessions of the same species with a view to identifying races within it. These notes are therefore based on incidental observations and on impressions – largely retrospective – and also on rather distant memory. I hope they will serve as pointers for further studies.

Polygala amarella : The two geographically separated populations of this species in Britain, previously viewed as separate species, provide the most obvious instance of distinct races. That in Kent, previously termed *P. austriaca*, is an annual form and is found in dry places. Of many seedlings raised, all those in the glasshouse had white flowers and normal-green leaves while all grown out of doors had bluish-lilac flowers and purplish leaves, suggesting that such colour-variation as is seen in this race reflects differing levels of exposure and that it may be genetically uniform. That of the Pennines, previously known as *P. amara*, is perennial and it encompasses the usual range of flower colours; it occurs in damper places. In one herbarium (I forget which) specimens collected from different altitudes and aspects, displaying a wide range of plant and flower size, were mounted on a large sheet which had at one time been hung on the wall as a warning to those inclined to erect taxa on such variation.

(Magenta flecks sometimes seen on white-flowered *P. vulgaris* seem also to reflect exposure, not being found on glasshouse-grown plants).

Polygala calcarea : I saw this in the field only once in Britain, in Kent in 1953, and seed dormancy (hardly any germination when fresh) and slow development (no first-year flowering) limited studies in cultivation. But a survey of county floras suggested that the species is most variable in the Hampshire-Dorset-Wiltshire-Berkshire region where various flower colours occur, and I have heard of a hillside in that area where pink, blue and white occur together. The species seems to become progressively less variable along the chalk ranges to the east and north-east, becoming predominantly blue at their ends in Kent and in Rutland. Rose (1951) showed that the populations in east Kent and in mid and west Kent/Surrey, between which there is a gap, are distinguishable.

Polygala amarella and *P. calcarea* are restricted to highly calcareous soils; *P. vulgaris*, which often grows with them, has a wider tolerance but I never found it intermingled with *P. serpyllifolia* which is restricted to acid ground.

Polygala serpyllifolia : Forms of this species which occur in very acid conditions, often on peat with *Calluna*, may constitute a distinct race. They usually have about a dozen relatively large flowers in a spike but occasionally, in *Sphagnum* bogs, only few though still large flowers together with slender stems and widely-spaced leaves and at the other extreme, on deep peat as on central Dartmoor, up to about 20 flowers with wings to about 8 mm.; Salmon (1929) described such plants from a Scottish locality as var. *decora*. The leaves tend to be relatively dark green and glossy and the flower colours vivid. Whether separate races can be identified among forms found in less acid conditions, which tend to have fewer and smaller flowers, requires further study but in one herbarium, specimens from S.E. England had been set apart and they did seem rather uniform and different from the generality of the species, and I thought material from the Orkneys and Shetlands also to be somewhat different, but in both cases I forget details. Two wing-venation patterns occur in the species, one with many relatively straight veins lying near-parallel and rarely rejoining and the other with fewer, more curved and anastomosing veins, similar to the venation of *P. vulgaris* though with the main lateral veins closer to the mid-vein than in that species. The former occurs in, for instance, the Dartmoor population and the latter in at least some forms found in less acid situations but whether either pattern is a constant feature of a particular race remains to be determined. Whether a growth-pattern which in Britain is unique to *P. serpyllifolia* (but also occurs in Swiss *P. alpestris*) in which shoots from leaf-axes below flower-spikes grow beyond them before forming their own spikes, leading later in the season to a straggling habit in which it may appear that earlier spikes had been formed laterally, occurs in all forms or races of the species may also be worthy of investigation. There is also variation in leaf shape, and in the length of the outer sepals.

Polygala vulgaris : This is tetraploid ($2n = 68$) while British stocks of other species are diploid ($2n = 34$) though I found a tetraploid form of *P. serpyllifolia* in Corsica, Glendinning (1960). I think we may have as many as six races in Britain :

- 1) One which is widely distributed on limestone and chalk hills in England, often as large populations. I knew it best from eastern County Durham where it ranged from large, near-*grandiflora* forms on the coast at Blackhall to small *oxyptera* forms on dry hill-tops and, as mentioned, quarry-face ledges. This, to me, was the normal form of the species and its characteristics may best be inferred from the differences found in other putative races, mentioned below. The full range of flower colours was present. *P. vulgaris* in Kent, which also displayed habitat-related variation (see above), seemed fundamentally the same but more variable, some plants having coloured wings but whitish corollas and some having different wing shapes; in Durham the wings were usually (always ?) broadest below the middle ('inverse-eggshaped') but in Kent, while many had this shape, others were almost parallel-sided over much of their length or were broadest above the middle. Plants grown from seed given me from Hampshire and Gloucestershire also seemed much the same.
- 2) Occasionally in N.E. England, away from the main limestone mass on soils which may have been less calcareous, somewhat different forms were found, always as isolated small colonies, each uniform. Some were very small *oxyptera*-type forms and others were larger but none was unquestionably *vulgaris* as then understood. Some were erect and others more spreading. At the time, each was considered as a separate stock and it is largely in retrospect that I have come to think of them collectively as a putative race. They had in common that the stems were slender, the leaves small, and all had either white or pale blue flowers. All *P. vulgaris* which I have seen in the Lothians in the last 30-odd years seems to belong here; it occurs as a few, scattered, small colonies or even individual plants ranging from under 5 cm in some places to perhaps 20 cm in others, and I have seen it only with medium-blue flowers, less pale than those mentioned above but not dark. A white-flowered form distributed by, I think, Linton from the brecklands of East Anglia in the 19th century, found in various herbaria, may also belong. No plants seeming to belong here have been found with pink or dark blue flowers and it may be that the race lacks the pink pigment.
- 3) A distinct form was found in Teesdale, in meadows and river-shingle below High Force and on boulder-clay near Langdon Beck. It had relatively thick, fleshy-looking stems and leaves and a spectrum of leaf shape which is common in *P. vulgaris*, from small and obtuse below to large, rhomboid-lanceolate, attenuated and acute above, was more pronounced in this stock than in others, the upper leaves and the rather few flowers appearing large relative to plant size. All that I found had pale blue flowers. This stock did not grow well at Durham, tending to lose leaves, and it may represent a race adapted to montane conditions. I saw a rather similar herbarium specimen from Cwm Idwal – I forget where.
- 4) Mention in the Flora of Devon of near-*grandiflora* forms on Dartmoor and at Axmouth led to my visiting the county in July, 1953. The Dartmoor population was found, as noted above, to be a very large form of *P. serpyllifolia* but the Axmouth population, on chalk, was indeed a large form of *P. vulgaris* and a unique one in my experience. It was tall but slender-stemmed with narrow leaves and long narrow wings which, on ripe capsules from seedlings grown at Durham, averaged 7.7×3.6 mm., with the capsules 5.7×4.3 mm. including a stalk of about 1 mm. No other stock examined had wings exceeding 7 mm. or more than 20% longer than the capsule (this is 35%) or had stalked capsules. Flower colours were pink and dark blue.
- 5) Plants from seed provided from Pembrokeshire, I think from a coastal locality, were annuals. They had yellowish-green leaves with brownish blotches but this could have been due to conditions at Durham not suiting them. Flower colours were pink and dark blue. Another annual stock was obtained as seed from a Portuguese botanic garden but whether it was otherwise similar was not investigated.
- 6) In the Oxford herbarium there is material from Bettyhill, Sutherland, collected by Druce who associated it with material, also there, sent him from the Faeroes; large plants with many large flowers, thick stems and thick, dark green and glossy leaves; various flower colours, the colours being vivid. Some years ago, holidaying with my wife and family rather than 'botanising', I also saw this population on calcareous sands west of the river and on the hillside beyond, there associated with *Dryas*, etc., very impressive. The plants, especially those on the sand, though large, were spreading rather than ascending. The full range of flower colours, white, pink, light blue and dark blue was present. Also in the Oxford herbarium is some very small *oxyptera* material collected by

Druce from shell-sand at Tain, Easter Ross, 'Where' he notes on the sheet 'I lost my opal pin searching for same'. While very different in size, I felt that this probably belonged to the same race.

And, I forget in which herbarium, I have seen material from Glen Coe which looked similar. This appears to be a distinct northern race. I have not had it in cultivation.

There may, of course, be races which I have not come across. And I am not certain of the distinctness of races 3 (Teesdale) and 6 (northern).

Returning now to the enquiry I mentioned above. It concerned *P. vulgaris* subsp. *collina* which I find is described in Stace's *Flora* and is, effectively, what was previously known in Britain as *P. oxyptera* resurrected as a subspecies. The question was, in view of the key from Heubl (1984) abstracted in *Plant Crib* (1998) indicating that subsp. *collina* has white flowers, whether British plants with non-white flowers can be accepted as subsp. *collina*. That which was sent was a blue-flowered plant of the type previously known as *P. oxyptera*.

To sketch the relevant history:

Reichenbach (1823), working in the Dresden area, was acquainted with two distinct races. He gave the name *P. oxyptera* (= pointed wing) to one which had previously been known as *P. coerulea* (= sky-blue) but was also found with dark blue, pink or white flowers. The wings, apart from being pointed, were elliptical and tapered to the base, shorter than the corolla and narrower and hardly longer than the capsule. He recognised two forms, a smaller *collina* (= of hills) which he shows with up to 11 flowers in a spike and a taller *pratensis* (= of meadows) with up to 22, both upright. The *pratensis* illustrated looks as tall as his *P. vulgaris* though the latter, which he equated with Form E, *maior* as described by Linnaeus in Sweden, has broader leaves and larger flowers with elliptical wings, as long as the corolla and both broader and longer than the capsule. Leaving aside fine details of wing shape, Reichenbach's *P. oxyptera* in its wing size, its general habit and its habitat-related variation, and its variation in flower colour, bears some resemblance to the common form of *P. vulgaris* in Britain (my putative race 1) though whether it is a variant of the same actual race is uncertain. But I doubt whether we could match Reichenbach's *P. vulgaris*, no stock on which I took measurements having a wing as broad as the fully ripe capsule (Glendinning, 1954b).

I do not have Borbas (1892) to hand but believe that he set aside all small forms, irrespective of wing shape, as *P. collina*, returning Reichenbach's *pratensis* to *P. vulgaris*. I forget where he worked but suspect that he was not acquainted with anything like Reichenbach's *P. vulgaris*, else his approach would have differed. British workers took a similar approach, viewing the larger of the forms which we have here as *P. vulgaris* and setting the smaller forms apart, but applying the name *P. oxyptera* to the latter.

Pawlowski (1958), working in Poland, was also acquainted with two distinct races which he termed *P. vulgaris* and *P. oxyptera*. The latter resembles Reichenbach's in having wings shorter than the corolla and narrower and little longer than the capsule, but it differs in having a less pointed wing little different in shape from that of *P. vulgaris*, in being predominantly white flowered (with 7% blue and less than 1% pink), usually being prostrate or procumbent, and having lax few-flowered spikes. He says that it is a characteristic species of 'associationum ordinis Nardetalia'. His *P. vulgaris* sounds very similar to Reichenbach's and again the fruiting wing, with average dimensions 7.3 × 4.3 mm, 40% longer than the capsule, is larger than anything known to me; the wing of the Axmouth stock is about this length but is much narrower.

I cannot do full justice to Heubl (1984) because his text, in German, exceeds 200 pages and is available to me only in a library. I have studied the relevant part of his key but only 'dipped' elsewhere (e.g. for more information on flower colours). Working mainly in southern Germany and Austria, he describes four subspecies. One of these, subsp. *calliptera*, with wings 8.0-10.5 × 4.5-5.5 mm, almost twice the length of the capsule, and also having long outer sepals, can be ignored in the British context being very different from anything we have here and not being known to occur in northern Europe. He terms the others subsp. *vulgaris*, *oxyptera* and *collina*. His subsp. *vulgaris* seems not to be quite the same as that known to Reichenbach and to Pawlowski, having inverse-eggshaped wings abruptly narrowed to a peg-like base, shorter than the corolla and about as broad as and little longer than the capsule, though at 6-8.5 × 3.5-5 mm, still rather large. Its flowers are mostly deep blue, more rarely reddish or white. And there are differences between his and Pawlowski's descriptions of *oxyptera*, his

being an upright plant while Pawlowski's is procumbent, and his having lanceolate (presumably pointed) wings up to three times as long as broad and about 1/3rd longer than the capsule while Pawlowski's is less than twice as long as broad and little longer than the capsule. Flowers mostly greenish-white, rarely sky blue. I hesitate to go into details regarding what he terms subsp. *collina* because, while it is tetraploid, its main bract being shorter than the pedicel and its capsule being roundish and narrow rimmed are suggestive of *P. serpyllifolia* rather than *P. vulgaris*. He may not have known this race well as he gives only two chromosome counts for it as against a fair number for subsp. *oxyptera* and over sixty for subsp. *vulgaris* (all $2n = 68$).

Each of these authors represented the situation with which they were acquainted, but they faced different situations. It appears that, at least in *P. vulgaris*, the numbers and identities of races present and the ranges of variation within them vary from place to place. Confusion has arisen when names used by others have been 'adopted', taxa being re-defined in the process. I have sought to avoid this.

It may be that Britain is a meeting-place for *P. vulgaris* races with various ranges of distribution. Further work is needed to clarify the situation, and meanwhile, attempts to equate our races with those found elsewhere, applying the same names, are potentially misleading.

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COMPOUND LEAVES IN HAWTHORN (*CRATAEGUS MONOGYNA*)

The standard floras all categorise the *Crataegus* genus as having *simple*, *lobed* or *pinnatifid* leaves. The leaves of *Crataegus monogyna* (Hawthorn) in particular are described as more deeply lobed than those of other hawthorns, to not less than 2/3 of the way to the midrib (Stace 1997). In Clapham *et al.* (1989) Hawthorn leaves are given as usually lobed to more than 1/2 way to the midrib, especially on the long shoots where the biggest stipules are to be seen. *Flora Europaea* (Franco 1986) has the *Crataegus* species key based on the least dissected leaves on the flowering shoots, but again the *Crataegus* genus is categorised as having *simple*, lobed or pinnatifid leaves.

Shoots were taken at random from 3 local Hawthorn trees. The photocopy (page 25) shows these, with conspicuous serrate stipules. About 50% of the leaves have lateral segments wholly unconnected by any laminar tissue with the tri-lobed terminal segment – only by the midrib. These ones, by all flora and botanical dictionary definitions, are *compound* leaves with simple, ternately-lobed, irregularly-lobed or serrate *leaflets*. Leaves of these three Hawthorn trees gradate from simple leaves (serrate, lobed or pinnatifid), as described in the floras, to compound leaves with separated leaflets, as in parts of the photocopy – almost pinnate, almost ternate, almost biternate, or most characteristically, *irregularly compound*. Strange developments can occur in the leaf shapes and arrangements of Eucalypts and Wattles and some leguminous shrubs during growth; but of all our trees and shrubs, the Hawthorn seems to be the least described and most variable in its leaf dissection.



Shoots and leaves of *Crataegus monogyna* (Hawthorn) showing numbers of compound leaves
(bar = 5 cm)

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THE SEARCH FOR THE MILITARY ORCHID

I read with interest Mr Havers piece about the Military Orchid in *BSBI News* 81: 75. and wondered how many people remember (or in fact ever knew) Rex Graham's little verse sent to my husband after his discovery of the orchid. It caused a great deal of amusement in our household!

I've searched the Chilterns high and low,
 I know where each dark lair is,
 I know where Epipogons grow,
 I've frightened all the fairies.
 I've searched each valley, hill and dell,
 my life just one despair is.
 Dear Lousley, if you'd only tell
 where *Orchis militaris*!

I think the original must be about somewhere, but I have not got it, so have written the above from memory. Rex was rather given to sending comic postcards which made us laugh. On one occasion I was sent off to buy a rude postcard for Rex from a shop in Penzance, as Ted had not the cheek to do it himself!

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CORNFIELD WEEDS

Magdalen Hill Down is a chalk hill on the edge of Winchester, and now partly engulfed by it. It was once famous for its flora, and for its butterflies and contained one of Hampshire's few colonies of *Aceras anthropophorum* (Man Orchid). They were too near to a road which got widened into a by-pass, but were successfully transported by Quirk to Old Winchester Hill. Part of Magdalen Hill Down remained, as very overgrown downland. The British Butterfly Society bought this a few years ago, and have worked hard to restore it for the benefit of butterflies. This done, two years ago they bought the next-door part, which had been cornfields for a great many years.

Under the directions of Colin Matthews these were deep-ploughed and sown with grass and flower seeds collected from neighbouring hills. Last year, with these other plants, up came *Centaurea cyanus* (Cornflower), *Agrostemma githago* (Corncockle), *Silene noctiflora* (Night-flowering Catchfly), abundant *Papaver hybridum* (Rough Poppy) and *P. argemone* (Prickly Poppy) as well as the commoner poppies. All these plants were recorded in old times, by Warner for 'Winchester'. The seeds have been carefully collected and sown in a special corner, which is to be treated as arable.

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VERBASCUM VIRGATUM NEAR MILTON, OXFORDSHIRE

The following entry occurs in *The Flora of Oxfordshire* page 216 under *Verbascum virgatum* – 'near Milton (4434, 1930 McClintock)'. It calls for comment.

At that time we lived in a lovely house, Milton Manor, south of Banbury. The parson of the next door parish, was the insufferable Riddelsdell (said to make slaves of his daughters, one of whom was a good botanist). He told my father that he knew every British wild flower.

So, when a large Mullein appeared on the green by the church, we asked him what it was. Although living only a mile away, he insisted that we brought him the whole plant. We dug it up and put it into a large pot and took it to him. *Verbascum blattaria* he said, a misnomer that muddled me for long after. It remained in its pot over winter in a greenhouse and developed huge side branches.

I have no idea how this record got out. For one thing, I only started on wild flowers in 1934 when I was set to try to help a sister with her Wild Flower Society diary. For another the place was not 'near', but in Milton. The plant never reappeared.

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ORCHIDS IN LAWNS

We live *c.* 1 km from the centre of High Wycombe and it is *c.* 1 km before we reach any open country. We bought our house, new, 39 years ago and the lawn was created from local turf laid over rubble and top soil brought in from a few miles away. Over the years we have used fertilisers, weedkillers, spot weedkillers, moss killers and vigilant eyes. The lawn is almost weed free except when seeds from neighbours invade. We do have some *Medicago lupulina* (Black Medick), two species of *Veronica* and *Cerastium fontanum* (Common Mouse-ear) which we hand weed, and the odd *Taraxacum* which we spot weed. Imagine our surprise last autumn when we noticed a rosette of leaves that we thought belonged to an orchid. Single specimen, (GR SU/851.932). We marked it to prevent accidental damage and watched it grow. It developed into a fine specimen of *Ophrys apifera* (Bee Orchid) and children who play nearby were warned off and indeed took an interest in it.

We have been offered two suggestions as to how the orchid might have originated in our lawn.

1. Blown seed – but from where? This is a built up area.
2. Long dormant seed in the turf – but why has it taken 39 years to germinate?

We will leave the plant as it is and allow it to ripen and disperse its seeds naturally. I would be very interested to hear from any members who have had similar experiences of orchids appearing in well tended lawns. I have been in a position to observe the plant closely during its flowering period and my observations are given in the table below.



Ophrys apifera photo J. Aslett © 1999

Observations taken during the period 1/6/1999 to 15/7/1999

j is the lowest floret, the first to open.

Floret	Date of opening	Date of fading	Capsule size (cm)		Comments
			Length	Width	
j	1/6	15/6	3.2	0.8	Ribs of capsule paler green.
k	8/6		2.0	0.4	Capsule not formed, limp, covered with black aphids by 15/7.
l	12/6		3.0	0.7	Well formed capsule, flower brown and dry.
m	16/6		2.8	0.8	Well formed capsule, flower brown and dry.
n	22/6	after 3/7	2.6	0.7	Black aphid and ants in moist remains of flower.

Height of plant with 3 flowers out and 2 in bud – 27.3 cm; height of plant on 15/7 with last flower still moist – 31.0 cm. By 3/7 the basal leaves had turned black starting from the tip and by 15/7 the whole plant was yellowish, not as green as previously.

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***CARDAMINE PRATENSIS* IN URBAN AREAS**

I have for several years enjoyed seeing large spreads of *Cardamine pratensis* (Lady's-smock/Cuckoo-flower) on damp road verges in Co. Derry. However, this year, I have noticed it growing on long-established grass roadside verges and roundabouts, prolifically enough to give a mauve tinge to normally green areas in urban and suburban Belfast, in gravel on graves, in the grounds of my local nursery school and on neglected lawns.

Because of its widespread occurrence, the seeds must be dormant in many sites. Botanists' boots as suggested by Hilary Ash (*BSBI News* 81: 38) are unlikely to have been tramping over roundabouts. A mild winter has meant it has been flowering early in April before Roads Service gives verges their first cut. A wet summer followed by a wet winter have made ground conditions damper than normal, more akin to its normal habitat of damp meadows.

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***CARDAMINE PRATENSIS* IN URBAN LAWNS – BELFAST**

I have been mowing my 86 year-old mother's lawn in the Ballysillan area of North Belfast for about 15 years. Initially I used a small electric mower with a rotating blade which always left about 2cms of grass and moss. About 8 years ago I changed to a strong petrol mower also with a rotating blade. It could be set to shave the grass virtually to soil level and that suited me well because it meant that I only needed to cut the lawn once every three weeks or so. There was always a prolonged winter break from mowing, due to the lawn being waterlogged, from mid October to early April. The heavy growth was easily cleared by the petrol mower.

For the last six years *Cardamine pratensis* has become common on the lawn. There are usually about 30 plants, obvious from the very dark looking leaves, on the 9 × 4 m lawn. There is about 8 cm of fairly humic topsoil overlying red clay, created by glaciation of the basaltic Antrim Plateau. The subsoil is rarely penetrated by any form of life.

The mowing regime has totally prevented flowering and seeding. My impression is that the plants perennate entirely vegetatively. Where the seed came from originally is a mystery. There are no wild sources within 800 m. Perhaps the seed has lain in the soil for 70 years from the time of the building of the housing development, and has been liberated by the new close mowing regime started 8 years ago.

Two other commensurate changes have been the near disappearance of moss and the appearance of *Juncus bufonius* (Toad Rush) amongst the grass.

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BLUE LAWNS

Apart perhaps from Spiked Speedwell (*Veronica spicata*), Birdseye or Germander Speedwell (*Veronica chamaedrys*) with its azure blue flowers is the most eye-catching of the Speedwells, and once in a while instead of growing as an occasional weed, it turns wide areas of April lawns a brilliant blue. Notably a cottage lawn behind St Brynach's Church in Nevern, north Pembrokeshire, in April, 1994. Most gardeners to whom this happens welcome it, but are at a loss to explain it or repeat it 'on demand'. So what causes it?

Amazingly *V. chamaedrys* is a relative of the Foxglove (*Digitalis purpurea*), both having irregular flowers, although at a distance they don't look irregular. Its petals are shed between 24 and 48 hours after opening, most plants having worked through the whole raceme, two flowers at a time, by early June; and while flowering it particularly attracts the minute miming bee *Andrena labiata*, each flower then producing up to 10 seeds.

Lying just below the surface, its 'roots' consist of a tangle of hard stem branches which sprout fibrous roots not unlike those of grasses. As an aid to identification every Flora points out its peculiar arrangement of two rows of thick hairs on the stem, and these two features, I contend, could explain its occasional success in lawns.

To overrun a lawn in this spectacular manner *V. chamaedrys* must in some way benefit from the occasional suppression of its only competitor, grass. So one must ask the question, what features of the winter or previous summer's weather favoured *chamaedrys* at the expense of grass in the case of Nevern's blue lawn of April 1994. The choice, I am afraid, is wide, for the previous 12 months could hardly have been less average. There was a southerly 'killer' gale on May 16 and 17, 1993, which did immense damage to coastal herbs and even inland Oaks (*Quercus* spp.) which was followed by a very cold, frost-hard October and November (the coldest November since 1965 we were told), followed by such heavy rain that fields along the coast and inland were waterlogged for months. Then there were Siberian winds in late February, followed by more cold winds in mid-April, which also happened to be the wettest of the century!

Normally in Pembrokeshire one expects to cut one's lawn once or twice each winter. However for suppression of grass growth in the winter of 1993/94 one could hardly envisage a worse combination than frost, waterlogging and ice-cold winds, and any lawn weeds able to withstand such an onslaught better than grass would stand a good chance of 'putting on a show'.

I am, of course, only speculating – but what fun speculation! The curious two rows of thick hairs on the above-ground stems would protect them to a degree from the cold winds and the tangle of hard, underground stem/roots (rhizomes) with their relatively rich food store compared to that of lawn grasses would have given *chamaedrys* 'the edge'. And if this is the true explanation, then clearly a gardener cannot repeat, at will, this combination of Nature's conditions in order to produce a blue lawn.

Has anyone a better explanation?

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THE IMPORTANCE OF *BOMBUS HORTORUM*

Of the six common bumble bees (*Bombus* spp.) *Bombus hortorum* is without doubt the only reliable pollinator of some of our favourite wild and garden flowers. And of the six it is easily distinguished by its very long face and tongue.

Primroses (*Primula vulgaris*) and Cowslips (*P. veris*) are not popular with insects because their flowers are too deep (17 mm.), while the Sallow 'supermarket' is open at the same season, *Salix caprea* and *S. cinerea* subsp. *oleifolia* producing more readily available pollen and nectar.

In certain areas the efficient solitary bee *Anthophora plumipes* visits *Primula* species, both wild and garden, along with the beeflies *Bombylus major* and *B. discolor* when the site is sheltered, which is not of course the case along the Pembrokeshire coast where I now live. In any case the two *Bombylus* spp. are always 'local'. Occasionally the brown bumble bee, *Bombus pascuorum*, will visit them or an awakening Nymphalid butterfly like, say, the Peacock (*Inachis io*), but the early *B. pratorum* has too short a tongue while *B. lapidarius*, for some reason, never 'thinks about it'. The two largest and commonest spring bumble bee queens, *Bombus terrestris* and *B. lucorum*, have surprisingly short tongues for their size and are no use to Primulas. However wherever *Primula* species grow, along coast or hedgebank, in wood or garden, they can be sure that *Bombus hortorum* will eventually visit them methodically and thoroughly.

Violets (*Viola* spp), Red Campion (*Silene dioica*), Kidney Vetch (*Anthyllis vulneraria*), Columbine (*Aquilegia vulgaris*), Honeysuckle (*Lonicera periclymenum*) and Toadflax (*Linaria vulgaris*) are all in season raided by *B. terrestris* and *B. lucorum*. They bite a hole at the base of the flower or its spur to extract nectar illegitimately – one is tempted to say 'illegally', thus not 'paying' by pollinating the flowers. (They would do this to Primulas but for their tough calyx). But once again the 'law-abiding' *B. hortorum* visits all these species.

However the situation is not quite so simplistic, and using the wild Honeysuckle that grows in my garden as an example I am able to fill in some details. Its long 22 mm trumpet-shaped, white or gold, fragrant flowers were designed to attract the attention of night-flying moths, particularly perhaps hawkmoths. Hence their reason for opening around 7 p.m. on a summer's evening, but I have never seen moths visit the flowers either at night or in the daytime, although the flowers subsequently produced abundant red berries.

Patrolling *B. hortorum* queens and workers, working late, visited the new flowers in the evening. Even so, by morning there were still new flowers which had not received a visit, at which time one other species, *B. pascuorum* (queens only) would occasionally join *B. hortorum*, although she sometimes had difficulty reaching the nectar.

It would however be naive to conclude that Honeysuckle would be doomed in Britain without these two bumble bees, for its pollen was obviously a valuable commodity in its own right, the queens and workers of *B. pratorum* and the workers of *B. lucorum* collecting it avidly in the early morning and even *B. hortorum* did so occasionally. Also sundry hoverflies hoovered the recently opened anthers. And all these visitors rubbed up against the stigmata from time to time, thus bringing about pollination, albeit not in the 'intended way'. A proportion of the *B. lucorum* and *B. terrestris* visitors could not resist robbing the flowers by cutting a hole in their base, while a few appeared confused about what they should be doing. I have no idea why I have never seen *B. lapidarius*, the attractive all-black, red-tipped bumble bee, visit Honeysuckle.

In southern France I did actually watch day-flying Hummingbird Hawkmoths (*Macroglossum stellatarum*) visit Honeysuckle in the early morning, but even there 'crime reared its ugly head'. Along with the usual *B. terrestris* and *B. lucorum* robbers were large, black carpenter bees (*Xylocopa violacea*) biting holes in the corolla and also rose chafers (*Cetonia cuprea*) crudely mauling the flowers to extract their sweetness, though Pembrokeshire rose chafers leave Honeysuckle alone. I should add that the morning visitors clear the flowers of all their nectar and pollen, so that further visitors do not usually appear until evening 'opening time'.

Hence, though some other species may visit our more 'awkward' wildflowers, only *Bombus hortorum* can be relied upon to do so with certainty.

***THELYPTERIS PALUSTRIS* (MARSH FERN), A NEW SITE IN CORNWALL**

In 1967 a small stand of Marsh Fern, less than 50 fronds, was found in West Cornwall (v.c. 1) on Clodgy Moor near Penzance. The presence of this northern continental species in the county was so unexpected that considerable doubt was cast upon the record. However, it was eventually confirmed by the late E.C. Wallace and a herbarium specimen deposited at **BM**.

When first seen, the fern was growing in wet ground with some standing water, close to and partly under *Salix cinerea* subsp. *oleifolia*. Scrub development has now considerably altered the site and *Thelypteris palustris* was last seen here in 1988. Repeated efforts to re-find it have sadly proved to be unsuccessful.

During the writing of the new Flora of Cornwall, much literature was researched for old records. One of these was a book on the plants and animals of the Duloe Parish near Looe listed in 1880 (Peel, 1909). Included in the list were a number of ferns, one of them being *Lastrea Thelypteris*, now named *Thelypteris palustris*! Again some doubt was expressed as to the reliability of the record as there was no herbarium specimen to validate it and the author, Hester A.C. Peel, was unknown.

This might have been the end of the story, but in June 1999, during a survey of a proposed SSSI, namely Tregonetha Downs in East Cornwall (v.c. 2), Ian Bennallick re-found Marsh Fern, this time about a 1000 fronds. It was growing with a few rushes and horsetails and an abundance of *Athyrium filix-femina*, again partly in open ground and partly under nearby *Salix cinerea* subsp. *oleifolia*. On one side was an extremely wet area rich in horsetails, while on the other there was much *Osmunda regalis* growing on ground that sloped down to a deep stream. It was such a fortuitous find. As Ian said 'the midges were beginning to bite and I was about to leave the moor, when I turned and realised that the evening light was catching the fronds of a different fern'. On such slight chances are new finds made!

More of Cornwall's mid-Cornwall moors will now be searched for this Nationally Scarce fern that is by no means as common as it used to be and perhaps we may even be able to prove that Hester Peel was right!

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ULMUS PROCERA

I was interested to read the article by Mr Jack Oliver entitled 'Suppression of other tree species by English elm (*Ulmus procera*)' (*BSBI News* 81: 26-30). He gives a good account of the invasive power of *U. procera* sucker growth, something that we in Forest Research have long recognised. I was pleased to see the credit that he gave to my colleague, Professor Clive Brasier for his population studies on the Dutch elm disease fungus and its associated viruses. However, it would be wrong if your readers were to get the impression that there have been other times over the millennia when, due to interactions with the disease, mature elms have disappeared and been replaced by dense young sucker growth. This is because there is no good reason to think that, prior to this Century, European elms had ever suffered from Dutch elm disease. For an excellent account of our present understanding of the situation can I recommend Brasier (1996), copies of which are available from me.

Equally, I would like to dispel the impression that programmes aimed at sanitation control of the disease by 'uprooting, burning and destruction of English elm colonies or clones' were practised through 'the 1970s, 1980s and 1990s'. It was only during a two-year period from 1972-1974 that there was any significant sanitation control programme across southern Britain. This was initiated when it was realised that the wave of disease, first recognised in the late 1960s, was the consequence of the

introduction of a new highly pathogenic form of the Dutch elm disease fungus. And it was abandoned once it became clear that, except under very special circumstances, such as in various parts of East Sussex, there was no chance of keeping the disease in check. In more recent times, diseased elms have, of course, been cut down but this has been for reasons of safety or aesthetics. One can be aware of the benefits of dead wood as a habitat, without wanting a line of dead elms at the bottom of the garden!

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UROMYCES IN A POPULATION OF CYPRESS SPURGE IN BEDFORDSHIRE

Further to my note regarding infected shoots of Cypress Spurge, *Euphorbia cyparissias*, (*BSBI News* 79: 22) this has been identified as the rust fungus *Uromyces pisti* by Dr Tom Preece, and a specimen will be deposited at RBG Kew.

I understand that records of *Uromyces* on this host are very rare in the British Isles and are therefore interesting and important in their own right, but my other concern was the effect this fungus would have on the survival of the population of *E. cyparissias*, as I understand that some rusts severely weaken their hosts. As David Allen suggests (*BSBI News* 80:23) I shall continue to monitor any changes in disease incidence to assess effects on the host population.

In the Bedfordshire population the infected shoots are considerably taller than the normal plants, sometimes up to twice the height. The leaves are completely different, the infected shoots being unbranched with much broader leaves, ovate, and yellow-green (much more yellow than green). All the infected shoots, apart from one, were sterile.

The infected shoots appeared in small clusters, some on the edge but most distributed fairly evenly across the area of the host population. Because of their height they were very noticeable in the first week of May. Later in May they were less noticeable because of growing vegetation. In the second week of June the infected shoots were withering and harder to find, and in the second week of July had disappeared completely. Looking back at my records it seems that in earlier years I visited the site in June and July, therefore it is quite possible that the rust has been present in this population, unnoticed, for some years.

I wish to thank Lady R. FitzGerald who sent me photos of a rust fungus she found on this host in Kent in 1987, and Brian Wurzell for his interesting and informative letters, and Tom Preece for identifying material and supplying me with much information which has stimulated my interest in this area of study.

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UPDATES TO LIST OF ENDEMIC PLANTS

There are some updates to our list of species endemic to the British Isles in *BSBI News* 80: 23-27 (1999).

There are three additional endemics, *Hieracium britannicum*, *H. naviense* and *Spartina anglica*, the latter probably counting as an endemic as it has reputedly always been introduced elsewhere in the world, and not spread naturally.

Rubus altharcuatus; *R. armipotens*, *R. conjungens*, *R. couchii*, *R. glarosus* and *R. iceniensis* are now known to occur in Europe, and are no longer British endemics.

Thanks to Alan Newton, Rob Randall, Roy Smith and Hennan Vannerom for further information.

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GARDEN MANAGEMENT

Some time ago I witnessed the following exchange on one of those 'garden remodelling' programmes that seem to be the fashion on television at the moment:—

New Gardener (indicating plant): 'That's pretty'.

Monty Don: 'That's a weed, Herb-Robert. That'll have to come out'.

New Gardener: 'Oh'.

Ten years ago I took over a garden in a house where an elderly lady had lived for some thirty years. The garden was woodland until after the Second World War, when the site was developed as housing. This has given a good soil, rich in organic matter and also, it would appear, a good seed bank and relict populations of woodland species which the previous occupant of the house left alone. Also over the years other plants have made it their home – the hedge of cultivated privet is interleaved with *Ilex aquifolium* (Holly) seedlings while *Primula vulgaris* (Primrose) grow amongst brightly coloured polyanthus. On the shadier side of the garden live a relict population of *Hyacinthoides non-scripta* (Bluebell), the last of those that festooned the grass verge outside, now obliterated by car parking. I tend my 'weeds' as carefully as my cultivated plants; the garden wall is covered by a magnificent plant of *Hedera helix* (Ivy) which grew from a crack at the base of the wall and out-competed my carefully planted *Parthenocissus quinquefolia* (Virginia-creeper). A beautiful Bourbon rose, 'Louise Odier' has *Geranium molle* (Dove's-foot Crane's-bill), *G. robertianum* (Herb-Robert) and *Viola* spp. beneath it. The view from my window today is enlivened by the intense yellow of *Kerria japonica* with *Pentaglottis sempervirens* (Green Alkanet) leaning through it. I could continue, but my point is this: is it right to educate the general public via gardening programmes that the only garden-worthy plants are the exotic. Until we recognise the value of our 'wild' plants and do not regard them as useless 'weeds', plant conservation doesn't stand a chance. Letting wild plants share my garden requires as much if not more work than the aseptic T.V. garden but there is also another point that should be made: with the loss of so much of their habitat, gardens may become the only safe refuge.

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DNA-BASED PHYLOGENIES ARE NO THREAT TO FIELD BOTANY

I would like to take this opportunity to respond to David Lang's characteristically forthright article *Reductio ad absurdum* (*BSBI News* 81: 45), wherein he expresses deep concern at the much-publicised reclassification of angiosperm families recently published by Bremer, Chase, Stevens *et al.* (1998; see also the commentary by Nyffeler 1999). Beginning 'I am sure that I am not alone, among botanists everywhere, in viewing with dismay the . . . DNA based phylogeny of flowering plants,' Lang further argues that morphological characters are now viewed by the scientific elite as 'erroneous' and 'must be discarded in favour of DNA analysis.' My primary concern is that Mr. Lang may not be alone among the botanical community in entertaining such profound misconceptions about the nature and application of molecular phylogenies, since in truth they in no way conflict with traditional taxonomic methods.

I imagine that the majority of BSBI members now employ Stace (1997) as their taxonomic 'bible' for the British Isles. Like most floras, this weighty tome describes a large number of species using a wide range of morphological features that are listed in formal species descriptions. Those characters viewed as most diagnostic are then used to construct dichotomous keys that are intended to speed up plant identifications – such keys are unashamedly 'artificial' (i.e. are not intended to reflect evolutionary relationships).

However, the species listed in Stace are ordered into genera and subgenera, families and subfamilies. This taxonomic hierarchy is in part similarly designed to aid identification, but it is in addition intended to reflect closeness of evolutionary relationship. Modern families are not mere pigeonholes of convenience but are also evolutionarily cohesive units that hopefully are consistent with the one true Tree of Life. The 23 centuries of taxonomic debate since the era of Plato, Aristotle and

Theoprastus reflect constant striving toward classifications that best reflect these highly desirable goals.

David Lang is correct to suggest that DNA-based evolutionary trees (phylogenies) lack this explicit duality – they are intended *only* to reflect evolutionary relationships, and to attempt field identification using differences in specific DNA bases would indeed prove challenging under the constraints of current (albeit rapidly improving) technology. Rather, such phylogenies are used to reclassify species into genera and families that possess genuine evolutionary cohesion. The resulting classification is of far greater biological value and has a much wider range of practical applications in addition to identification (e.g. Funk & Brooks 1990). This revisionary process is less revolutionary than it might first appear, since in most cases earlier morphologically-based classifications are found to already reflect evolutionary relationships with reasonable accuracy. To cite one example close to my own heart, a detailed DNA-based phylogeny of the subtribe Orchidinae, which dominates the UK orchid flora, required generic reassignment of only 10% of the widely recognised pre-existing species (e.g. Bateman *et al.* 1997). I can reassure readers that this rigorous taxonomic conservatism applies equally to the Bremer, Chase, Stevens *et al.* reclassification of flowering plant families.

However, Lang crucially overlooks the fact that DNA-based evolutionary trees provide an excellent framework on which to hang traditional morphological characters in a fashion that directly reflects evolutionary relationships *and* simultaneously generates a highly functional (and potentially non-artificial) dichotomous key. Figure 1 (p. 35) presents an example abstracted from work in progress on the DNA phylogenetics of the ovoid-tubered British orchids. This hastily compiled ‘evolutionary key’ is not (yet) intended for practical use, but rather to illustrate that morphology and DNA can work well together to generate reciprocal illumination of value to the field botanist. For example, this DNA phylogeny prompted the recognition of new and more efficient diagnostic characters for groups of related species, such as the basal fusion of sepals that separates the *Anacamptis morio* group from superficially similar purple-flowered species of the wholly unrelated *Orchis mascula* group (Figure 1).

Returning to the broader issue of flowering plant families, a morphological classification based on the DNA ‘New Classification’ is currently being prepared by Peter Stevens in Missouri. Once this is achieved the identification power of morphological characters is by no means ‘erroneous’ or ‘discarded’ as Mr Lang fears – rather, it is carefully and conservatively rearranged to better reflect evolutionary relationships. The net effect of such systematic research is modest changes in diagnostic morphological characters, in species assignments to higher taxa, and hopefully therefore in the sequence in which those taxa are listed in keystone floras such as Stace.

Such classificatory changes have always been the hallmark of taxonomic progress. With the additional excitement given by phylogenetic research to our greatly enhanced understanding of plant evolution, the threshold of the Millennium seems to me a singularly inappropriate time for anyone to choose to oppose genuine scientific innovations that will usefully refine, but in no way undermine, our efficient and enjoyable pursuit of field botany.

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- RICHARD M. BATEMAN, Royal Botanic Garden, 20A Inverleith Row, Edinburgh, EH3 5LR
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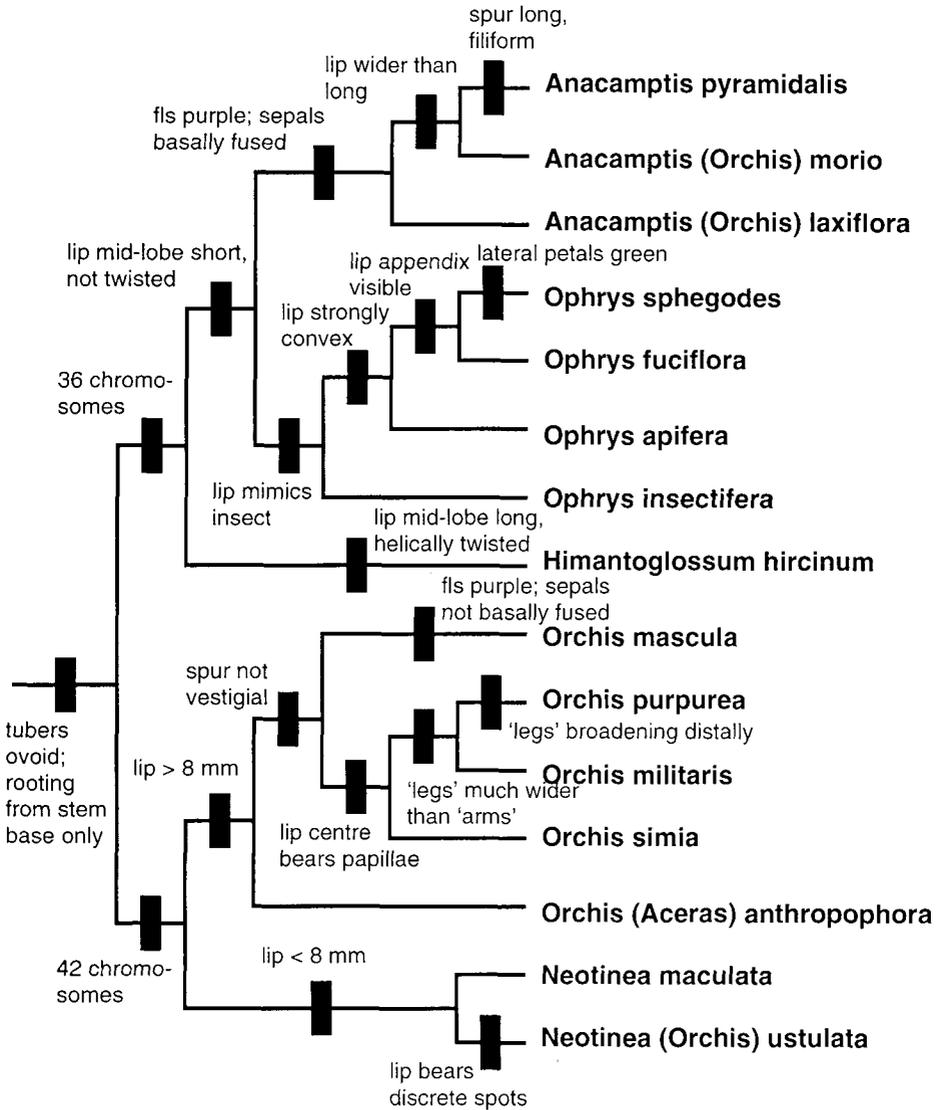


Figure 1. Ribosomal DNA (ITS) sequence phylogeny of ovoid-tubered orchids of the British Isles, bearing hastily selected diagnostic morphological/chromosomal characters added after the molecular evolutionary tree was constructed (abstracted from Bateman *et al.* in prep.).

TWITCHER'S A TO Z OF THE BRITISH FLORA

Ploughing through the latest *New Flora of the British Isles* with its 6,000 Latin names, it occurred to me that readers might appreciate some guidance on what these difficult names mean. Twitcher is happy to oblige, with the help of his man, Richard Seamons, who thought up some of them years ago, but hopefully has forgotten.

- A *Acorus calamus* This unusual name, meaning 'appalling racket at five in the morning', was originally intended for the Song Thrush. Somehow it got mixed up with some kind of wild arum-lily. The thrush is *Stinkia sillifurcula*.
- B *Bidens tripartita* Literally, 'a sanitary appliance for three people'. Named by a Frenchman.
- C *Cakile maritima* Discovered during a ladies' day out at Scarborough.
- D *Daphne laureola* Well done, Daphne! She won a prize for finding this one.
- E *Elodea nuttallii* According to Stephen Pile, Thomas Nuttall was the most incompetent explorer who ever lived. He was pretty well permanently lost. When he surfaced in some street or alley on the wrong side of town, often the first words he heard were 'Ello dear'. Five shillings was the going rate then.
- F *Fumaria bastardii* Fumaria means smoke (no, it does, really). This plant probably turned up in a no-smoking zone.
- G *Geum macrophyllum* Translates as 'wow, er, what a big leaf you've got'.
- H *Hammarhya paludosa* When you live in a rickety house in the middle of a swamp like I do, you often find yourself in need of a hammer.
- I *Isatis tinctoria* What is known as a critical species. 'I say 'tis tinctoria'. 'And I say it isn't'.
- J *Juncus biglumis* Noted for being the only plant named after a pair of redundant lighthouses.
- K *Kickxia spuria* A very doubtful goal from some benighted foreigner who put the kybosh on England's football chances yet again. We woz robbed.
- L *Lavatera cretica* As anyone who has holidayed in Crete will know, Lavatories are the downside of Mediterranean life. Perhaps this broad-leaved plant would help. I just don't know.
- M *Medicago minima* An American soap, Medic a go go was renamed Doctor at Large for transmission in Britain. It was not a success.
- N *non-scriptus, Hyacinthoides* It means you cannot sign your name with a Bluebell. It's true. You try it.
- O *Osmunda regalis* Do you remember the Osmonds, the spice boys of the early 70s? Well, the plant can't sing either.
- P *Polygonum maritimum* Translates as 'My parrot has escaped across the sea'. No-one knows what that had to do with it.
- Q *Quercus* An oak. Two oaks are *Querci*. A very small one might be a *Querc*.
- R *Rosa tomentosa* We understand that its describer was experiencing a little marital difficulty at the time.
- S *Silybum marianum* Its discoverer was called Maria. She accidentally sat on one.
- T *Teesdalia nudicaulis* The nudist sunbather who named this plant got a frost-bitten digit, and was never seen again.
- U *Urtica urens* A noxious plant. *Urtica* means it 'urts, and *urens* means it don't taste too good neither.
- V *Veronica fruticans* They tried promoting canned *Veronica*, but quite honestly it wasn't a success. It's better out of a bottle.
- W *Watsonia borbonica* Watsonia is the name of a botanical journal. It also happens to be the name of the TV Guide in Borbonica, wherever that is.
- X Species X is the plant in your quadrat that is impossible to identify. Botanists careful of their reputations should gently ease it up by the roots, and toss it away.
- Y *Yucca recurvifolia* is best ignored. And that goes for Z too.

[This article first appeared in *British Wildlife* and I am very grateful to the author Peter Marren and Editor Andrew Branson for permission to reproduce it here. If any members have alternative suggestions I would be delighted to hear from them! Ed.]

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THAT MILLENNIUM'S ODD A CELEBRATION OF PLANTAIN ABERRATIONS

Following on from the publication of '*Flora Anomala Updated*' (see page 74), the next project, (after finalising the overdue draft of 'Appreciating Lawn Weeds'), is to invite contributions to an informal record of all the ways in which our native plantains (*Plantago* spp.) deviate from those illustrations in the conventional Floras.

Gone are the days when proliferation of flowers was actually a cherished characteristic (proliferous roses were kept in cultivation briefly by Empress Josephine), indeed the character seems to have been bred out of modern roses. The advent of genetic engineering suggests to me a new orthodoxy in which such wayward behaviour is suppressed (what happens when introduced genes start to mutate?)

For their size the plantains display the widest range of architectural unorthodoxy and it may be time to monitor how widespread each form is, also to find out whether the forms are genetic or purely teratological. I am preparing a brief guide to forms recently observed which should be available over the winter (SAE please) and in the meanwhile if anyone would like to contribute records of forms observed in the past, I would be very pleased to receive them.

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COCHLEARIA DANICA REACHES NOTTINGHAM

The spread of *Cochlearia danica* (Danish Scurvygrass) along roadside verges and central reservations has been well documented in recent years. This spring large patches of this low growing white flowered crucifer were observed along the central reservation of the A52 between Derby and Nottingham, well with in the Nottinghamshire county border. The low stature of the plant enables fruit and seed to be produced despite the use of grass cutting equipment. By late June the plants have disappeared leaving only a few dried out stalks and fruits.

Checking the *Flora of Nottinghamshire* (Howitt, 1963) reveals that *C. danica* had not been recorded from Nottinghamshire before 1963, so this could be a new county record. Interestingly the only *Cochlearia* previously recorded was *C. officinalis* back in 1738, when it was recorded from walls in Wollaton and thought to have escaped from cultivation.

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NOTES ON THE BREEDING BEHAVIOUR OF *VULPIA FASCICULATA*

Introduction – In an article in the April 1999 issue of *BSBI News* (81: 22-24) I described the coastal annual grass *Vulpia fasciculata* as cleistogamous. This statement was based on the older literature, numerous herbarium specimens, and live material, particularly from Berrow, Somerset (v.c. 6). Occasionally I had found slightly open florets on small plants growing in humid conditions. In late May I visited a local population on sand dunes near Wallasey, Cheshire (v.c. 58) on two days and was chastened to find many of the plants displaying obvious chasmogamy – one floret in each spikelet gaping widely to disclose the stigmas and the three small anthers. Auquier and Stace (1980) have reported occasional chasmogamy (and supernumerary anthers) for several monandrous species of *Vulpia*, so it is not surprising that *V. fasciculata* which is perhaps closer to some triandrous wind-pollinated ancestor can also show this behaviour. More work would be needed to see whether the behaviour is constant or just an unusual response to a spell of fine weather, but the Wallasey plants have panicles well exerted from non-inflated leaf sheaths which may indicate a distinct physiological race. Auquier and Stace also cite the contrary example of *Bromus carinatus* (now *Ceratochloa carinata*) which can become cleistogamous if conditions are sub-optimal.

In the 1960s I attempted to confirm by various techniques the statement by Dr C.E. Hubbard in *Grasses* (1954) that this plant formed sterile hybrids with *Festuca rubra*, and was also interested in how these plants arose in the wild. Such plants were later successfully bred by research students of Prof. Stace and are now known as \times *Festulpia hubbardii* as described in Stace and Cotton (1974), but as with many things in connection with *Vulpia* nothing is straightforward, and I would like to take the opportunity to draw together several observations.

Life cycle and flowering of *Vulpia fasciculata* – The plant behaves as a ‘winter annual’ – seeds produced that year germinate in the autumn, and pass the winter as a tuft of short involute leaves before flowering the following May. In common with most, but not all *Vulpia* I studied experimentally, it is a ‘short-day’ plant – requiring a few weeks of long nights to initiate flowering; low temperatures are not a requirement in this species.

Photoperiod also seemed to control pollen formation in plants in the wild at Berrow, and in cultivation at Bristol. The two cell divisions (meiosis) required to produce the pollen occurring rapidly about two hours before sunrise, the florets maturing sequentially from the lowest in each spikelet upwards over a period of a few days. Synchronous production of pollen would obviously be of use to an outbreeding plant, but may be seen as an ancestral feature in this normally cleistogamous species.

Fertilisation – On preparing plants for artificial hybridisation with *F. rubra*, I found that self-fertilisation was occurring while the inflorescence was still enclosed by the leaf sheath. The seeds then developed rapidly to cause the inflated leaf sheath, which has been used as a diagnostic character in the past. I also suspect that if their filaments do not break, the spent anthers are shouldered to the side of the floret by the seed to appear as though they have been exerted. Stace and Cotton (1974) noted the cryptic fertilisation of *V. fasciculata*, while Barker and Stace (1982) noted it for the monandrous species *V. myuros* and *V. bromoides* but did not comment on its implications other than, as I found, emasculation had to be done on very young inflorescences. If as seemed likely to me the *Vulpia* was the female parent, *Festuca* pollen had not only to penetrate a closed flower, but get inside the leaf sheath first. A further consequence of this precocity was it placed the sexual maturity of *V. fasciculata* about a fortnight ahead of *F. rubra*. Thus I became interested in any factor that might disturb the natural breeding behaviour of this plant.

Rabbit damage – Watkinson (1978) cites the observation by Prof. A.J. Willis that *V. fasciculata* seemed to have become much more common since the rabbit population was hit by myxomatosis in 1954. This of course would give more opportunity for hybrids to form, but ironically rabbits may have a role to play in their production. Partially grazed plants of *V. fasciculata* have the capacity to produce later secondary inflorescences (also noted by Watkinson,) whose maturity may then coincide with anthesis in *F. rubra*. It is also possible that rabbits take the top off some young shoots and allow access to pollen.

The Wallasey population seems to be free of rabbit damage and on the increase, unusually many plants are growing happily in the shade of Poplar scrub and may flower slightly later. If chasmogamy is common here then hybridisation would be expected and \times *F. hubbardii* can be found nearby in both shaded and open locations.

Insect damage – A different animal facilitator may also exist – in the past I found that not infrequently florets contained thrips identified for me as *Anathothrips striatus* Osborn (now *A. obscurus* Muller) which I thought were eating the pollen, possibly emasculating the plants, and even acting as a pollinator if moving from floret to floret. These ideas are supported by subsequent work on other species of thrip and host plant by various authors, including Kirk (1987). By analogy with his findings, a single thrip could consume some 300 grains per day of *V. fasciculata* pollen which has a diameter of about 27 microns. This alone may not be sufficient to block self-fertilisation, but thrips do feed on other floral tissue and could disable some anthers by damaging the filament.

Pollen viability – Kirk (1987) also makes the point that thrips remove the pollen contents, but leave the shell, with the result that assessment of pollen viability by staining on plants attacked by thrips may be unrepresentative. As defective pollen is sometimes used as an indicator of hybrid origin, and \times *F. hubbardii* is not immune to thrip attack some care is needed.

A final point of interest is that my suspicions long ago, partly based on germination trials, that *Festuca* pollen though produced in quantity has a short viability, have been confirmed. This will have

an influence on the frequency of hybrid production, and indeed on gene flow in *Festuca*. Clayton and Renvoize (1986) note the short life of grass pollen in general, with effective dispersal measurable in tens of metres, and surprisingly low seed set in some perennial species, offset by clone lives of several hundred years in *F. rubra* and *F. ovina*.

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ATRIPLEX LITTORALIS ON INLAND ROADSIDES

In *BSBI News* **81**, Simon Leach drew attention to the strongly eastern bias in respect of inland records for *Atriplex littoralis* to date, but also referred to a recent sighting by the M5 in Gloucestershire. This coincided with our first two Worcestershire (v.c. 37) records for the *Atriplex* in the summer of 1998, these were again both by the M5, at Upton Warren (SO/92.67, Brett Westwood) and Upper Strensham (SO/90.39, Keith Barnett, Bert Reid and myself) respectively.

One wonders which will be next in the succession of halophytes to tire of the salty monotony of estuarine existence and head off up the motorway towards the urban excitements of the West Midlands. *Hordeum marinum* would be very welcome but I'm not sure that we would be equally enthused about a *Salicornia* invasion

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GERMINATION OF BURIED CAREX DEPAUPERATA SEED AFTER NINE YEARS

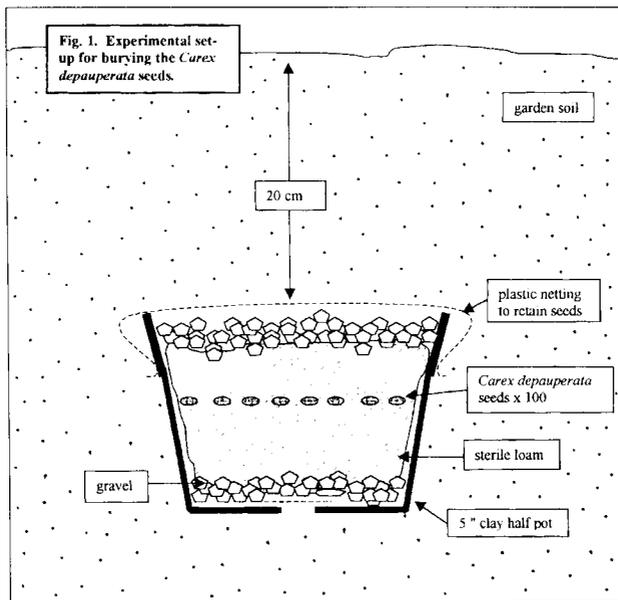
Carex depauperata Curtis ex With. (Starved Sedge) is one of Britain's rarest plants and is classified as Critically Endangered by Wiggington (1999). It is currently known from just two sites: one in Surrey and one in Somerset. It grows on dry, basic brown-earth soils, in gaps and along tracks in deciduous woodland and among shrubs on rock outcrops (Birkinshaw 1991, Wiggington 1999).

Lousley (1976) notes that *C. depauperata* becomes more abundant after felling or coppicing within its woodland habitat and McDonnell (1997) associates the reappearance of this species at the Surrey site in 1992, after an apparent absence of 20 years, with the opening of the woodland canopy following the Great Storm of 1987. Many woodland plants that become more abundant after the opening of the canopy have seeds that remain dormant for long periods of time in the soil and are stimulated to germinate by changes in their environment associated with canopy opening (Peterken 1981). An experiment has been initiated to test if this is the case for *C. depauperata*.

In December 1989, four pots, each containing 100 ripe seeds of *C. depauperata* were buried in the ground with the intention of unearthing the pots at intervals in the future and testing for the presence of viable seeds. The pots were prepared as shown in Figure 1. They were buried 20 cm deep in brown

earth soil, below a hazel hedge, in a garden in Derbyshire. The seeds were collected from plants grown at Cambridge University Botanic Garden that had originated from the Somerset population in 1965.

In December 1998, one of the buried pots was dug-up and its contents spread in a seed tray that was placed on a bench in an unheated greenhouse. In June 1999, eight seedlings of *C. depauperata* were counted. This proves that seeds of this species can germinate after at least nine years of dormancy in the soil. The viability of seeds in the remaining pots will be tested in 2005, 2010, and 2015.



Acknowledgements

I am grateful to Dr. C. D. Pigott for his thoughts on the ecology of *C. depauperata*.

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BOTANICAL RECORDING IN GRID-CELLS : A BASIS FOR STANDARDISATION

Introduction

In The Netherlands recording of plants is promoted by FLORON, an organisation stimulating floristic surveying by botanists (especially volunteers). There are also provincial Boards, with a task in flora and vegetation mapping. The data are applied in environmental, rural and nature conservancy issues.

The expertise of the surveyors, the time spent, the period of recording, the length of route and the number of habitats visited, are parameters influencing the total number of species recorded in grid cells (Stieperaere 1996, Bremer 1997, Rich 1998). Records are usually presented as 'dot' distribution maps and used, e.g., for assessing the conservation status of a species. However these maps have limitations because of the lack of standardisation in sampling. More standardisation is needed.

In the province of Overijssel, the flora is surveyed in 1×1 km squares, with more detailed survey of the vegetation and species within each square. The rules for mapping assessed by FLORON have been based on personal judgement and experience. The survey in Overijssel offered an opportunity to investigate some methodical aspects and to assess rules.

The survey in Overijssel

Of the more than 1000 species found in Overijssel c.600 species are mapped at 50 m sections and linked by a habitat (see figure 1). On average two species are mapped in each 50 m section (variation from 0-20 species per section). As the total number of species per grid cell is correlated with the 'number of mapped species' per grid cell, the latter parameter can be used to investigate how they can best be recorded. The information of 50 m sections was used to simulate the situation in an imaginary 1×1 km grid cell and to investigate the effect of various parameters. Nearly 30,000 sections were used from various parts of the province of Overijssel. A computer program was written for simulating recording. In the program a selection of sections were chosen. The first section was always the start of counting species richness. The number of sections (= length of the route) was always a variable. In other calculations the increase in 'number of mapped species' was calculated for various types of habitats and for a combination of habitats, as the best approximation of the situation in the field.

Rules

According to a multiple regression 43% of the variation in the 'number of mapped species' can be explained by the length of route (number of 50 m sections) and the number of habitats, the latter being more important. The more you walk the more species you will find and you have to visit all habitats.

In practice this means that you have to visit all parts of a grid cell. In the grid cell of figure 2, (a typical Dutch Holocene landscape with ditches and pastures) you would have to walk at least 11 km, which you cannot expect botanists to do. Figure 3 indicates, based on the start of saturation ('bench-points'), the minimum length you have to walk for various parts and habitats in the province of Overijssel. In table 1 the results are summarised for different kinds of grid cells. Under Dutch circumstances you have to walk at least 1 km for example in a grid cell with only species-poor pinewoods and more than 7 km in a species-rich Dutch dune-area. As at the 'bench-points' c.65-80% of the species will be detected it is recommended to make a longer length of route.

Remarks

In Overijssel, experienced, professional botanists do the field work. Therefore time and length of the route are strongly correlated, while inexperienced botanists will spend more time by naming the species found. For this reason it is better to use the length of the route instead of the time spent (c.f. Rich 1998).

In the computer simulations phenological aspects played no role, but during recording this can have a prominent role (Stieperaere 1996). Botanists know that recording on heaths can be best planned for late summer, and for forests in spring and early summer. As most grid cells have various habitats (with different 'phenological optima') more visits are recommended.

Botanical recording can also be frustrated because parts of the area are inaccessible, due to a hostile area or refusal of access for surveying private lands. Professional botanists in the Netherlands visit all habitats. Non-professionals visit mostly only those parts of a grid cell without problems of trespassing (woods, roads, etc.), so they underestimate the number of species at a grid cell.

For these reasons comprehensive recording of plants is difficult, but for reasons of comparison rules are necessary to increase the quality of 'dot' distribution maps.

Acknowledgements

Thanks to Tim Rich for stimulating me to write this paper.

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Table 1. The recommended minimum length of the route for Dutch 1 × 1 km grid cells.

<i>Various kinds of grid cells</i>	<i>Recommended minimum length (in km)</i>
<i>Km-grid cells with only one habitat</i>	
Pine-woods	1
Ditches (clay-on-peat polder)	1
Broad-leaved woods	2.5
Heath	2.5
Ditches (polder with peat/seepage)	2.5
<i>Km-grid cells with various habitats</i>	
Moderate number of habitat types on Pleistocene sands	5
High number of habitat types on Pleistocene sands	5-7
Dune-area	> 7 (estimated length)

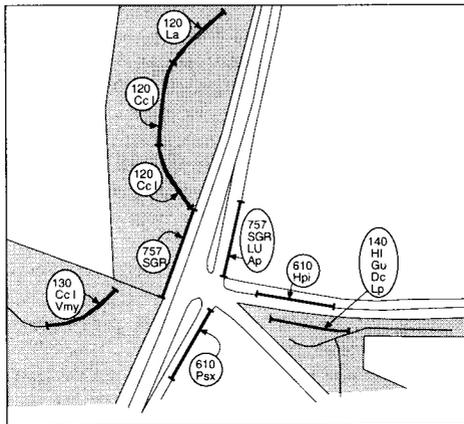


Figure 1. Mapping of species in Overijssel. All the 50 m sections are linked with a code for the habitat and abbreviation of the species. Habitat types: 120 = coniferous wood, 130 = broad leaved woods, 140 = broad leaved woods at wet locations, 610 = roads (verges), 757 = ditches along roads.

Ap = *Achillea ptarmica*, Ccl = *Ceratocapnos claviculata*, Dc = *Deschampsia cespitosa*, Gu = *Geum urbanum*, Hl = *Humulus lupulus*, Hpi = *Hieracium pilosella*, Ia = *Ilex aquifolium*, Lp = *Lonicera periclymenum*, Lu = *Lotus uliginosus*, Ppx = *Pimpinella saxifraga*, Sgr = *Stellaria graminea*, Vmy = *Vaccinium myrtillus*.

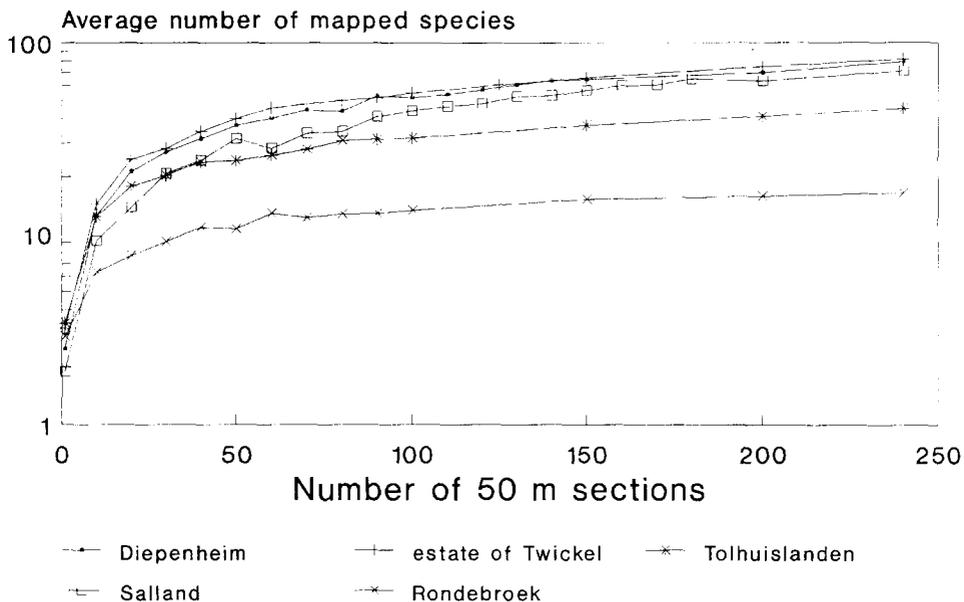


Figure 2. The number of 50 m sections in relation to the average number of mapped species per grid cell for five regions in the province of Overijssel. Diepenheim, Twickel and Salland comprise Pleistocene areas rich in habitats, Tolhuislanden and the Ronde Broek polder are areas poor in habitats. Note that the y-axis has a logarithmic scale.

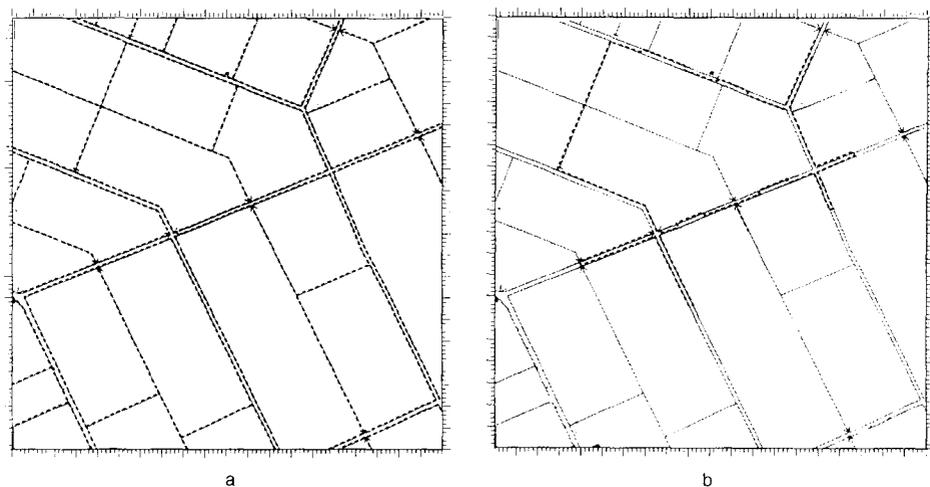


Figure 3. A km-grid cell in a polder area (peaty soil, seepage).

a. The route (---) is indicated when all ditches are checked (11.3 km!).

b. The same grid cell with a possible route based on the rule (2.5 km of route, table 1).

RADIATION IN BRITISH APIACEAE 2: *ANTHRISCUS SYLVESTRIS*

Introduction

In an earlier article (Presland 1999), the phenomenon of radiation was explored and discrepancies pointed out between different sources of evidence for its occurrence in certain species. Suggestions were made for further study of the phenomenon. One of the discrepant species was *Anthriscus sylvestris* (Cow Parsley), and the following is an exploratory study of radiation in this species along the lines suggested in the first study.

For the purposes of this study, radiation is said to be present in any flower if:

- the length of the outermost petal is clearly greater than the length of the shortest inner petal;
- or the breadth of the outermost petal is clearly greater than the breadth of the narrowest inner petal;
- or both.

To measure the extent of radiation, the following two ratios from the earlier study were used:

- a **length ratio** calculated by dividing the length of the outermost petal by the length of the shortest inner petal;
- a **breadth ratio** calculated by dividing the breadth of the outermost petal by the breadth of the narrowest inner petal.

Anthriscus sylvestris was selected for study because:

- there are marked discrepancies between Tutin's (1980) claim that its petals do not radiate and the strong radiation shown in Ross-Craig's (1958) drawings and the author's photographs;
- the petals show no marked curvature or folding, so that measurement of petal length and breadth is uncomplicated;
- it is a common plant throughout Lowland Britain and therefore readily available for study to almost anyone who wishes to work with it.

The main purposes of the study can be resolved into the exploration of two main hypotheses:

- Radiation occurs often enough in *Anthriscus sylvestris* in the British Isles to make Tutin's general statement that the petals do not radiate inaccurate;
- Radiation is the normal state of petals in *Anthriscus sylvestris*, non-radiating petals being exceptional.

In addition, it was hoped to throw some light on the pattern of distribution of radiation. Does it, for instance, occur in petal length only, or in petal breadth only – or in both? Is it found only in primary compound umbels, or only in secondary compound umbels, or can it occur in both? Is it restricted to flowers which are peripheral with respect to compound umbels, or can it occur also in flowers which are peripheral with respect to the simple umbels which make up a compound one? Indeed is it restricted to peripheral flowers at all, or can it also occur even in the innermost flowers?

Methods

A number of investigations were carried out, using small samples for what was intended as an exploratory exercise. Each is described below.

- Firstly, as an initial attempt to establish the presence or absence of radiation, petals were measured from individual plants in a range of geographical locations and habitats, mainly in West Wiltshire, but also from elsewhere. This work took place at intervals during May 1998. The locations were random in relation to the purposes of the investigation, taking place where the author happened to be with *Anthriscus sylvestris* to hand and time to measure. The first plant encountered at each location was used. Two umbels were selected on each plant: the one nearest to the author as he approached the plant (and therefore an outer one); and the outer umbel immediately opposite to the first on the opposite side of the plant. On each umbel, the outermost flower was identified, and the longest outer petal, the shortest inner petal, the broadest outer petal and the narrowest inner petal were measured. For the longest and shortest, length was measured, and for the broadest and narrowest, breadth. Measurements followed the same procedures as in Study No 1, and to the nearest millimetre.
- Secondly, the distribution of radiation within primary umbels was investigated. One plant, a weed in the author's garden near Bradford-on-Avon, was studied in mid-May 1998. On each of two days, the highest primary compound umbel retaining all its petals was identified. Within each of

these compound umbels, one outer simple umbel and one inner simple umbel were selected on the eeny-meeny-miney-mo principle, giving four simple umbels altogether. The flowers in each simple umbel were typically in two rings – an inner and an outer. Measurement was carried out for all the flowers in both the outer and the inner rings. The petal lengths only were measured and ratios calculated as in the first investigation.

- Thirdly, on two days at the end of May 1998, measurements were carried out on a single plant by a roadside near Bradford-on-Avon to investigate radiation in secondary compound umbels. Each highest secondary compound umbel in turn which was fully mature but had no fallen petals was measured. In each of these, petal measurement and calculation of both length and breadth ratios was carried out as in the first investigation for the individual flower furthest from the plant axis.

Results, discussion and conclusions

The results are shown in Tables III, IV, and V. It is clear from the overall results that petal radiation is the norm in all plants included. In Table III, 18 of the 22 length ratios and 19 of the breadth ratios were 2.0 or more, which is a marked degree of radiation. Of the remaining ratios, two were 1.7, three 1.5, one 1.3 and one 1.0. There was no plant in which radiation did not occur at all. The plant at Tissington showed the least radiation overall, but looked sickly, as though it had been sprayed, battered by traffic or both. Even in that plant, the flower with the 1.0 ratio achieved it because of the approximation. Inner and outer petals were both 1.0 mm long to the nearest mm, but the outer was slightly more than 1.0 mm and the inner slightly less. In Tables IV and V, all the ratios indicated radiation. The samples were very small, but, such as they were, lend support to the hypothesis that radiation occurs often enough to invalidate Tutin's description. It is very unlikely that exceptional conditions would have occurred in all these individual plants.

Further, the results are consistent with the second hypothesis – that radiation is the norm. However, the small size of the sample must be relevant here. It is entirely possible that there are plants in some parts of the British Isles whose petals do not radiate, or even that there are whole local or regional populations of which this is true. A small amount of variation in degree or extent of radiation was noted even in the sample here.

Table IV showed that, for the particular compound and simple umbels studied, radiation was universal in the flowers – whether peripheral or inner in the compound umbel or peripheral or inner in the component simple umbels. The length ratio was 2.0 or more in all cases. This is consistent with the view that radiation can occur in any flower in this species. Again the small sample forbids conclusions beyond this.

Table V found much the same range of ratios in secondary umbels in one plant as had occurred in the wider sample in which umbels were not identified as primary or secondary – except that there were some ratios even higher than in that sample. Sample size again prevents any conclusion of widespread relevance.

Concluding note

The author hopes that the field study of *Anthriscus sylvestris* here will stimulate others. The study plainly needs replication in a wide variety of situations. Even very small samples from a large number of different situations could yield helpful results.

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Table IV: Length measurements of petals in different parts of the inflorescence in *Anthriscus sylvestris*

	Outer simple umbel 1									
	Outer flowers					Inner flowers				
Length outer petal	2.5	2.5	3.0	3.0	2.5	2.0	2.0	2.0	3.0	
Length inner petal	1.0	1.0	1.5	1.5	1.0	1.0	1.0	1.0	1.0	
Length ratio	2.5	2.5	2.0	2.0	2.5	2.0	2.0	2.0	3.0	
	Inner simple umbel 1									
	Outer flowers					Inner flowers				
Length outer petal	3.0	2.5	3.0	3.0	3.0	2.5	2.0	2.0	2.0	
Length inner petal	1.5	1.0	1.5	1.0	1.5	1.0	1.0	1.0	1.0	
Length ratio	2.0	2.5	2.0	3.0	2.0	2.5	2.0	2.0	2.0	
	Outer simple umbel 2									
	Outer flowers					Inner flowers				
Length outer petal	3.0	3.0	3.0	3.0	2.0	2.5	2.0	2.0	2.0	2.0
Length inner petal	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Length ratio	2.0	2.0	3.0	3.0	2.0	2.5	2.0	2.0	2.0	2.0
	Inner simple umbel 2									
	Outer flowers					Inner flowers				
Length outer petal	3.0	3.0	3.0	3.0	2.0	3.0	2.0	2.5		
Length inner petal	1.5	1.0	1.5	1.5	1.0	1.5	1.0	1.0		
Length ratio	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.5		

Table V: Measurements on secondary umbels of *Anthriscus sylvestris*

Length outer petal	Length inner petal	Length ratio	Breadth outer petal	Breadth inner petal	Breadth ratio
2.0	1.0	2.0	2.0	1.0	2.0
2.0	1.5	1.3	2.0	0.5	4.0
2.0	1.0	2.0	2.0	1.0	2.0
2.5	1.5	1.7	2.0	1.0	2.0
2.0	1.5	1.3	2.0	0.5	4.0
2.0	1.0	2.0	2.0	1.0	2.0
2.0	1.0	2.0	2.0	0.5	4.0
3.0	1.5	2.0	2.0	1.0	2.0
2.0	1.0	2.0	2.0	1.0	2.0
2.0	1.0	2.0	2.0	0.5	4.0
2.0	1.0	2.0	1.5	0.5	3.0
2.0	1.0	2.0	2.0	1.0	2.0
2.0	1.5	1.3	2.0	1.0	2.0
2.5	1.0	2.5	2.0	1.0	2.0
2.0	1.0	2.0	2.0	1.0	2.0
2.0	1.0	2.0	2.0	1.0	2.0
2.5	1.0	2.5	2.0	1.0	2.0
2.0	1.0	2.0	2.0	1.0	2.0
2.0	1.0	2.0	2.0	0.5	4.0
2.0	1.0	2.0	2.0	1.0	2.0

Table III: Measurements on *Anthriscus sylvestris* in a range of locations

Habitat and location	Nearest umbel						Opposite umbel					
	Length outer petal	Length inner petal	Length ratio	Breadth outer petal	Breadth inner petal	Breadth ratio	Length outer petal	Length inner petal	Length ratio	Breadth outer petal	Breadth inner petal	Breadth ratio
Open roadside nr Bradford-on-avon Wilts	3.5	1.5	2.3	2.5	1.0	2.5	3.0	1.5	2.0	1.0	2.0	2.0
Shady roadside nr Bath but Wilts.	2.0	1.0	2.0	1.5	1.0	1.5	2.5	1.0	2.5	1.0	2.0	2.0
Open roadside nr Bath but Wilts.	2.0	1.0	2.0	1.5	1.0	1.5	2.5	1.0	2.5	1.0	2.0	2.0
Tall grass by river Trowbridge, Wilts	2.5	1.5	1.7	3.0	1.0	3.0	3.0	1.5	2.0	1.0	2.5	2.5
Tall grassland Trowbridge, Wilts	2.5	1.0	2.5	2.0	1.0	2.0	2.0	1.0	2.5	1.0	2.5	2.5
Open churchyard Melksham, Wilts.	3.0	1.5	2.0	3.0	1.0	3.0	3.0	1.0	3.0	1.0	2.0	2.0
Shady churchyard Melksham, Wilts.	3.0	1.5	2.0	3.0	1.5	2.0	3.0	1.5	2.0	1.5	2.0	2.0
Shady grassland, Bradford-on-avon Wilts.	3.0	1.5	2.0	2.5	1.0	2.5	3.0	1.0	3.0	1.0	2.0	2.0
Hedgerow, Tissington, Derbs	2.0	1.5	1.3	1.0	1.0	1.0	2.5	1.5	1.7	1.0	2.0	2.0
Base of wall Nottingham	2.5	1.0	2.5	2.0	1.0	2.0	3.0	2.0	1.5	1.0	3.0	3.0
Open grassy area by roadside, Nottingham	2.5	1.0	2.5	2.0	1.0	2.0	2.5	1.0	2.5	1.0	2.0	2.0

ATLAS 2000 AND A PROBLEM WITH PURPLE FLOWERED COMFREY(continued)

This note continues from that appearing in *BSBI News* 76: 22-23 (Sept.) 1997, to which reference should be made for full details. Briefly, a population of purple flowered comfrey was found by me at Woodhall, SE/695 320 in S.E. Yorkshire (v.c. 61) in May 1970, but was not at that time accepted as *Symphytum officinale* for various reasons, in particular the flower buds were deep purple, not carmine. In 1975 a chromosome count was made by Dr G.E. Marks at the John Innes Institute at my request and the figure obtained was $2n=48$, thus supporting my determination.

With the advent of Atlas 2000 I felt the same problem could arise again, at least in this area. I returned to the site in the summer of 1997 to see if the nutlets were shiny as they should be for *S. officinale* or dull as for *S. × uplandicum*. I could only recollect seeing a shiny seed once in the past. As I stated in 1997, the ovules had not developed and had turned black in the middle. This could support hybridity. Whilst myself not doubting the chromosome count, it could be argued that one count on one plant from a population was inadequate, so I arranged with Dr John P. Bailey at Leicester University for a further count.

The results came late in September 1998. Two counts were made and each was $2n=48$. Unfortunately due to the timing of these results and my own preoccupation with health problems, I only got back to the site in October, by which time there was little to see. One surviving inflorescence again showed black centred undeveloped ovules. This time I was assured there had been no spraying in the area, which previously had been suggested as a cause of the sterility. Dr Bailey made the following comment in his accompanying letter, which I have permission to quote.

'From a cytological perspective these two plants are most unlikely to be a result of a back-cross involving *S. × uplandicum*, particularly if they are producing fertile seed. My reasoning for this is that although $2n=48$ is a possibility for such a hybrid, it would be just one of a range of possible outcomes, and the chances of finding two plants with the same unlikely (but not impossible) chromosome number seems vanishingly small.'

In fact it is three plants altogether. Why then the apparent sterility?

I had noticed on the edge of the arable, as distinct from the roadside verge, that one could get three plants in a line and in descending size, and therefore of age. Digging plants up, I found fusiform roots descending and also horizontal rhizomes. In April this year and armed with a garden fork I tried again to dig up connected plants, but either the connecting rhizomes are too fragile or they decompose. The latter seems unlikely since some roots turned up by the plough were up to 3 cm in diameter and out of proportion to the height of the plants which in the past I would have estimated as no more than 80 cm. Indeed, in the visit in April, plants were in small bud at under 20 cm tall. It would appear that the whole population could be, in effect, a single self-sterile plant with no other population nearby. I have not found much information on the root systems of *Symphytum* species though it has been used to put them in sections. For *S. officinale*, B. Pawlowski (1961) gives 'Radix crassa, fusiformis, verticalis' and for *S. asperum* and *S. × uplandicum* 'Radix crassa, fusiformis, ± verticalis'. More or less horizontal rhizomes are mentioned only in connection with other species.

The Woodhall plants look similar to the cytotype $2n=40$ of Gadella and Kliphuis as depicted in their paper (Gadella & Kliphuis 1973). They describe this as a Dutch lowmoor peat-bog plant that was sufficiently close to *S. officinale* subsp. *uliginosum* ($2n=48$) for investigation to be undertaken. They also mention a Czechoslovakian plant with chromosome number $2n=56$, so presumably this could cross with a $2n=40$ plant to give one with $2n=48$. The possibilities seem to be increasing.

In my earlier note I described the soil as sandy. Silty would have been a better description. As far as I can judge from the maps given in Arnett (1990), the superficial deposit is glacio-fluvial drift and the soil a ground water gley. It is finely gritty to the touch and blackish when wet.

The Woodhall *Symphytum* does not fit exactly any particular description as yet. It may be unique in Great Britain. However, I do not feel I can do much more. Papers are expensive at £5 a time through inter-library loan and experimental work is not a possibility for me. I hope someone else will pursue the subject. I can watch for fertile nutlets. Meanwhile my thanks go to Mr P. Bramley for

allowing me to collect plants from his land, and to Dr Franklyn Perring and Dr John P. Bailey for their interest.

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VULPIA MEMBRANACEA, V. FASCICULATA, (AND V. PYRAMIDATA) 30 YEARS ON – A POSTSCRIPT

ADDENDUM – A few typographical errors crept into the article in *BSBI News* **81**: 21-24. The two most significant were that Link's plant (p. 23) was in fact labelled '*Stipa membranacea* ?' by Smith, and on p. 24 he should have been cited as Link, H.F. (He is given as J.H.F. Link in some sources.)

In the article I referred to the proposal by Prof Lambinon that the name *V. membranacea* is a *nomen confusum* and should be replaced by *V. pyramidata*. Dr C.E. Jarvis has kindly informed me that the proposal was formally rejected – see *Taxon* (1986) **35**: 562.

MORE EARLY SPECIMENS – In April I looked at IDC microfiche no. 6206 held at Kew (**K**) and found two early specimens of *Vulpia* now in the Antoine-Laurent De Jussieu herbarium (**P-Ju**). The original labels on the sheets, by an as yet unknown hand, are pre-Linnaean phrase-names which belong to a pair of figures (*icones*) of Barrelier published 1714 in Paris, both cited by Linnaeus. The combination of names and specimens, and the usage in *Species Plantarum* leads me to believe they were seen by him in Paris in 1738.

If I am correct, it confirms earlier speculation by Henrard (1937) and Gonzalez in Stace and Jarvis (1985) that *Festuca incrassata*, removed from the first edition of *Species Plantarum* during printing as described by Stearn (1957), is a *Vulpia*, but is probably *V. fasciculata*. The sheets are:

- no. 2391 *Gr. festucei myuri elatius spica heteromallo gracili* Barrel. Ic. 99 no II – now labelled *Festuca uniglumis* Smith – viz. *V. fasciculata*, which as far as I can tell from the photograph is correct.
- no. 2409 *Gr. festucei myuri minori spica heteromallo* Barr. Ic. 99 no I – now labelled *Festuca ciliata* Derand – viz. *V. ciliata*, which also looks correct.

Figure **99.II**, resembling our *V. myuros*, was cited by Linnaeus under *F. incrassata*, adding a reference to *Scheuch. gram. p. 293?* which is also *V. myuros*. His brief diagnosis includes the nodding habit of the plant in the figure and the swollen pedicels of that on the sheet – hence *incrassata*. Linnaeus appears to have tried to match two sheets in **LINN** to this taxon before abandoning it – both of specimens received 1752-3 from Loeffling in Spain. The rather flaccid specimen on sheet 94.9 of *Stipa* (= *V.*) *membranacea* still carries a reference to *Festuca* no. 6, while sheet 92.13, which carries *V. bromoides* and a form of *V. myuros* with pubescent lemmas, was also originally labelled 6 which Linnaeus has very carefully altered to 5 – viz. his *F. myuros*.

Figure **99.I** is cited by Linnaeus under his *F. myuros*, it looks like a more compact version of fig. II and Duval-Jouve (1880) argues it is just that. However, one inflorescence is shown slightly enlarged, and from the back, where the comparatively stout rhachis can be seen uninterrupted for its full length. This would indicate *V. ciliata* to me, and thus correct for the specimens on the sheet. By ed 2 of *Species Plantarum* it is made clear that *F. myuros* includes plants with ciliate florets.

Although Prof. Stearn points out that *F. incrassata* has no nomenclatural status, I think both sheets shed light on Linnaeus's treatment of some of the UK species of *Vulpia*, which I hope to clarify in a further article.

Additional reference:

Stearn, W.T. (1957) *An Introduction to the Species Plantarum and cognate botanical works of Carl Linnaeus*. With facsimile of *Linnaeus, C. Species Plantarum 1753*. Ray Society, London.

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A MYSTERY IN MINIATURE

Being something of a bumbling amateur, I tend to look at the pictures first when stumped to name some new-found specimen. Quite often, unable to get a 'match', I end up muttering peevishly, 'No such plant! No such plant!' Then I have to do it the proper way, from the top down. One particular stumbling block with the first method is that the pretty coloured flowers take centre stage. But flowers, usually so distinctive, can also be highly misleading.

Doing my bit for the Atlas in my home square in Fife (v.c. 85) recently, I was exploring a small water meadow, clearly little-grazed and possibly undisturbed back into the mists of time. A muddy patch near the burn held the expected *Ranunculus repens* (Creeping Buttercup), *Juncus effusus*, *J. articulatus* and *J. bufonius* (Soft-rush, Jointed and Toad Rushes), *Persicaria maculosa* (Redshank) and the rather less expected (and somewhat stunted) *Isolepis setacea* (Bristle Club-rush). But my eye was arrested by something buried deep in the middle of clumps of the Club-rush, minute pinheads of bright white flowers. In a compass of just 3 mm, a $\times 10$ lens revealed an uncountable number – perhaps thirty or forty? – of minuscule white petals tightly packed inside four tiny sepals. Absolutely delightful – and absolutely unidentifiable. So I searched through all the pictures in the picture books: no such plant. I even went right back to the beginning, to the bit that asks 'Has it got four white petals? . . . five blue petals? . . . six pink petals? . . .' Still no such plant, nor anything remotely like it. As for using the 'proper' books, that was impossible because I didn't even know where to start.

So I delivered a specimen into the hands of George Ballantyne, my friendly v.c. recorder. Meanwhile, I did what I should have done in the first place: I looked at the whole plant, instead of just the pretty flowers. It was about 3 cm high, decumbent and frequently rooting, hairless, delicate, with irregular knots of tiny linear leaves up the stem and, as I said, four sepals. There: I've given you all the clues.

Happily, by the time George phoned up to tell me what it was, I had finally worked it out for myself. It could only be a freak variety of *Sagina procumbens* (Procumbent Pearlwort). George had never seen anything like it. Professor Nicholas Jardine, the *Sagina* referee, kindly replied to my enquiry that no, he had never heard of such a thing. Looking through a Dictionary of Botany, I was enchanted to find that the term to describe its condition was 'petalomania'. So if it should be my privilege to give it a name, it would have to be *Sagina procumbens* var. *petalomania*.

I have to confess that my thoughts then turned to the question of commercial potential. Could it have a future on rockeries, perhaps, or in window boxes? My own specimen is still thriving cheerfully, several weeks later, in a jamjar lid on top of the washing machine. But no; a flower so tiny that its peculiar beauty can only be appreciated with a $\times 10$ lens is hardly set to storm the horticultural market. Nevertheless, it did turn out to have a value besides the aesthetic: the farmer who owned the field was seeking a conservation grant for it and realised this was the very star she needed to crown her application form.

If anyone else has come across a *Sagina* like this, of course, I should be most interested to hear.

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OUT WITH THE GOUT – THE BOTANICAL WAY

Whatever the cause of gout may be – advancing years or excess of liquid delights (and I will not indulge in self-incrimination), I can personally vouch for the fact that it is a very painful and crippling complaint, especially for a keen amateur botanist who likes to be out and about as much as possible. So in September 1997, suffering from my first ever attack, and with a left big toe the size and hue of a Gardener's Delight tomato, I found walking up the three tall flights of steep stairs in the Warwickshire Museum, to see Pam Copson, BSBI Recorder for Warwickshire, more than usually taxing. Noting my distress, Pam, perhaps in jest, mentioned the merits of Goutweed.

Although only days before I had 'ticked it off' on my Atlas 2000 square list, and having also for years waged a hopeless war against it in my garden, I had never considered its supposed remedial qualities very seriously. Now, the need being urgent, seemed the time to find out if the wretched thing did have any saving graces.

So, immediately on return home, out came the secateurs, and soon a good handful of leaves was simmering in a jugful of boiling water. After standing it for about two hours, with frequent stirring (I recommend adding a tablespoonful of sugar to counteract acidity) the result was an unprepossessing mucilaginous green liquid. Here goes, I thought, downing a cupful – it can do no harm anyway. Precisely at this point I realised that perhaps it could – if it shared the unpleasant characteristics of some of its umbellifer cousins! I realised that I had no idea whether the original folk-remedialists intended use as a tincture or a poultice! To say that I awaited developments with some trepidation is an understatement.

But all was well, within two hours the pain began to subside and the following morning my toe was its normal size and colour and totally without pain. Since then two further attacks have succumbed equally successfully to the same treatment. So, Goutweed, Bishopsweed or plain old Ground Elder *Aegopodium podagraria*, does have its uses, and I am prepared to sell some at my garden gate to anyone who wishes to try it.

MICHAEL J. SENIOR

POLLARDING BLACK POPLARS

The following extract from *The Malvern Gazette & Ledbury Reporter* about the pollarding of Black Poplar (*Populus nigra* subsp. *betulifolia*) at Castlemorton Common, near Malvern (SO/76.38) may interest members as much as it did me.

'TREE experts were busy on Castlemorton Common this week tending to a group of rare poplars.

The black poplar is one of Britain's rarest native timber trees, and the Common is blessed with the finest collection of pollarded black poplars in the country.

Specialist Paul Hand, a member of the Black Poplar Consortium, has been called in by Malvern Hills Conservators to advise them on the care of the trees.

This week he was overseeing the pollarding of the trees, which are located off Hancock's Lane. Pollarding is the traditional management practice similar to coppicing, but is carried out 10 feet up the tree to stop animals eating the regrowth.

"The pollarding produces regular good, straight timber and ensures the longevity of the trees, which can be many hundreds of years old, having been coppiced over and over again," said Mr Hand.

"I have come as a missionary from Aston-on-Clun in Shropshire, where we have the most famous black poplar. This tree is subject to an annual tree-dressing ceremony which has been continuing since at least 1786," he said.'

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ALIENS

ALIEN RECORDS

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

My thanks to the late Paul Bowman and to Michael Wilcox, for supplying the records. Members are reminded that 1st records of all taxa included in Kent's *List* are eligible for publication in Plant Records in *Watsonia*.

Solanum rostratum (Buffalo-bur). Edge of refuse tip in gravel extraction area, along footpath, Efford, Keyhaven, SZ/310.922, S. Hants. (v.c. 11), Miss M.E. Young, 14/9/1997. First v.c. record,
Herb. R.P. Bowman

Malus baccata (Siberian Crab). Open heath on S. side of road, B3078, Godshill, SU/179.149, S. Hants. (v.c. 11), E.J. Clement & P.D. Stanley, 1997. First v.c. record.

Malus hupehensis (Hupeh Crab). Small tree, probably bird sown in lakeside scrub facing S onto a paddock, Pylewell Park, SZ/356.960, S. Hants. (v.c. 11), Miss M.E. Young, 22/8/1998, det. C.S. Crook. Second v.c. record.

Vulpia ciliata subsp. *ciliata* (a bearded fescue). Along both sides of canal section, Clarence Dock, Leeds, SE/308.329, S.W. Yorks. (v.c. 63) and SE/314.325, Mid-W. Yorks. (v.c. 64), M. Wilcox, 17/8/1999, conf. C.A. Stace. Possible first v.c. records.

GOLD COINS BY THE BEACH

Not uncommonly cultivated as a rockery plant in coastal resorts, particularly on the south coast of England, *Asteriscus maritimus* (L.) Less has only been recorded in the UK as an Esparto casual, presumably in the vicinity of paper mills. To find a number of healthy plants of this yellow composite in full bloom in January 1998 was a real surprise.

This was in Eastbourne, Sussex, growing in a long strip of cobbled sea-washed pebbles alongside a restaurant. As the building was to the east of the plants and, additionally, there was a slight overhang, the area was particularly well sheltered from the cold easterly winds occasionally experienced even in this sun-spot of the south. So sheltered in fact that these plants have been in bloom continuously ever since – some 18 months. This may well have been helped by the hard growing conditions. The amount of plant debris collected between the cobbles must be slight and the degree of root penetration through the concrete in which they are set must, of course, be conjectural, but if any, can surely be only into the hardcore below.

The source of the small population of c.20 plants is clearly the cultivated specimens to the west. Cultivated plants are invariably propagated from cuttings and the genetic variability must be low to nil. Indeed it is quite possible that in cultivation we have a clone. But the escapees are from seed, and with that comes the potential for the selection of hardier forms. As the achenes have a pappus and with a prevailing SW wind, then the whole of Eastbourne and what remains of the Crumbles – a shingle beach after the style of Dungeness – is a potential seedbed. Can any more records be expected?

The taxonomy of this plant and its allies can be confusing. Using *Asteriscus* Miller follows both *Flora Europaea* and Eric Clement. This is comforting. Perhaps then one can ignore those who put

both this species and *A. aquaticus* into *Odontospermum* Neck. ex Sch. Bip., into which genus some would also add the species – many of which are even more beautiful but even more tender – from the Canaries and the Cape Verde Islands. However more recently these latter species have been placed in *Nauplius* Cass. but it far from clear whether this move has been widely accepted. For the moment it seems sensible to retain them all in *Asteriscus* s.l.

Few books mention a common name. The only one I have come across is Gold Coin which seems a pleasant enough name for a cheerful plant. So much so that I have found the plant on sale at a garden centre at Stone Cross near Eastbourne as *Asteriscus* 'Gold Coin' – the common name here being used as a cultivar name, despite the plant appearing to be the pure species.

Those who visit Eastbourne may well wish to extend their exploration beyond the Wish Tower, particularly to the west. Here are some interesting naturalised plants including Shrubby Scorpion-Vetch (*Coronilla valentina* subsp. *glauca*), Sweet Scabiosa (*Scabiosa atropurpurea*), Turkish Iris (*Iris orientalis*), Italian Lords-and-Ladies (*Arum italicum* subsp. *italicum*), Lauristinus (*Viburnum tinus*) and Evergreen Oak (*Quercus ilex*). Seedlings of the Argentinean Eryngo (*Eryngium agavifolium*) have been seen, but none have as yet reached maturity.

Finally I would thank Eric Clement for confirming my identification of this yellow composite. It was good to get one right. And also for his persistent encouragement to put pen to paper. Where would we be without him? But this note would have been of far less use without the illustration on the front cover which lacks any credit to the artist to whom I am most grateful. This is because Sue Buckingham requested it to be anonymous – and so it is!

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***CALAMAGROSTIS ARGENTEA* – NEW TO BRITAIN?**

In 1998, while walking around Leeds City centre (v.c. 64), I came across a grass in a flowerbed that puzzled me. I attempted to identify it and eventually, using the Collins Pocket Field Guide, ran it down to *Achnatherum calamagrostis*. A specimen was sent to Bruno Ryves who excitedly confirmed the identification by its currently accepted name of *Calamagrostis argentea*.

On 16th August 1999 I found the same grass, self-seeded, about 20 m away in a pavement crack next to a Pelican Crossing (GR. SE/303.343) A specimen was duly confirmed by Mr Ryves who also pointed out that, as mentioned in the *Alien Grasses of the British Isles* (1996), *Calamagrostis argentea* is an often grown ornamental grass that had not previously been found growing outside of cultivation in Britain, although it self-seeds readily in Europe. As far as he knew this was its first British record.

Hopefully the grass may establish itself near the slip road and elsewhere in the area. It is definitely on the move and it has since been found at SE/306.335 in 'cracks' 200 m away from any parent plant. If anyone has flowerbed plants of this grass in their area I would urge them to become familiar with young plants as they could easily be overlooked for other grasses. Many thanks go to Bruno Ryves whose expertise and swift response have been greatly appreciated and have allowed this note to be published in *News* about a month after the grass was found!

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NEW ALIENS IN SARK

Anisodontia capensis was recorded by Daphen E. Dunster (1990) as having been found in Sark:—
‘Farm gateway, La Peigneurie. Mrs M. Marsden, 3.8.1989. Garden escape. First C.I. record’.

This does not seem to have been published elsewhere and seems to be the first record, not only for C.I., but also for the British Isles. I wrote to Marcia Marsden to ask whether there was a specimen in the Herbarium of Société Sercquaise. She replied (22/6/97):—

‘Yes, there is a specimen here. DMcC [David McClintock] identified it. It survived for only one further year, and I was later told the cows had eaten it; the piece I picked stank horribly, so goodness knows what it must have done to the milk’.

Mrs M. Marsden wrote to me on 12/3/99 enclosing a letter dated 23/2/99 from Peter Green of Kew:—

‘I return your specimen of ‘Valerian’ having discovered it is not that genus after all, but is *Centranthus macrosiphon* Boiss. (a native of Spain)! I had only known *C. ruber* before and it looked so different from that plant and more like some *Valeriana* species. However, not having succeeded in matching it up with any *Valeriana*, I did what I should have done in the first place and dissected a flower. I then discovered that there was only one stamen per flower, which made it a *Centranthus*.

Centranthus macrosiphon is a variable plant but I do not think the specimen can be anything other than that species. . . . I note that McClintock in his *The Wild Flowers of Guernsey* states that it was recorded in Jersey in 1926.’

Attached to the copy of the letter was a slip quoting from Frances Le Sueurs *Flora of Jersey* 1984, p. 150. Two records:— Dancaster’s Farm, St Ouen’s Bay, 1901, Piquet, but originally labelled *Valeriana pyrenaica* (Hb Oxford); La Corbiere, August 1912, Piquet, but originally labelled *C. calcitrapa* (Hb Société Jersiaise).

Mrs Marsden’s letter says:—

‘This plant (an annual) has been growing in a small colony at Maricel, almost opposite La Plaisance, since Hazel Bull’s rockery was made over, she thinks 3-4 years ago. She did not introduce it, but a seed might have been brought in with some compost that was used at the time, either Hazel’s own or her gardener’s.’

In a later letter (31/3/99) she says ‘. . . first reported . . . in 1996. . . It had been propagating there for a few years’. The specimen identified by Peter Green had been gathered in 1998.

Reference

Dunster, Daphen E. (1990) Botanical Section Report for 1989. *La Société Guernesaise, Transactions, XXII, Part IV*: 541.

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KEYS TO *DATURA* AND *BRUGMANSIA* (SOLANACEAE)

Taxa of *Datura* (Thornapple) and *Brugmansia* (Tree Datura, Floripondo) present many challenges to correct identification, yet they are of interest and importance pharmaceutically, horticulturally and botanically. Much of the taxonomic literature is in old publications or in languages other than English; with this in mind Alan Child has kindly provided a translation of keys to *Datura* that appeared in recent German publications (Hammer *et al.* 1983; Preissel & Preissel 1997). These have been adapted slightly and a key to the Tree Daturas, derived from work for the *European Garden Flora*, has been added for reasonable completeness.

Key 1: Major taxa of *Datura*

- | | | | |
|------|--|---|-----------------------|
| 1 a. | Small trees with pendent or inclined flowers | (Section <i>Brugmansia</i>) | (See key 4) |
| b. | Herbs, sometimes becoming woody; flowers erect | <i>Datura</i> | 2 |
| 2a. | Capsules deflexed or inclined | | 3 |
| b. | Capsules erect | (Section <i>Datura</i>) | 9 |
| 3a. | Capsules smooth, rupturing irregularly when ripe | (Section <i>Ceratocaulis</i>) | <i>D. ceratocaula</i> |
| b. | Capsules prickly or with conical protuberances | (Section <i>Dutra</i>) | 4 |
| 4a. | Capsules dehiscent regularly by 4 valves | | <i>D. discolor</i> |
| b. | Capsule dehiscent irregularly, rarely disintegrating completely | | 5 |
| 5a. | Capsules with blunt conical protuberances | <i>D. metel</i> (See key 2) | |
| b. | Capsules with very sharp prickles | | 6 |
| 6a. | Flowers <7 cm long | | 7 |
| b. | Flowers >10 cm long | | 8 |
| 7a. | Plant usually >50 cm tall; leaves and shoots weakly pilose | <i>D. leichardtii</i> subsp. <i>leichardtii</i> | |
| b. | Plant usually <50 cm tall; leaves and shoots strongly pilose | <i>D. leichardtii</i> subsp. <i>pruinosa</i> | |
| 8a. | Corolla pale violet in upper part, floral limb comparatively entire, appearing 5-lobed with interacuminal apices very short; seeds yellowish | | <i>D. wrightii</i> |
| b. | Corolla white, floral limb comparatively undulate, appearing 10-lobed with interacuminal apices long; seeds brown | | <i>D. inoxia</i> |
| 9a. | Capsules smooth or with prickles of almost equal length | <i>D. stramonium</i> (See key 3) | |
| b. | Capsules with strong prickles much longer towards apex | | 10 |
| 10a. | Upper prickles almost as long as capsule; leaves irregularly dentate | | <i>D. ferox</i> |
| b. | Upper prickles c. a third the length of capsule; leaves deeply sinuately lobed | | <i>D. quercifolia</i> |

Key 2: Minor taxa of *D. metel*

- | | | | |
|-----|--|------------------------|---|
| 1a. | Corolla white or yellow | | 2 |
| b. | Corolla fully or partly violet to red | | 4 |
| 2a. | Corolla single, white | var. <i>metel</i> | |
| b. | Corolla double | | 3 |
| 3a. | Corolla white | var. <i>muricata</i> | |
| b. | Corolla yellow | var. <i>chlorantha</i> | |
| 4a. | Corolla single | var. <i>rubra</i> | 5 |
| b. | Corolla double | | 6 |
| 5a. | Corolla violet | f. <i>rubra</i> | |
| b. | Corolla red | f. <i>sanguinea</i> | |
| 6a. | Corolla red or violet throughout | var. <i>obscura</i> | 7 |
| b. | Corolla red or violet externally, white internally | | 8 |
| 7a. | Corolla violet | f. <i>obscura</i> | |
| b. | Corolla red | f. <i>atropurpurea</i> | |
| 8a. | Outer surface violet | f. <i>fastuosa</i> | |
| b. | Outer surface red | f. <i>malabarica</i> | |

Key 3: Minor taxa of *D. stramonium*

- | | | | |
|-----|---|------------------------|---|
| 1a. | Plant green; corolla white | | 2 |
| b. | Plant with purple anthocyanin pigment | | 4 |
| 2a. | At least some capsules on plant prickly | var. <i>stramonium</i> | 3 |
| b. | All capsules unarmed | var. <i>inermis</i> | |

- 3a. All capsules on plant prickly f. *stramonium*
 b. Smooth and prickly capsules present on same plant f. *labilis*
- 4a. Capsules unarmed var. *godronii*
 b. Capsules prickly var. *tatula* 5
- 5a. Purple pigmentation weak f. *tatula*
 b. Purple pigmentation strong f. *bernhardii*

Key 4: Main taxa of *Brugmansia*

- 1a. Corolla segments deeply divided for at least three-quarters of its length *B. amesianum*
 b. Corolla segments united for almost entire length 2
- 2a. Calyx spathe-like, narrowed to a long point 3
 b. Calyx tubular, apex with 2-5 teeth 6
- 3a. Corolla 12-30 cm, tubular, slightly expanded at mouth; fruit spherical to ovoid 4
 b. Corolla 22-50 cm, trumpet-shaped; fruit fusiform or cylindrical 5
- 4a. Corolla red, orange or yellow, 13-30 cm; calyx horn terminating near base of corolla tube *B. × rubella*
 b. Corolla white, 12-17 cm; calyx horn reaching upper half of corolla tube *B. arborea*
- 5a. Narrow part of corolla-tube not or shortly extended beyond calyx *B. × candida*
 b. Narrow part of corolla-tube clearly extended beyond calyx *B. versicolor*
- 6a. Flowers at least 25 cm or longer; narrow part of corolla extended beyond calyx; fruit fusiform; anthers coherent or free 7
 b. Flowers less than 25 cm; narrow part of corolla-tube not extended beyond calyx; fruit ovoid; anthers free 9
- 7a. Corolla teeth 1-2.5 cm; flower-stalk and calyx hairless *B. suaveolens*
 b. Corolla teeth 4-6.5 cm; flower-stalk and calyx with scattered fine hairs 8
- 8a. Corolla white; anthers free; fruit 29-31 cm *B. × dolichocarpa*
 b. Corolla pink or white; anthers free or coherent; fruit 11-13 cm *B. × insignis*
- 9a. Corolla trumpet-shaped, greatly expanded at the mouth; corolla teeth 4-6 cm *B. aurea*
 b. Corolla tubular to funnel shaped, tapered gradually towards mouth; corolla-teeth 1-2 cm 10
- 10a. Corolla yellow or red, or with red tip and yellow middle; fruit not hard nor woody, with smooth surface *B. sanguinea* subsp. *sanguinea*
 b. Corolla pink or with yellow tip and red middle; fruit hard, woody with warty surface *B. sanguinea* subsp. *vulcanicola*

Not all cultivated taxa have been keyed out here. There remain cultivars derived from the cross *B. aurea* × *B. suaveolens* × *B. versicolor* (= *B. × cubensis*), and hybrids between the subspecies of *B. sanguinea*, which require more study before a satisfactory key can be devised. For illustrations and details see publications listed below.

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ALAN CHILD, 31 York Road, Driffield, East Yorkshire, YO25 5AY
 JULIAN M.H. SHAW, 4 Albert Street, Stapleford, Nottingham, NG9 8DB

***AMSINCKIA LYCOPSOIDES* (SCARCE FIDDLENECK)**

In 1938, my husband was Principal of St Chad's College, Durham University. In those days, the University always had a holiday on Ascension Day – a movable feast, as it is always forty days after Easter. He and I joined an expedition to the Farne Islands, to see the birds. These were wonderful, and we were duly pecked by terns, as described by Sue Buckingham (*BSBI News* 81: 49). St Cuthbert's Chapel is a tiny hut of stones, with a courtyard outside, walled in by stones. This was where I saw *Amsinckia lycopsoides* – no where else – a small patch on top of the outer wall, just where a bird might have perched.

I can just see the lighthouse keeper using St Cuthbert's Chapel for his chickens. It would have made a splendid hen-house, and the poor creatures would have had some shelter.

ANNE BREWIS, Benhams House, Benhams Lane, Blackmoor, Liss, Hants. GU33 6BE

MORE TALES OF *AMSINCKIA*

The recent articles on *Amsinckia* (*BSBI News* 81: 49) prompted a host of memories. In 1966, as a post-final exams treat, I made my first pilgrimage to East Suffolk. Though the trip was primarily for bird-watching, I took the chance to expand my botanical knowledge, using a newly-acquired 'McClintock & Fitter'.

The species of plant which proved most puzzling was a 'yellow bugloss', occupying sandy headlands in the Minsmere district. Someone with greater expertise recognised my description as being referable to *Amsinckia*, which is not shown in McL&F. About the same time, I encountered *Amsinckia* on the Farnes, and was told substantially the same story as is related by Sue Buckingham.

Between 1970 and 1973, I taught in North Northumberland (v.c. 68). One evening, a local farmer conscripted several of us to help manual harvesting (of beans, I think) in a field near Heatherslaw Mill, on the Ford & Etal Estate, about 24 km from the Farnes. As I recall the incident, this crepuscular adventure was soon enlivened by handfuls of small but painful prickles. In gathering the crop, I had also grasped a bristly weed, unnoticed in the gloom.

Later examination showed it to be, as you will have guessed, an *Amsinckia*. I can locate no notes of the episode, but seem to remember that the field had a considerable infestation. Which species of *Amsinckia* was involved, and how it had got there, both remain mysteries.

Indeed, all I can say at this point is, 'I'm sunk 'ere'.

CHRIS LOWE, 25 North End, Hutton Rudby, Yarm TS15 0DG

***FIBIGEA CLYPEATA* (L.) Medik., NEW TO BRITAIN**

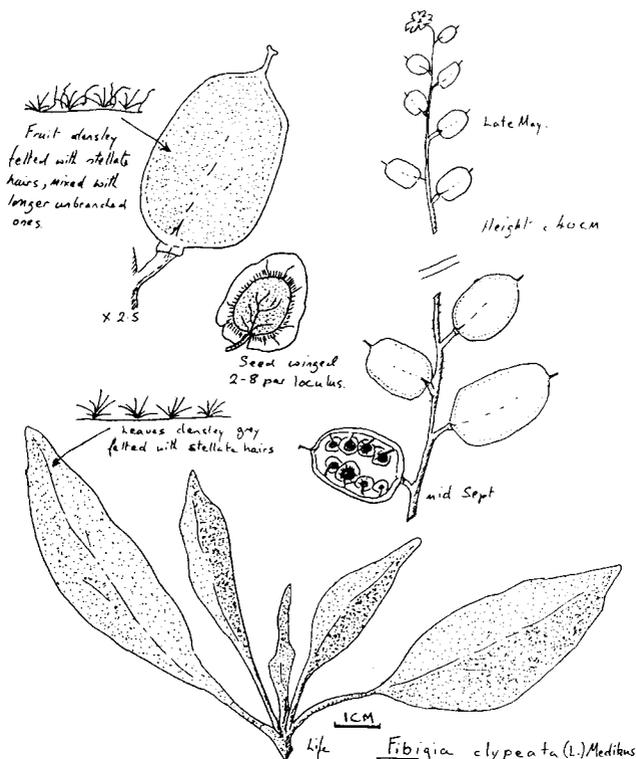
In the spring of 1998, following a winter of wildbird feeding, a plant was found on the edge of a patio in West Ardsley, Yorkshire (v.c. 63). Initially the grey-felted oblanceolate leaves gave rise to thoughts of *Aurinia saxatilis* (L.) Desv. (*Alyssum saxatile*). The plant was moved to an adjacent flowerbed, where it flourished.

By April an erect flowering stem began to appear and a new identification was clearly required. A closer look at the leaves revealed a dense mat of stellate hairs mixed with longer unbranched ones. This still seemed to fit the genus *Aurinia*, but the small pale yellow flower with shortly clawed petals atop an erect stem to 50 cm clearly did not. The compressed fruits, elliptic/oblong, were more akin to a *Lunaria* sp.

A duplicate herbarium sheet was prepared and forwarded to Dr T.C.G. Rich, who identified the plant as *Fibigea clypeata*.

A species new to Britain (E.J. Clement pers. comm.) *F. clypeata* is a perennial herb found growing among rocks and walls. With a distribution extending from Italy southwards through the Balkan peninsula to N.E. Greece.

JOHN MARTIN, 3 West Lea Drive, West Ardsley, Wakefield, Yorkshire, WF3 1DH



Birdseal Alien, West Ardsley,
Yorkshire v.c. 64
Det T.C.G. Rich

MORE ON TREE RING[ER]S

I was interested to read Humphry Bowen's piece about 'A New Conifer in the British Isles?' (*BSBI News* 80) as I can add further information about *Pseudopinus telephoneyensis*. To my shame the species has a major breeding site here in Somerset, I believe, at Highbridge, but this can be confirmed by Sedgemoor District Council which has had close dealings with this particular species and contributed deliberately to its dispersal.

We have one local specimen (also very fast growing) situated on the top of the Polden Hills where it can be seen for miles across the Somerset Levels and Moors, towering above nearby trees. It appeared in place of a related ancestral species *Ferromastus defollatum* (Br-Br.) due to vociferous objections by myself, representing Shapwick Parish Council. It appears that *P. telephoneyensis* was developed by genetic engineering and the breeders have the power to make it deciduous in winter if so desired, conferring some degree of camouflage and making control of numbers difficult.

Local residents are concerned at the implications to health of this further manifestation of genetic manipulation since the species communicates by means of short radio waves rather than pheromones. It is important that neither of these species be allowed to proliferate since the potential damage to woodpecker bills and insect ovipositors is horrendous.

It is not proposed to list *P. telephoneyensis* as a BAP species.

PAT HILL-COTTINGHAM, Mill House, 18 High Lane, Shapwick, Bridgwater, Somerset TA7 9NB



Pseudopinus telephoneyensis in Dorset. Photos W. Raymond (left) and H. Bowen (right)

NOTICES (NON BSBI)

TEMPORARY RELOCATION OF THE LIVERPOOL MUSEUM HERBARIUM (LIV)

The Department of Botany at Liverpool Museum, along with all its collections, botanical library and archives, is being relocated to an office and storage facility in Bootle during the reconstruction of Liverpool Museum's Mountford Building as part of the Heritage Lottery-funded 'NMGM 2001' building programme. There will only be limited access to the collections and library during the period of temporary relocation; the postal address remains unchanged.

Another unrelated development is that the Assistant Curator of the herbarium, Donna Young, is taking maternity leave from September 1999. Alex Caccano and Wendy Atkinson have been appointed as her temporary replacements. While we are not suspending all loan activity during the period of the move, there will be only a limited capacity to undertake new loans and answer enquiries during this period.

Volunteers, as well as staff, can continue to work on the collections at the new temporary offices, and progress on databasing herbarium material from South Lancs. (v.c. 59) is being maintained as a contribution to the V.C. 59 Flora Project. The Museum is also involved with setting up a pilot Local Biodiversity Network for Cheshire (including Merseyside, Halton and Warrington) and Dr Ian Wallace has taken over responsibility for the Liverpool Museum Environmental Records Centre. This will continue to be publicly accessible via the staff of the Natural History Centre at Liverpool Museum.

We expect to be moving back into newly refurbished premises in the summer of 2000.

JOHN EDMONDSON, Head of Botany, Liverpool Museum, William Brown St, Liverpool L3 8EN.
Tel: 0151 478 4370. Fax: 0151 478 4390. Email: john.edmundson@dial.pipex.com

BIOFORCE BACKS THE BOTANICS

The Royal Botanic Garden Edinburgh (RBGE), a world leader in the field of plant science and Scotland's National Botanic Garden, has secured sponsorship from Bioforce (UK) Limited, the leading supplier of herbal medicines in the UK.

The sponsorship is partnership funding for the Botanic Gardens ambitious *Flora Celtica - Scotland 2000 project*. This is a Scottish Millennium Festival Fund project which will present a new vision of the importance of native plants in Scotland as we enter the next Millennium. The tradition of using native plants is an important part of our cultural heritage. Through community involvement, road shows, exhibitions and a book, *Flora Celtica* will heighten awareness of the importance of Scottish plants and their uses before vital knowledge is lost forever.

For further information contact:

ANGELA KILDAY, Press & Marketing Officer, RBGE, 20A Inverleith Row, Edinburgh EH3 5LR
Tel: 0131 248 2900; Fax: 0131 248 2901; e-mail: a.kilday@rbge.org.uk

BANKS MEMORIAL PLAQUE

A plaque acknowledging the amazing contribution made by one of Lincolnshire's most famous residents is to be put up in Lincoln Cathedral. Sir Joseph Banks was renowned throughout the world as a botanist, yet he maintained very close links with Lincolnshire and his childhood home at Revesby. Sir Joseph was born in 1743 and died in 1820, yet many of his achievements survive to the present day.

Despite the very important role he played in history, there is no memorial to acknowledge his great contribution to Lincolnshire and the influence he had, both nationally and in the County.

Joseph Banks was involved in many exploits, some of which continue to influence our lives today. He accompanied Captain James Cook in the expedition that discovered Australia and it was Banks who first suggested that a settlement be made there. His many contributions earned him the title of 'Father of Australia'. He is still acknowledged as one of their most important historic figures.

With the support of King George III, Banks established Kew Gardens, and improved the quality of English wool by introducing the Spanish Merino sheep into our flocks. In Lincolnshire he was involved in draining the fens and furthering the canal system. His concern for the community was demonstrated when he suggested that the government introduce qualification for doctors, thereby preventing 'quacks' from practising. In Horncastle, his local market town, he established a 'peoples' dispensary'. On a lighter note, he established a Kangaroo Park at Revesby Abbey, following his expedition to Australia.

The Britain Australia Society in Lincolnshire has been given permission by the Dean and Chapter of Lincoln to put up a large plaque in the Narthex of the Cathedral, where an outline design can be seen. The Society has so far raised £1750 towards the £5000 estimated cost. It is hoped to raise the whole sum in 1999 in order to see the plaque unveiled in 2000. To send a contribution, please make out a cheque to 'The Britain Australia Society Lincolnshire Banks Plaque' and send it to The Secretary, The Subdeanery, Lincoln LN2 1PX. If there is any surplus it will go to the funds for the annual Australian Dialogue held at Edward King House in Lincoln. Last year's tenth Dialogue had the theme 'Sir Joseph Banks'.

It is probably no exaggeration to say that Joseph Banks was the father of English botanical study. John Gascoigne, in his book *Joseph Banks and the English Enlightenment*, Cambridge, 1994, discusses this at length. I feel sure members of your Society would like to know of this initiative and, hopefully, some may welcome an opportunity to support the project.

For further details, contact:

CANON REX DAVIES, The Subdeanery, Lincoln, LN2 1PX. Tel: 01522 521923, fax: 01522 523113, or e-mail secdcl@aol.com

REQUESTS

BOTANICAL RECORDING ON THE DEFENCE ESTATE

Some BSBI members are already involved with the Ministry of Defence (MOD) Conservation Groups and contribute to the botanical recording on the defence estate.

We often require new and additional volunteers with botanical expertise for the MOD Conservation Groups. At present the Ash Conservation Group in Surrey does not have a botanist, and I wonder if a BSBI member might be interested in volunteering with the Group and undertaking botanical recording on Ash Ranges. I would therefore be grateful if anyone interested could contact this office.

If any members are interested in becoming involved with MOD Conservation Groups elsewhere in the UK then please contact this office as well.

VICTORIA CROSSLAND, Defence Estates Conservation, Blandford House, Farnborough Road, Aldershot, Hampshire GU11 2HA. Tel.: 01252 348985; Fax: 01252 348988

OFFERS

PLANT NAMES IN PRINT

Alan Showler's concern (*BSBI News* 81: 21, April 1999) over the way plant names are treated in the press is probably shared by many botanists. The styling of plant names in the media, especially the print-based media, is something that we at the RHS are often asked for advice on. To this end we have

a leaflet available which is designed to help all those who use or print plant names. Subjects covered include botanical names (including infraspecific and hybrid epithets), authorities, cultivar names, cultivar-group names, orchid grex names, trade designations, trademarks and common names. The emphasis is obviously on horticultural needs but anyone who would like a copy is welcome to send an A5 SAE to me at the address below. Just mark the envelope 'style leaflet'.

MIKE GRANT, Botany Dept., RHS Garden, Wisley, Woking, Surrey, GU23 6QB

JOURNALS FOR DISPOSAL

WATSONIA AND BSBI ABSTRACTS

I have got duplicates of the following parts of *Watsonia* and *BSBI Abstracts*. They are available to anybody who can make use of them for the cost of postage.

Watsonia: Vol. 8 pt. 1, 2, 4; Vol. 11 pt. 2, 3, 4; Vol. 12 pt. 1, 4; Vol. 13 pt. 2, 3, 4; Vol. 14 pt. 1; Vol. 20 pt. 2, 4; Vol. 21 pt. 1, 4; Vol. 22 pt. 1, 2, 3.

BSBI Abstracts: 1, 2, 4, 6, 7, 13, 14, 15, 17, 19, 20, 23, 24, 25, 27, 28.

JON MALLABAR, 33 St Paul Road, Tupsley, Hereford, HR1 1SR. Tel: 01432 269941.

E-mail: Jon.Mallabar@btinternet.com.

BOOK NOTES

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

**Landscapes – Perception, Recognition and Management: reconciling the impossible?* Ed. M. Jones and I.D. Rotherham. Pp vii + 161. Wildtrack Publishing for Sheffield Hallam University. 1998. Price £10.00. Box 1142, Sheffield, S11 1SZ. ISSN 1354-0262.

[Conference proceedings with a wide diversity of papers covering the various approaches of archaeologists, ecologists, planners and others to landscape management and conservation.]

Field Flora of the British Isles. C.A. Stace. Pp xiii + 736. Cambridge University Press, 1999. Price £17.95. ISBN 0-521-653150-0.

Carmarthenshire rare plant register. R.D. Pryce. Pp xvi + 88. The author, and available from him at Trevethin, School Road, Llanelli, Carmarthenshire, SA15 4AL, 1999. Price £15.00 to include p.& p.

British Red Data Books. I. Vascular Plants. M.J. Wigginton, compiler and editor. Pp. 468. Joint Nature Conservation Committee, Peterborough, 1999. Price £30.00. ISBN 1-86107-451-4.

A Flora of Norfolk. G. Beckett and A. Bull. Pp. 320. G. Beckett, 1999. Price £38.00. ISBN 0-9534999-0-1.

Robert Lloyd Praeger. S. Lysaght. Pp. 208. Four Courts, Dublin. Price £25.00. ISBN 1-85182-422-7.

The Box Hill Book of Box. L. Grundy. Pp. 34. Friends of Box Hill, Dorking. Price £3.00. ISBN 0-9534430-0-0. (Obtainable from the Friends of Box Hill, Pixham Mill, Pixham Lane, Dorking, Surrey, RH4 1PQ at £3.50 to include postage and packing.)

Charales (Charophyceae), Süßwasserflora von Mitteleuropa, Bd. 18, W. Krause, (H. Ettl, G. Gartner, H. Heynig and D. Mollenhauser, editors), Gustav Fischer, Stuttgart, 1997, 202 pp., ISBN 3-437-25056-6, DM 98.00 (hardcover).

Atlas Florae Europaeae, Vol. 12, Resedaceae to Platanaceae. Ed. J. Jalas et al. Pp. 250. The Committee for Mapping the Flora of Europe and Societas Biologica Fennica Vanamo, 1999. Price FIM 650. ISBN 951-9108-12-2.

Sir Joseph Dalton Hooker, traveller and plant collector. R. Desmond. Pp. 286. Antique Collector's Club, 1999. Price £29.50. ISBN 1-85149-305-0.

The Plants of Nottingham: a City Flora. P. Shepherd. Pp. v + 76. Wildtrack Publishing, Sheffield. Price hbk. £15.00, pbk £8.00. ISSN 1354 0270.

Ainmean Gaidhlig Lusan. Gaelic Names of Plants. Joan W. Clark and Ian MacDonald. Pp. xi + 225. J.W. Clark, 1999. Price c £10.00. ISBN 0-9536351-0-4. Available from the Gaelic Books Council.

Vegetation of the British Countryside – the Countryside Vegetation System. R.G.H. Bunce et al. Pp224. D.E.T.R., 1999. Price £48.00. ISBN 1-85112-155-2.

Measuring changes in British Vegetation. R.G.H. Bunce et al. Pp. 144. D.E.T.R., 1999. Price £10.00. ISBN 1-870393-47-3.

Ellenberg's Indicator Values for British Plants. M.O. Hill et al. Pp.46. D.E.T.R. 1999. Price £5.00. ISBN 1-870393-48-1.

[The 1978 and 1990 Countryside surveys consisted of over 13000 vegetation plots. A new statistical classification of these plots and an analysis of the botanical data form the basis of the first two volumes, together with a technical annex on Prof. Ellenberg's formalisation of the use of plants as indicators of key environmental factors adapted for British Plants. A third volume will summarise Causes of Change in British Vegetation.]

**A survey of Urban Forestry in Britain.* Mark Johnston and Brian S. Rushton. Pp. x + 66. University of Ulster, 1999. Price £7.50. ISBN 1-85923-120-9. Available from Dr. B.S. Rushton, School of Applied Biological and Chemical Sciences, University of Ulster, Coleraine, N.I. BT52 1SA.

[Results of a survey questionnaire on a wide range of issues relating to urban tree management in Britain. The authors emphasise that management of urban trees is often neglected and that this report, for the first time, gives a fairly comprehensive picture of the state of health of management in urban areas.]

Flora of Cornwall. Colin French, Rosaline Murphy, Mary Atkinson. Pp. 408. Wheal Seton Press, 1999. Price £40.00. ISBN 0-9534613-0-0. Available from the publishers at 12. Seton Gardens, Camborne, Cornwall for £40.00 +£3.80 p.& p.

[The new flora contains 50 photographs, 1100 maps and covers 2600 species. There is also a CD-ROM version available, with all the above information, plus illustrations, etc. Price £40.00 incl. p. & p.]

The Journal of Practical Ecology and Conservation, edited by Dr. Ian Rotherham, of Sheffield Hallam University, has three recent papers that might be of interest to BSBI members.

- Vol. 2(1) January 1998 has a paper by Keith Kirby on "The distribution and growth of bramble in British Woodlands and the implications for nature conservation", and another by Geoff Cartwright on Urban Nature Reserves.
- Vol. 2(2) July 1998 has a paper by A.M. Farmer and D. Baxter on "A review of management options for the control of *Brachypodium pinnatum* in calcareous grasslands in England, which sets out the problems, well known to many southern botanists, and the range of techniques available and their side effects. Also another, fascinating, article on "*Rhododendron ponticum* in native and exotic environments, with particular reference to Turkey and the British Isles" by A.H. Colak and others. This paper contrasts the behaviour of *R. ponticum* in Turkey and Britain, and suggests the problem here could be linked to current or past management practices, and worse, that our perception of it as a noxious weed is being exported back to Turkey, with consequent damage to the biodiversity of their forests.

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

NEWS FROM OUNDLE BOOKS

Enclosed with this issue of *BSBI News* is my 1999 Catalogue and, within it, an offer until 31st October of Peter Marren's new book, *Britain's Rare Flowers*. There are two omissions on this flyer. My email address should read perring@btinternet.com and you can send a cheque, postal order or Eurocheque for £19.95 with your order.

MARGARET PERRING, Green Acre, Wood Lane, Oundle, Peterborough PE8 5TP.

Tel.: 01832 273388; Fax: 01832 274568; Email: perring@btinternet.com

REPORTS OF FIELD MEETINGS — 1998 & 1999

Reports of Field Meetings (with the exception of Atlas 2000 reports written by Trevor Dines and Reports of Irish meetings written by Alan Hill) are edited by, and should be sent to: Dr Alan Showler, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks, HP14 4PA, Tel.: 01494 562082.

1998

ESGAIR FRAITH, CARDIGANSHIRE (v.c. 46) 15th AUGUST

Twenty five members met 8 km east of Tal-y-bont to explore the abandoned mines of Esgair Hir and Esgair Fraith which were worked for lead and copper from the 1680s until about 1908. Ferns and fern allies were the main interest, and we saw a total of 26 species and hybrids (two more had been recorded previously). Although the surrounding moorland is highly acidic, much of the mine area, and especially the spoil heaps and ruins of wheelpits, is highly calcareous. *Asplenium viride* (Green Spleenwort) is here in its only Cards. locality, *Ophioglossum vulgatum* (Adder's-tongue) is abundant, and we saw a few plants of *Botrychium lunaria* (Moonwort); both the latter seem to be spreading on mine sites. *Cryptogramma crispa* (Parsley Fern) was seen in a small quarry and *Lycopodium clavatum* (Stag's-horn Clubmoss) and *Diphasiastrum alpinum* (Alpine Clubmoss) on a heathy bank. This part of the mine is under the care of the Forestry Commission and much of the richness is due to the exclusion of sheep. We had lunch on a spoil heap by a colony of *Equisetum* × *dycei* (a hybrid Horsetail) and a discussion about the distinguishing characters of *Silene uniflora* (Sea Campion) and *S. vulgaris* (Bladder Campion) led us to realise that the plant we were looking at was the hybrid, already known from a couple of other mine sites in Cards.

Then, in company with Richard Thompson of Forest Enterprise, we walked south to the trial plots of conifers planted in 1956 at Castell. These contained 18 species altogether, including an instructive range of *Picea* (Spruces), *Abies* (Firs) and *Pinus* (Pines), and the unusual sight of a plantation of *Araucaria araucana* (Monkey-puzzle). Of the species not normally grown on a commercial scale, *Abies amabilis* (Beautiful Fir) was growing the best. Richard showed us the spectacular abundance of lichens in the failed plantations of stunted *Picea engelmannii* (Engelmann Spruce).

Driving on to a mine reservoir, Llyn Nant-y-cagl, we stopped at one of the Esgair Hir wheelpits where Steve Chambers demonstrated *Polystichum aculeatum* (Hard Shield-fern), *P. setiferum* (Soft Shield-fern) and plants presumed to be the hybrid which had previously been confirmed here; they were inaccessible on this occasion because the pit was flooded. In the reservoir we saw, among other aquatics, abundant *Isoetes echinospora* (Spring Quillwort) and, near the north-east corner, the hybrid with *I. lacustris* (Quillwort), *I.* × *hickeyi*, which had been confirmed by a chromosome count from this population after a visit with Clive Jermy earlier in the summer.

ARTHUR O. CHATER

1999

GREENHAM COMMON AND SNELSMORE COMMON, BERKS. (v.c. 22) 21st-23rd MAY

Eight members met at the Blue Ball on Friday evening to hear about changes taking place on Greenham Common from Ed Cooper, the Greenham Common Project Manager for West Berkshire Council. He gave us a brief history of the area. The Common land was requisitioned by the Air Ministry in 1941 and remained under some form of Ministry control until 1993, when it was finally declared surplus to military requirements. During that time many silos, fuel stores, and bunkers for nuclear missiles were created, as well as administrative buildings and 2½ miles of runway were built. This amounted to almost a third of the land being covered in concrete. Except for the area around the runways which

was closely mown, the remaining area was relatively untended. The council's intention is to return the area to heathland with complete public access. We were shown slides illustrating some of the problems facing the council in trying to achieve this objective and of some the plants which we could expect to find. It became apparent that there are a variety of habitats on the common. All of this whetted our appetite for the rest of the weekend.

22nd May Snelsmore Common. We met at Snelsmore to see a lowland acid heath under the guidance of Mark Hampton, a project Ranger. *Betula pubescens* (Downy Birch) was there in profusion with *Calluna vulgaris* (Heather) and a variety of sedges and rushes including *Carex binervis* (Green-ribbed Sedge), *C. viridula* subsp. *oedocarpa* (Yellow Sedge), *Juncus tenuis* (Slender Rush), *J. squarrosus* (Heath Rush) and *J. bulbosus* (Bulbous Rush). In the valley bogs we found *Drosera rotundifolia* (Round-leaved Sundew), *Eriophorum angustifolium* (Common Cottongrass) and *Viola palustris* (Marsh Violet). One interesting Willow was subsequently keyed out by Mick Crawley as *Salix repens* × *S. cinerea*.

The afternoon found us on Greenham common – outside the perimeter fence, in one of the few remaining valley heads, where numerous springs create a very wet *Alnus glutinosa* (Alder) woodland habitat. On the drier parts *Oxalis acetosella* (Wood Sorrel) carpeted the ground, and on the really wet areas *Chrysosplenium oppositifolium* (Opposite-leaved Golden-saxifrage) took over. Throughout the wood magnificent specimens of ferns were seen, including *Dryopteris dilatata* (Broad Buckler-fern), *Dryopteris carthusiana* (Narrow Buckler-fern), also found on Snelsmore Common and *Athyrium filix-femina* (Lady-fern). The real gem for this part of the day was *Cardamine amara* (Large Bitter-cress). Several large plants were in full flower growing by the edge of the stream. Moving out of the valley we walked across an area from which the top soil had been removed in an attempt to control the bracken. Here the acid heath plants were seen again including *Vulpia bromoides* (Squirreltail Fescue), *Filago vulgaris* (Common Cudweed), and an addition to the list – *Cerastium diffusum* (Sea Mouse-ear). A quick glimpse of the disused airfield and some of the newly created ponds ended the day.

23rd May Greenham Common airbase. In the morning the party split into three groups to make comprehensive species lists for different compartments of the base. Several new records were made; these included – *Apera interrupta* (Dense Silky-bent), *Cirsium eriophorum* (Woolly Thistle), *Mimuraria hybrida* (Fine-leaved Sandwort), *Ranunculus parviflorus* (Small-flowered Buttercup), *Trifolium subterraneum* (Subterranean Clover), and *Vicia lathyroides* (Spring Vetch).

The complex habitats provided much of the interest of the day. Due to the movement of top soil at various times over the last 40 years unusual combinations of plants were seen. Three abiding memories of a very interesting and stimulating meeting will be of seeing *Primula veris* (Cowslip) growing through *Calluna vulgaris* (Heather), parts of the old runway a blaze of red which on examination proved to be *Saxifraga tridactylites* (Rue-leaved Saxifrage), and *Carex caryophyllea* (Spring-sedge) not exactly a rarity but obviously enjoying the habitat reaching heights of 40-50 cm!

Our thanks go to Ed Cooper and Mark Hampton who gave their time to make this such an enjoyable weekend.

SUSAN ERSKINE

NEAR BERWICK-UPON-TWEED (v.c. 81) 5th JUNE

Nine members and friends attended in very showery weather.

Paddy Braithwaite led a party of 5 along the undercliff from Marshall Meadows (v.c. 68) to Lamberton Beach (v.c. 81) over rugged terrain taking 7 hours to cover 3 kilometres but enjoying seal, roe deer and an otter spraint. Reaching v.c. 81, extensive flushed areas were found holding superb colonies of *Equisetum telmateia* (Great Horsetail) with *Carex pendula* and *C. otrubae* (Pendulous Sedge and False Fox-sedge). *Allium ursinum* (Ramsons) is widespread and also carpets a small wood of willows. The predominant willow has been confirmed as *Salix cinerea* subsp. *oleifolia* but showing

unusual variation. It is interesting that George Johnston (1829) recognised a variety of *Salix cinerea* near this spot. The braes were festooned with *Vicia sylvatica* (Wood Vetch) and good colonies of *Asplenium marinum* (Sea Spleenwort) occur on the rocks. At Tods Loup the moss *Rhodobryum roseum* was recorded, a second extant record for v.c. 81. Emerging at last from the undercliff *Catapodium rigidum* (Fern-grass) and *Centaureum erythraea* (Common Centaury) were recorded.

Michael Braithwaite led a party of 4 to Manderston House where it is believed that *Alchemilla tythantha* (a Lady's Mantle) was naturalised, but only *A. xanthochlora* was located. Old grassland yielded *Ranunculus bulbosus* (Bulbous Buttercup), *Helictotrichon pubescens* (Downy Oat-grass) and *Geranium sylvaticum* (Wood Crane's-bill). The lake has *Potamogeton crispus* and *P. berchtoldii* (Curled and Small Pondweeds). *Oxalis exilis* (Least Yellow-sorrel) is extensively naturalised along pathsides. After lunch, punctuated by thunderclaps, the Whiteadder Water was explored above Hutton Bridge. Along the banks *Butomus umbellatus* (Flowering-rush), *Schoenoplectus lacustris* and *Scirpus sylvaticus* (Common and Wood Club-rushes) were enjoyed.

The braes are much encroached by scrub, but open areas were reached at last to view *Ononis repens* (Common Restharrow), *Origanum vulgare* (Marjoram), *Polygala vulgaris* (Common Milkwort) and *Koeleria macrantha* (Crested Hair-grass).

The main objectives of the meeting had been accomplished in good humour, despite difficult conditions, with 40 'Atlas' hectad records added.

MICHAEL E. BRAITHWAITE

WICKEN FEN, CAMBRIDGESHIRE (v.c. 29) AND WOODWALTON FEN, HUNTINGDONSHIRE (v.c. 31). 5th & 6th JUNE

In 1999 the National Trust celebrated the centenary of its custodianship of Wicken Fen. As part of the celebration, the BSBI was invited by the Property Manager, Adrian Colston to hold an excursion. A group of eighteen people met at the Fen on the Saturday some of whom had travelled far to visit the Fen for the first time (notably the chef from Preston who was eager to see the Fen Violet in flower!). Others were re-visiting after many years. We were very fortunate to have with us several experts who shared their knowledge with us. Owen Mountford who has been on the management committee at Wicken Fen for many years, Chris Preston, a specialist in *Potamogeton* and aquatic plants, Philip Oswald an experienced Cambridgeshire botanist and Rosemary Parslow who has recently re-discovered several of the Fen rarities.

We were welcomed by Adrian Colston who gave us a very good introductory talk after which we made our way to Verrall's Fen by way of Wicken Lode. Here we were able to see a good population of *Potamogeton praelongus* (Long-stalked Pondweed) at the junction with Monks Lode where it is just out of the way of boat traffic. Here on the side of the lode were stands of *Urtica galeopsifolia* (Stingless Fen Nettle) which caused some hesitant 'grasping of the nettle!' Many members of the Cyperaceae were seen during the day and of particular interest was *Cladium mariscus* (Great Fensedge), harvested at Wicken Fen for the past six hundred years. Numerous *Carex* species including *Carex hirta* (Hairy Sedge), *C. flacca* (Glaucous Sedge), *C. panicea* (Carnation Sedge), *C. viridula* subsp. *brachyrrhyncha* (Yellow-sedge), *C. hostiana* (Tawny Sedge), and the hybrid between these last two species, *C. × fulva* were all pointed out to us. Other members of this family shown to us were *Isolepis setacea* (Bristle Club-rush) which had been recently found by Rosemary Parslow in wet ruts in the droves and *Eleocharis uniglumis* (Slender Spike-rush) and *E. quinqueflora* (Few-flowered Spike-rush) also in the droves. On Verrall's Fen we were fortunate to find *Viola persicifolia* (Fen Violet) flowering and this plant quickly became the most photographed plant of the day! In this area were large swards of *Juncus subnodulosus* (Blunt-flowered Rush) favoured by the Marsh Harriers we had seen circling overhead and also much *Thelypteris palustris* (Marsh Fern). Along the edges of Sedge Fen Drove we found *Lathyrus palustris* (Marsh Pea) in flower amongst the tall, lush vegetation. Near the wind-pump at the top of Sedge Fen was a small colony of *Potamogeton coloratus* (Fen Pondweed)

in the ditch. Our last quest was for *Taraxacum palustre* (Marsh Dandelion) which has recently been re-introduced to bolster the dwindling Wicken population. Having successfully located a few plants we were ready to move on to our next destination in Cambridge.

We had been invited by the Director, Professor John Parker, to visit the University Botanic Gardens. A most interesting tour was led by the Superintendent, Dr Tim Upson who gave us a good insight into the history and development of the Gardens. Many of us were fascinated by the 'Ecological Mound', an area where native British plants are grown according to their soil types. The development of modern wheat was demonstrated in one of the beds together with the decline of arable weeds. Fortunately the many large and beautiful trees such as *Pterocarya fraxinifolia* (Caucasian Wingnut) gave us shelter from the now heavy rain but we were still able to enjoy an excellent two hours in this most beautiful garden.

On the Sunday a smaller group gathered at Woodwalton Fen, the lowest area of Huntingdonshire. In the thatched bungalow built by Charles Rothschild in 1911, the Warden, Alan Bowley, gave us a warm welcome and an introduction to the Fen. We were joined by Tim Pankhurst a local botanist who has recently spent much time on the Fen recording and classifying the vegetation and who willingly shared his knowledge with us. The lodes were densely covered by species of *Lemna* and we were able to see *Lemna minor* (Common Duckweed), *L. trisulca* (Ivy-leaved Duckweed), *L. gibba* (Fat Duckweed) and *L. minuta* (Least Duckweed). There were also a few patches of *Azolla filiculoides* (Water Fern) which often spreads like a red carpet later in the year and *Hydrocharis morsus-ranae* (Frogbit) formed dense colonies in many lodes but does not occur at Wicken Fen. *Hottonia palustris* (Water-violet) was flowering profusely and has both pin and thrum-eyed forms. *Viola persicifolia* (Fen Violet) was seen flowering in Compartment 41 and also in Compartment 54 where some recent tree-felling had caused disturbance of the peat and exposed some bare areas suitable for germination of the dormant seed. As at Wicken Fen *Carex* species were abundant, and here we were pleased to find *C. echinata* (Star Sedge) a locally rare species.

Our search for *Luzula pallidula* (Fen Wood-rush) proved fruitless although it has been known to occur at Woodwalton in the past. We made our way down to the southern part of the Fen during the late afternoon and found stands of *Myrica gale* (Bog-myrtle) in dry areas. On the damp paths *Callitriche stagnalis* (Common Water-starwort) was common and *Utricularia vulgaris* (Greater Bladderwort) was also found.

My thanks to all who attended this fenland week-end and judging by their appreciative letters it was a welcome respite from intensive Atlas 2000 recording!

JANE M. CROFT

PEEBLES (v. c. 78) 26th & 27th JUNE

Five members attended this meeting which aimed to work the estates of Stobo and Dawyck and the upper Manor Valley. At Stobo on Saturday the Weston Burn and several reservoirs produced a number of well established aliens: *Darmera peltata* (Indian-rhubarb), *Alchemilla mollis* (Lady's-mantle), *Carex pendula* (Pendulous Sedge) and *Typha angustifolia* (Lesser Bulrush) as well as *Littorella uniflora* (Shoreweed), *Lycopus europaeus* (Gypsywort), *Callitriche hermaphroditica* (Annual Water-starwort) and *Potamogeton alpinus* (Red Pondweed).

At Dawyck, on the south side of the Tweed, the team visited marshy ground before working up the wooded Scrape Burn. Reports of *Rumex hydrolapathum* (Water Dock) and *Glyceria maxima* (Reed Sweet-grass), probably both introduced here, were confirmed. Established aliens noted were *Holodiscus discolor* (Oceanspray), *Lysichiton americanus* (American Skunk-cabbage), *Rubus spectabilis* (Salmonberry) and *Darmera peltata*.

Sunday was spent in the Manor Valley. Up the Posso Burn *Epilobium alsinifolium* (Chickweed Willowherb) and *Myosotis stolonifera* (Pale Forget-me-not) were locally frequent and *Listera cordata* (Lesser Twayblade), *Antennaria dioica* (Mountain Everlasting), *Melampyrum pratense* (Common

Cow-wheat), *Sedum villosum* (Hairy Stonecrop) and *Potentilla erecta* subsp. *strictissima* (Tormentil) were also noted. *Mimulus luteus* (Blood-drop-emptles) and *M. × maculosus* (Scottish Monkeyflower) were seen in runnels by the road opposite Langhaugh. Meanwhile one member had had time to climb Dollar Law to confirm the good health of *Cornus suecica* (Dwarf Cornel), known there for over 100 years. Despite the small number of attendees this was a successful meeting which updated many old records as well as adding several species definitively to the county list.

D.J. McCOSH

LLANRHAEDR YM MOCHNANT, DENBIGHSHIRE (v.c. 50) 3rd JULY

This small thriving village lies in the narrow valley of Afon Rhaedr, a tributary of Afon Tanat. At the head of this valley is a well known waterfall, claimed to be the highest in Wales, which has been a popular tourist destination for many years. Twelve of us met here and divided into groups for recording.

One group explored an upland river gorge and climbed up to a boggy area, which proved to be disappointingly dry. However, they found *Dryopteris oreades* (Mountain Male-fern) (to be confirmed), *Sedum forsterianum* (Rock Stonecrop) in a native habitat (not a garden escape), *Cryptogramma crispera* (Parsley Fern), *Hypericum humifusum* (Trailing St John's-wort), *Ornithopus perpusillus* (Bird's-foot) and *Oreopteris limbosperma* (Lemon-scented Fern). A second group went to a man-made lake at Moelfre, compiling a good list including *Lythrum salicaria* (Purple-loosestrife), *Lycopus europaeus* (Gypsywort), *Menyanthes trifoliata* (Bogbean), *Nymphaea alba* (White Water-lily), *Scutellaria galericulata* (Skullcap), and *Potentilla palustris* (Marsh Cinquefoil), all wetland plants not previously recorded.

The third group had a relatively dull area of sheep pasture and dry lanes; however, they found *Silene × hampeana* (a hybrid Campion), *Ceratocarpus claviculata* (Climbing Corydalis), *Cystopteris fragilis* (Brittle Bladder-fern), *Jasione montana* (Sheep's-bit) and *Spergula arvensis* (Corn Spurrey). The fourth group stayed in and around the village. The large uncut churchyard backed on to the Afon Rhaedr and there was a village playing field in which we found many casuals. We added *Polypodium × mantoniae* (a hybrid Polypody) (to be confirmed), *Humulus lupulus* (Hop), *Ceterach officinarum* (Rustyback), *Aquilegia vulgaris* (Columbine), *Hesperis matronalis* (Dame's-violet) and *Umbilicus rupestris* (Navelwort). We had an excellent day and everyone returned safely. We added 62 species to the list for SJ/1.2, which now totals 443. Many thanks to those who came.

JEAN A. GREEN

PORTHMADOG AND BEDDGELERT AREA, CAERNARFONSHIRE (v.c. 49) 8th AUGUST

Four members attended the meeting which was favoured by dry but cloudy weather.

The morning was spent in the vicinity of Tremadog. Not far from the car park a good piece of waste ground was discovered, the site of old buildings. Among the more interesting plants found were *Oenothera cambrica* (Small-flowered Evening-primrose), *Agrostis gigantea* (Black Bent), *Leycesteria formosa* (Himalayan Honeysuckle) and the ubiquitous *Buddleja davidii* (Butterfly-bush). There was a wet area in the corner which yielded *Lemna minor* (Common Duckweed), *Mentha aquatica* (Water Mint) and *Juncus bufonius* (Toad Rush).

We then walked along a track beside a ditch where we found *Rorippa nasturtium-aquaticum* (Water-cress) and *Angelica sylvestris* (Wild Angelica). The path then led alongside a wood where we saw *Hedera helix* subsp. *hibernica* (Irish Ivy), *Silene × hampeana* (a hybrid Campion) and much *Carex remota* (Remote Sedge).

After lunch we drove up the hills above Tremadog and parked by Llyn Ddu, a small lake. The lake contained both *Nuphar lutea* (Yellow Water-lily) and *Nymphaea alba* (White Water-lily) and at its edge

was *Schoenoplectus lacustris* (Common Club-rush) and *Carex rostrata* (Bottle Sedge). Alongside the lake was an acid bog containing most of the expected species, such as *Vaccinium oxycoccos* (Cranberry) *Potentilla palustris* (Marsh Cinquefoil), *Isolepis setacea* (Bristle Club-rush), *Scutellaria galericulata* (Skullcap) and *Senecio aquaticus* (Marsh Ragwort). More interestingly we also found *Rhynchospora alba* (White Beak-sedge) and much *Carex limosa* (Bog-sedge).

We then paid a quick visit to Llyn Cwm Ystradllyn where we found *Littorella uniflora* (Shoreweed) and *Lythrum portula* (Water-purslane) at its edge.

In all we recorded 265 species in SH/5.4 with 20 new records for the hectad.

GEOFF BATTERSHALL

REPORTS OF OVERSEAS MEETING – 1998

NORTH CYPRUS 25th MARCH – 5th APRIL

The 21 BSBI members who joined this meeting were very fortunate in having Deryck Viney, author of the recently published 2-volume *Illustrated Flora of North Cyprus*, as their leader. No one else could have devised and guided a more plant-rich or authoritative visit. From the famed Dome Hotel in Kyrenia the party spent the first week exploring the limestone mountain range which rises behind the town and the coast and lowlands nearby and to the west whilst the last five days were centred on Bogaz on the south coast from which the dry plains and much of the ‘panhandle’ stretching out towards Lebanon were investigated.

26 March The tranquil ruins of gothic Bellapais Abbey provided a romantic backdrop to our first discoveries with *Cyclamen persicum* and *Verbascum levanticum* amongst the stones and filamentous tufts of *Galium setaceum* spreading over steps. Already the ‘grass team’ of Arthur Copping and Trevor Evans began making records which extended knowledge of distribution – here it was *Poa infirma* which caught their eyes. When we moved to St Hilarion Castle and the rich steep slopes below it was the N. Cyprus endemics confined to the Kyrenia Range which attracted the attention of all: *Arabis cyprica*, *Brassica hilarionis* and *Onosma caespitosum* in full flower, but only the distinctive leaves of *Dianthus cypricus*, *Pimpinella cyprica*, *Rosularia cyprica* and *Sideritis cyprica* yet visible. Seven out of 19 was a good start. Here, and amongst rocks at the road end further east, we began to appreciate unfamiliar variants of ‘bee-orchids’ notably *Ophrys fusca* subsp. *iricolor*, *O. lutea* subsp. *galilaea* and *O. argolica* subsp. *elegans* as well as *O. umbilicata* subsp. *umbilicata* one of the many forms of this perplexing species. Late in the day we dropped down on the south side of the Range to look at an area of calcareous Kythrean Marl and Sandstone which yielded such local species as *Astragalus asterias*, *Iberis odorata*, *Matthiola longipetala* and the form of *Minuartia picta* with red undersides to its petals, as well as two very common Cyprus endemics – the incredibly beautiful *Onobrychis venosa* and the multicoloured *Anthemis tricolor*.

27 March This was the day when the BSBI might have lost several distinguished members. We set out in a convoy of jeeps to negotiate the rough tracks leading to Buffavento only to run into a road blocked by the military and a threat we would be held up all day. But after an hour the message that Dr Viney was leading the party persuaded the officer-in-charge to call in his troops and let us through. The waiting was not wasted and the maquis around produced the very furry cudweed *Bombycilaena discolor*, the exquisite tiny, scrabble-friendly labiate, *Ziziphora capitata*, and the extra slender hare’s-ear, *Bupleurum trichopodum*. The walk up to the ruins of Buffavento Castle is tough and you may run out of puff but plants and views are equally rewarding: from the final knife-edge you look north over the sea to Turkey whilst to the south lies Nicosia and the coast at Famagusta. *En route* we encountered rosettes of the N. Cypriot endemic *Sedum lampusae* and four more Cyprus-wide endemics: spiny *Ballota integrifolia* and *Onopordum cypricum*, *Ptilostemon chamaepeuce* var. *cypricus* and the variously-coloured *Scutellaria cyprica*. Near the top there is a large stand of the bright green, perfoliate-leaved *Smyrniium connatum* and, in damp shade, *Anemone blanda* was in full flower. After lunch we drove further east to the N. Cyprus Herbarium wonderfully situated near the top of the ridge in *Pinus brutia/Arbutus andrachne* forest. After admiring this excellently arranged collection and the

fresh, labelled plants which would have been a credit to the National Museum of Wales, we took a short walk in the forest and immediately found two more N. Cypriot endemics, *Rosularia pallidiflora* and *Silene fraudatrix*, the latter in full and glorious flower: the total was now 10 – over 50%. In this area the genus *Ophrys* was exchanged for *Orchis* including the very eastern *Orchis morio* var. *libani* along with the more widespread *O. anatolica* and *O. italica*. It was here that the grass-team turned up *Vulpia ciliata* subsp. *ciliata* distinguishing it from our native subsp. *ambigua*, together with the dainty *Cynosurus elegans*, and two varieties of *Aegilops peregrina*, var. *peregrina* and var. *brachyanthera*. Later that afternoon we dropped down to the sand dunes at Alagadi on the north coast and they immediately fell upon another species, *Vulpia fasciculata*, which made them feel much closer to home. Another seashore grass here was *Cutandia maritima*.

28 March After a visit to the excellent English bookshop at the west end of Kyrenia we spent an hour in the nearby Zeytinlik Cemetery which was a riot of colour – much of it *Chrysanthemum coronarium* and *Echium plantagineum* but in addition there were splendid populations of *Serapias vomeracea* subsp. *orientalis* and *Ophrys sphegodes* subsp. *mammosa* as well as a taxing mixture of the woodcock orchids *O. scolopax* and *O. umbilicata*. The rest of the day was spent walking along an easy track from Karaman to Ilgaz. Bulbous plants were much in evidence before lunch such as the probably endemic *Ornithogalum pedicellare*, along with *Bellevalia nivalis*, *Gagea peduncularis*, *Romulea tempskyana* and a grape hyacinth identified as *Muscari inconstriatum* but this name has been recently contested as the corolla tubes are constricted. The lunch spot, in the ‘ruins’ of an abandoned half-built hotel, gave an opportunity to sort out some of the 14 *Medicago* species seen during our visit – here *coronata*, *minima* and *turbinata* were satisfyingly distinct. Attention was also given to several large and showy umbels notably *Eryngium glomeratum*, very restricted in Cyprus generally, the bristly-fruited *Lecokia cretica*, and the two ‘flower-arranger’s delights’ *Ainsworthia trachycarpa* and *Zosima absinthifolia* with their prominently winged fruits. On the way back from Ilgaz by bus we stopped at a pond by the turn to Kornakiti to look at one of the rarest plants in Cyprus – *Callitriche brutia*. This is only the second known locality in N. Cyprus where it was first found near Iskele in 1993: the only other record for the island is from Akamas in the extreme west.

29 March We went west from Kyrenia taking the rough road towards Korucam lighthouse. The first stop was at Horse-shoe Beach 2 km E of Kayalar which yielded an easy onion, *Allium trifoliatum*, a handsome annual larkspur, *Delphinium peregrinum* and a ‘show-stopping’ clover, *Trifolium pamphylicum* var. *blancheanum* with leaflets which are broader and blunter than the type. East of Sadrazamkoy we forsook the coach and began what became known as the ‘long march’ as we walked parallel to the track towards a crest which never seemed to come any closer. Three rare annual grasses were discovered between the *Cistus* bushes – *Crithopsis dileliana*, the diminutive and perhaps overlooked *Psilurus incurvus* and, most interesting of all a *Bromus*, one of a number of finds which have started a voluminous correspondence involving H. Scholz in Berlin, Tom Cope at Kew, Bruno Ryves and Eric Clement stimulated by specimens collected by Arthur Copping. Though we may record it as *B. optima* H. Scholz ined., this may not be the final solution since some British taxonomists and a Mr Holstrom, a Swedish amateur, believe it should be assigned to *B. regnii* whilst Bruno Ryves and Eric Clement find no difference between the specimens and *B. intermedius* Guss. The penultimate letter on the subject I have received from Arthur Copping ends: ‘I am reminded of an encounter with a BSBI member whose name I have forgotten many years ago, who steadfastly refused to learn the name of any grass. He justified this on the grounds that the acquisition of such knowledge led to debate, argument, feuding and, *in extremis*, war. Perhaps he had a point.’ For the less grass-minded the Leguminosae were a major attraction – four species of *Medicago* and six species of clover including *Trifolium spumosum* with its ‘frothy’ swollen, striped calyces. A short stop at a rubbish dump between Sadrazamkoy and Korucam produced two east Mediterranean varieties of *Biscutella didyma*: var. *columnae* with valves roughly hairy all over and var. *lejocarpa* with valves entirely smooth. The last call was to the banks of the reservoir at Gecitkoy. As we arrived Sunday visitors seemed to be leaving with arms full of what we had come to see – tulips, but after a widespread search, enough stems of *Tulipa cypria*, another endemic of course, were found to satisfy eager photographers.

30 March *En route* for the coast at Vouni in the far west our first stop was at a Bronze Age burial ground at Pighades with a remarkable population of *Ophrys kotschyi*, a fine endemic orchid, and a

teasing woodcock orchid identified as *O. scolopax* × *O. umbilicata*. This was another place for *Medicago* enthusiasts with five species including the remarkable *M. intertexta* var. *ciliaris* with striking globular, hairy fruits. Next, to Vouni itself, a magical site on a chalk hill with a wealth of plants amongst the ruins of the Persian palace and on the roadside down to a charcoal-burning area below. Three species were of particular interest: the grass *Aristida caerulescens* new to N. Cyprus; the annual *Asphodelus tenuifolius* in its only known N. Cyprus station; and the stonecrop, *Telmisica microcarpa*, with succulent red leaves. A brief wander amongst the ruins of Soli to the east produced an 'easy' hawk's-beard, the very bristly *Crepis aspera*, to be seen again more abundantly on the Karpaz. Finally we visited some sandy fields between the village of Akdeniz and the shore to the west. Here we looked for three very rare, annual, east Mediterranean grasses – *Aegilops bicornis*, *Vulpia brevis*, and *Cutandia dichotoma*, only recently refound here, as well as the very local plantain, *Plantago squarrosa*. A bonus was the discovery of a handsome *Stipa* sp., thought to be *S. lagascae*, although its status is uncertain.

1 April The sixth day was one of 'rest' for individual pursuits so that it was Wednesday before the party was reunited and ready to move to Bogaz. The first stop *en route* was at another area of Kythrean Marl, west of Akova, where that curious composite, *Koelipinia linearis*, with its curved spiny achenes 'like bird's claws' was much photographed and we admired the greenish-yellow umbels of the very rare *Cachrys scabra*. East of Akova we stopped on the limestone plateau and admired its colourful coating of two endemics: the rock-rose *Helianthemum obtusifolium* and the chamomile *Anthemis tricolor* with pink, purple and white capitula, as well as the prominent purplish spikes of *Orobanche alba* on *Sarcopoterium spinosum*. By lunch time we were in Kantara village picnicking beneath the shade of an enormous semi-evergreen oak, *Quercus infectoria* and only a few steps from a breathtaking display of *Cyclamen persicum* and a population of *Orchis simia* in the pink of condition. A walk round the battlements of the Crusader castle was a chance to see again several of the N. Cyprus endemics admired at St Hilarion, e.g., *Dianthus cyprius*, *Pimpinella cyprica* and *Rosularia cyprica*, as well as two local plants – the misleadingly named *Valeriana italica* which grows only as far west as S. Yugoslavia and, on the roadside on the way back to the bus below, a fine bush of the 'Daphne' *Thymelaea tartaronratria* subsp. *argentea* var. *linearifolia*.

2 April Early risers walked to fields east of the Hotel Bogaz for a blazing display of *Asteriscus aquaticus* and more *Koelipinia linearis*, but the real treasure was rosettes and flowers of the very local *Scorzonera jacquiniana* var. *subintegra*, distinguished from *S. laciniata*, to be found later that day, by the presence of some entire basal leaves along with the many cut ones. And so to Famagusta where much time was spent amongst the ruins and admiring the 'gothic' mosque formerly St Nicholas Cathedral where fine trees of *Ficus sycamorus* and *Bauhinia variegata* outside were duly noticed. The walls and paths of Othello's Tower yielded many bushes of *Capparis spinosa*, large patches of *Hippocrepis multisiliquosa* and an opportunity to compare populations of *Fumaria bracteosa* and *F. densiflora* – the very large sepals of the former being distinctive. Amongst many introduced and cultivated plants here the broad bean-like leaves and handsome flowers of *Dolichos lablab* attracted attention as well as robust bushes of *Mirabilis jalapa*. Loaded with dried herbs from a nearby emporium we left Famagusta making for the Kanlidere estuary on the coast to the north. Here we looked at *Scorzonera laciniata* in the sand dunes along with other yellow composites *Centaurea hyalolepis*, *Launaea resedifolia* and *Scolymus maculatus*. It was also a 'good place for grasses' amongst the 10 or so species recorded the most noteworthy were the delicate tufts of *Sphenopus divaricatus*, a feature of salt marshes here. Much of the afternoon was spent in the remarkable ruins of Salamis where Boraginaceae amongst the stones included the hispid, annual *Anchusa humilis* with electric blue flowers and the biennial, paler blue, *Echium arenarium*. In the Leguminosae it was useful to see two closely related pink species of rest-harrow growing together here: *Ononis diffusa* with the standard 6-7 mm wide and *O. serrata* with the standard only 4-5 mm wide. However the most important legume of the day was a patch of *Astragalus pelecimus*, which had only been found in Cyprus once, 30 years before – at Salamis – but had not been seen there by Deryck Viney. Amongst the stones in the car park, the small prostrate annual grass *Schismus arabicus* flourished, providing another new record for N. Cyprus. The day ended, in gathering gloom, in a damp depression in limestone pavement east of Salamis with *Ranunculus peltatus* and the very local *Zannichellia palustris* in the water and, in

muddy rock pools, two tiny annual *Crassula* spp.: *C. alata* with flowers in tight clusters and *C. vaillantii* with flowers solitary in the leaf axils.

3 April The last two days of our visit were spent exploring the Karpaz or panhandle – low, bare, rocky, mainly limestone, country with distant views of sea and old stone churches. On our way eastwards from Bogaz the first stop was the village of Kumyali where the Solanaceous shrub, *Withania somnifera* from India, is naturalised on waste ground. In Yesilkoy, further along the road, we stopped briefly to notice a tree of *Maclura pomifera*, a member of the Moraceae which produces the inedible Osage Orange. But our first, main objective was the ruins of the 6th Century church of Ayias Trias near Sipahi: memorable, not only for the little girl with a teddy bear posing amongst the mosaics, but also for the fine specimens of *Orobanche crenata* and *O. ramosa*; the opportunity to compare the two sizes of fruit of *Tordylium aegyptiacum* with the uniform fruits of *T. syriacum*; and the bank of rosy-purple sage, *Salvia hierosolymitana*, here near its western limit. After lunch a long time was spent in the heat of the dunes at Ronnas Bay on the north coast. In a rich list the following were encountered for the first time: two Cyprus endemics, *Limonium albidum* subsp. *cypricum* and *Teucrium micropodioides*; two rare species confined to this part of the island, *Coronilla repanda* and the grass *Rostraria amblyantha*; along with *Daucus involucrata*, *Evax contratca*, *Helianthemum stipulatum*, *H. syriacum* and silvery *Paronychia macrosepala*. After a long drive towards the easternmost point of the Karpaz we stopped briefly to scour abandoned fields and seashore turf and rocks which produced a curious procumbent form of *Chrysanthemum segetum* as well as the rare, but hairy, *Daucus glaber*, and the bright pink annual *Silene sedoides*. The Point itself ('Victory'), was a mass of *Convolvulus oleoides* with patches of the prostrate yellow crucifer, *Enarthrocarpus arcuatus*. Despite the long drive back there was still time to stop just east of Bogaz to look at a gypsum hill where we again saw many species for the first time including the very rare *Anthemis parvifolia* and *Chaenorhinum rubrifolium*, the most attractive *Convolvulus pentapetaloides* and *Nigella nigellastrum*, and yet another Cyprus endemic, *Sedum porphyreum*.

4 April Although our last day began in a depression we were not downhearted. This 'Depression' at Mehmetcik is a splendid area of wetland – a lake in winter – but now dry enough to walk over and find the blunt-scaled heads of *Anthemis amblyolepis*, the large flowered *Ranunculus cornatus* and the rosettes of *Damasonium alisma* amongst *Eleocharis palustris* (here in its only N. Cyprus locality), *Juncus hybridus* and *Bolboschoenus maritimus*. After a long drive and a lingering lunch we walked to the impressive Basilica of Ayios Philon and explored more of the north shore and fields nearby. The former produced that familiar seaside sedge, *Carex divisa* and the much sought after, hummocky, culinary shrub *Cichorium spinosum*. There were three new species in the fields – that familiar birdseed alien *Bupleurum subovatum* in its native haunt; a small flowered yellow legume, *Trigonella spicata*; and the grass *Bromus lanceolatus* subsp. *lanuginosus*, with strikingly hairy spikelets, growing mixed with *Bromus alopecurus* subsp. *caroli-henrici*. The last stop provided one of the most attractive walks we had taken during our stay. It was along the green, flower-rich Ronnas Valley, west of Dipkarpaz. Notable trees and shrubs included *Acer obtusifolium*, *Juniperus phoenicea*, *Pistacia terebinthus* and bowers of *Styrax officinalis* and *Clematis cirrhosa* which sheltered extensive stands of *Ophrys hornmuelleri* and *O. sphegodes* subsp. *mammosa*. Many yellow flowers added to the display including the legumes *Coronilla securidaca*, *Lathyrus annuus*, and *Lotus ornithopodioides*, and the delicate little flax, *Linum corymbulosum*, while the track itself yielded the final new grass of the tour, *Avena eriantha*. Most striking of all though were the 2 m tall plants of a yellow-flowered umbel, *Ferulago syriaca*, in its only known N. Cyprus locality, found here so recently by Deryck Viney that it was not included in Vol. 1 of his *Illustrated Flora* of 1994 and had to be put into a supplement in Vol. 2 (Grasses, Sedges & Ferns) of 1996. That such a large, handsome plant should have been overlooked for so long encourages the thought that there are still many more undiscovered treasures waiting to be found in N. Cyprus: another inducement, if one were needed, for those who had the good fortune to participate in this meeting to visit this enchanting part of the Mediterranean again.

FRANKLYN PERRING with grateful thanks for their help to ARTHUR COPPING and DERYCK VINEY

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CORRIGENDA CORNER

As mentioned on page 6, a few errors in the last issue need correcting.

Eva Crackles has queried the insertion of the word 'diagnostic' that 'got into the title of the table accompanying my article "Fertile hybrids between *Veronica anagallis-aquatica* and *V. catenata* (*V. lackschewitzii*) in Yorkshire" in *BSBI News* 81: 33. . . . To say the least the word diagnostic is misleading. I explained in the text that the fertile hybrids I found had different combinations of characters of the species and intermediate characters. The table gives the characters found in one of the Kilnsey populations. . . . It is just one example of the different combination of characters found.' My apologies to Eva, and please delete the word 'diagnostic' from the table.

In John Presland's article on 'Radiation in British Apiaceae' some errors in Table I & II, which were corrected by John in proof, didn't make it to the printed version.

In Table I, row – *Daucus carota*, column – Length ratio (photo), change value to read 2.75 not 1.75, and row – *Conopodium majus*, column – Breadth ratio (RC), change value to read 1.9 not 1.

In Table II, replace the entire row *Ligusticum scoticum* with the following:

	Length ratio (RC)	Length ratio (photo)	Breadth ratio (RC)	Breadth ratio (photo)	Added ratios (RC)	Added ratios (photo)
<i>Ligusticum scoticum</i>	1.2	1.1	1.2	1.1	2.4	2.2

My apologies to John and I hope his current paper on page 44 does not suffer the same fate!

EDITOR

STOP PRESS

From time to time we get requests from overseas botanists, especially from the countries of Eastern Europe, for help in obtaining copies of our publications. If any member would be prepared to help one or more of our colleagues in any way, please contact me and I will arrange to put you in touch when a request arrives.

GWYNN ELLIS, Hon. General Secretary.

SENECIO INAEQUIDENS IN NORTHERN IRELAND

On 27th. July 1999 whilst recording at Inver. Larne, Co. Antrim we found two flowering fully grown plants of what appeared to be an unusual *Senecio* with linear leaves. A week later another poorly developed plant was found nearby. The plants were identified as *Senecio inaequidens* DC (Narrow-leaved Ragwort) and our identification was confirmed by Paul Hackney of Ulster Museum. A part of one of the plants has been retained and will be held in the Herbarium of Ulster Museum (BEL).

The two large plants were found about 5 m. apart at the edge of a footpath near Bridge Street (Grid Ref. 34/399.025). The dual carriageway from Larne Harbour to Belfast goes overhead. This appears to be the first record for Ireland. The origin is not known but the site is approximately 1.5 km. from Larne Harbour which is the main ferry port from the mainland to Northern Ireland and it is possible that the original introduction was by vehicular traffic from the mainland.

Stace reports that it is a rather frequent wool-alien naturalised on a sandy beach in E. Kent 'perhaps soon to spread as in N. France. Perhaps it has now spread to N. Ireland!'

Reference

Stace, C.A. (1991). *New Flora of the British Isles*. Cambridge University Press.

STAN. BEESLEY, 12 Downview Park, Greenisland, Carrickfergus, Co. Antrim BT38 8RY
JOHN WILDE, 10 Kensington Court, Kensington Road, Belfast BT5 6NE

FLORA ANOMOLA UPDATED

by Thomas Hopkirk & Martin Cragg-Barber

Hot off the 'That Plant's Odd' press is this 50 page booklet which takes an early treatise on plant malformations and monstrosities and updates it using modern examples. It costs £3.50 incl. p. & p. and is available from Martin at 1 Station Cottages, Hullavington, Chipenham, Wilts. SN14 6ET.

EDITOR

COMPUTER GLITCHES

If there are more than the usual number of mistakes, mis-formatting, spelling errors, etc., in this issue of *News*, I can blame it on computers. My son recently upgraded his computer system and I, foolishly, took parts of his old computer to upgrade my system. What a catastrophe. What had been a perfectly well mannered if slow system, turned into some Frankenstein-like monster which chewed up my files and spat them out in bits. I'm still trying to pick up the pieces. The moral is easy 'if it ain't broke, don't fix it'.

EDITOR

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