

B.S.B.I. NEWS

Edited by KENNETH A. BECKETT

Domus, Brick End, Broxted, Dunmow, Essex, CM6 2BJ.

MARCH 1975

No. 9



PRESIDENT'S INTRODUCTION

A short, valedictory Presidential message! The Society seems in good heart, in spite of financial cares which, indeed, seem to affect every organisation, official or voluntary, in which any of us is involved. I shall be very pleased to hand over the reins of office at the A.G.M. to the Council's nominee to succeed me as President. The excellent, if unwritten, procedure whereby the Society chooses as its President alternately amateur and professional botanists is happily to continue, and my successor is Eric Swann, an honorary member of 35 years' standing who served the Society first as Assistant Treasurer from 1947-50 and then as Treasurer from 1950-58. During that time the Society trebled in size from 450 to 1,350 members, and undoubtedly achieved its modern outlook and status. Our new President has therefore seen, and personally worked to achieve, the excellent post-war growth of the B.S.B.I., and there can be few members who have so consistently if unobtrusively served the interests of British field botany. More recently, of course, Eric Swann has written with C. P. Petch the modern *Flora of Norfolk* (1968), a beautifully-illustrated volume which reveals the author's deep knowledge of, and affection for his home county, which is still floristically one of the really rich counties of England.

This brings me naturally to a word about the project to document and, where appropriate, cultivate the nationally rare vascular plants of East Anglia, about which I have contributed a note in this News Letter. The Nature Conservancy Council clearly see this as a pilot scheme of some importance to determine whether they can in the future extend such grant-aided exercises to cover other parts of Britain. Although I cease to be President of the Society in May, I shall continue to administer the scheme from the Cambridge Botanic Garden, and hope that all members who can co-operate will do so.

S. M. WALTERS
22nd February 1975

EDITOR'S NOTES

However well constructed a key may be or however good the following description, there often comes a time when an accurate line drawing clinches the diagnosis without doubt. It was with such a thought in mind that I sought permission from the B.S.B.I. Publications Committee to include a line drawing in *News* from time to time. The result is to be seen on the front cover of this issue and nicely illustrates Mr. Chater's interesting account of *Amsinckia* in Britain. It is fitting that the first picture in *News* is by Jocelyn Russell, a member of Council and well known for her art work in Butcher's *A New Illustrated British Flora*. Furthermore this drawing is in effect a preview, for it is destined eventually to appear in David McClintock's *magnum opus* on adventive plants in Britain.

Until just before the deadline for copy to be sent to the printers, it seemed that yet again I would have to make an apology for the non-appearance of a profile feature. Happily, and almost at the last minute, Dr. Perring acted as stand-in for our indisposed contributor and has provided a most readable profile of our current President, Dr. S. Max Walters.

At this point I must apologise to the several members who may well have hoped to see their welcome contributions in this issue. It is always difficult to classify

contributions according to priority, but it was felt that Dr. Perring's article on the conservation of the British flora should be re-printed in its entirety. Items such as the account of *Amsinckia* in Britain, the project to record rare species in East Anglia and members' requests for information (e.g. *Reseda alba*, *Isoetes*, *Ranunculus auricomus*, etc.) were musts. And then the space ran out! Hopefully, all the outstanding articles will be aired in the next issue of *News* due to be dropped into your letter boxes at the end of September.

KENNETH A. BECKETT

NO MORE VOLUMES FOR NEWS

The Publications Committee of the B.S.B.I. has decided that, as from this issue, *News* will be numbered serially only and not published in volumes. As eight issues have so far appeared since it began in 1972, this one automatically becomes No. 9.

SECRETARY'S NOTES

In this mailing comes the Annual Report for 1974 and the official notice of the 1975 A.G.M. in Dumfries. Those members reluctant to risk holidays abroad this year will find that the Society is offering the opportunity to take a holiday in southern Scotland in early June by attending the varied programmes of excursions associated with the A.G.M., and the field meeting held during the following week. All these are organised by the C.S.S.F.

Due to the spacing of our mailings, it has not been easy to keep members informed of the current progress of the proposed legislation for wild plants. Members may have seen that a new Bill—the Wild Creatures and Wild Plants Protection Bill—is at present passing through the House of Commons. At first we were hesitant when the amalgamation was put forward, but when the first place in the ballot for private members' Bills was drawn by Peter Hardy, M.P., who then agreed to sponsor this Bill in the present session of Parliament, it was a chance not to be missed. The new Bill was drafted at speed, put down in December and widely supported at the second reading on January 24th. It has now completed the Commons Committee stage and next will be the Report in the House in April. The Bill should then go to the Lords in the following months.

These stages involve a great many people in a great deal of work and we are very fortunate in having co-operation from all the departments concerned. Particularly we should like to thank again Mr. Tim Sands of the Council for Nature and the Biological Records Centre, which has provided with great speed and efficiency information essential for parts of the Bill. At the second Reading, Mr. Denis Howell, Minister of State at the Department of the Environment, said, "We have been stimulated and encouraged to act by the concern and the campaign of a dedicated number of people and especially by a number of first class voluntary organisations". The B.S.B.I. was then specifically mentioned. Dr. Perring gives advice on page 18 as to how members can best support the aims of the Bill at this stage.

Occasionally members are heard to grumble about the erratic arrival of the Society's mailings, but I wonder if they realise the complexities involved in getting them out and into their letter boxes? During the 11 years in which I have seen

various mailings through Horsham, we have had to contend with rail strikes and lost parcels, postal and electricity strikes, 'flu epidemics, shortages of envelopes and changes in paper size to continental standards. Work for each mailing is started two months before the posting date, which is usually fixed by the timing of certain meetings (this one for example must be in time for A.G.M. notices), copy coming in from the regions has to be collated and last minute changes rushed post haste to the printers. Next comes the printing and proof reading while the Membership Secretary organises labels or addressed envelopes from Reading to the despatch centre, then finally the many separate items can be folded, 'stuffed' into the envelopes and bundled for the post. On one occasion whilst stuffing should have been in progress, I was startled to find our printer's man in the casualty department of the local hospital! (Luckily it was not too serious and he was soon back to work.) Here I should like to pay tribute to the staff at Springfield Press who have through the years been unflinching in their help and courtesy, and have tackled our Latin names, technical terms and names of foreign speakers with fortitude!

Similar problems are involved in the despatch of journals from Liverpool. Here, Eric Greenwood has been in charge of negotiations for nine years, as well as being one of the Honorary Editors. In both he has done an excellent job for the Society and we must now, on his resignation, thank him for his excellent service. We are also delighted to send our congratulations on his new appointment as Assistant Director of the Merseyside County Museums.

Mr. Turner Ettlinger is puzzled by the "poor opinion, indeed obloquy, with which nature photography is held by many botanists". (*News 3*, page 20). Perhaps he does not realise that it is almost impossible to identify unknown plants from photographs? Good photographs of known plants make delightful illustrations, enjoyed by all who appreciate the beauty of the plants, but seldom can they supply the details so often essential for accurate identification. As Mr. Turner Ettlinger mentions, we have already been in correspondence, and there has been a tendency to suggest that all botanists are incompetent rogues while all botanists think natural history photographers are destructive villains. But, the stupidity of such sweeping generalisations apart, it is a fact that when the military orchid site in Suffolk was opened last year to the visitors, the only people who ignored all requests and left the carefully laid path, were photographers. I take photographs myself and can well appreciate the temptation to search for the critical angle to make a real picture, not just a record. However, for the future existence of rare plants, all botanical photographers must understand the damage that can be done by trampling, kneeling or even lying on small seedlings which may surround the plants they are concerned with, and which are essential for their survival.

MARY BRIGGS

PROFILE

Stuart Max Walters

Stand on the lawn of 1 Brookside, Cambridge beneath the shade of Newton's apple and most mornings at around 9 o'clock a tall, slight, silver-haired figure will come towards you from across the garden with large unhurried strides. It will be Max Walters making his way from Cory Lodge in the centre of the Botanic Garden where he lives with his wife Lorna, to his office in 1 Brookside. He is probably one of the happiest and most contented men you are ever likely to meet.

If such an essentially modest person can be said to have ambition, he has now achieved the only position he ever sought after, and there can hardly be one of his innumerable friends who did not shout for joy when it was announced that he had been appointed to succeed John Gilmour as Director of the University Botanic Garden in 1973. The position fits his character and interests so perfectly.

Max has been inseparable from the garden almost since he returned to Cambridge in 1946 to complete his degree course interrupted by the War. He and Lorna moved into a flat in 1 Brookside in 1948 and there brought up their three children, Philip and the twins Martin and Stella.

The experimental plots in which he has carried out most of his taxonomic work on living material are near at hand, and much of his practical teaching as a University Lecturer takes place in the greenhouses or around the "order beds" in the garden.

But to people outside the University Max's name will be particularly associated with two developments with which he became deeply involved in the 1950s. First our own Society's project to map the distribution of the British flora. Although only just over 30 at the time, Max's reputation for wise counsel and friendly persuasiveness made him an obvious choice as Director of the Mapping Scheme—and as his new recruit I had many opportunities to appreciate the wisdom of that choice. He is hardly ever ruffled.

The second development was the birth of the Cambridgeshire and Isle of Ely Naturalists' Trust in 1956. He was largely instrumental in setting up the Trust and became its first Honorary Secretary, a position which he held for the next 10 years. Since 1966 he has been a most active Vice-President—no sinecure this—and is now Chairman of the Executive Committee. Since its formation the Trust's official address has always been 1 Brookside: all its Committee meetings take place there and the offices have been up in the roof for over ten years, taking over the rooms vacated by the Maps Scheme. Now Max, in his new capacity, is involved in plans to provide the Trust with more convenient accommodation in a building attached to 1 Brookside so that he will be able, almost literally, to oversee the work of the Trust from his bay-windowed office on the first floor.

But Max has had a distinguished career within the University of Cambridge outside the Garden. He became a Research Fellow of St. John's College in 1947, and Curator of the Herbarium the following year, and has been appointed subsequently University Lecturer in Botany and Fellow of King's College. In these positions he has had an immense influence on generations of students to whom he has imparted selflessly his own wondrous knowledge of plants. Following the tradition of Humphrey Gilbert-Carter, his predecessor at the Garden, for whom Max has a lasting and deep affection, field excursions have always been a feature of his teaching. During Easter and Long Vacation terms small groups on cycles, Max's upright steed amongst them, have gathered at famous localities within easy reach, like Coe Fen or Cherry Hinton, to absorb the finer mysteries of identification. And out-of-term he has given many weeks of his time taking student parties all over Britain and into Europe.

Max's association with *Flora Europaea* and his knowledge of the flora is a symbol of his love of the Continent and its people. He has a gift for languages, can converse fluently in five or six and is invariably 'playing' with another. It was

entirely in character that the Conference which took place during his term as our President should have had a European theme and that he asked the Society to invite young speakers from abroad.

No-one who knows him can have doubted he would be a fine President. He has been a member of the B.S.B.I. for 30 years, and on Council almost continuously for over 25: he understands perfectly the aims of the Society and the personality of its members. His control of Council and Committee Meetings has been a delight to observe in which all the facets of his character have been displayed to our advantage—humour, kindness and conciliation yet, when faced with incomplete information or a woolly argument, showing touches of the grit of his native Yorkshire, the accents of which despite over 30 years absence, he has never lost.

FRANKLYN PERRING

PROGRAMME OF MEETINGS IN THE IRISH REGION 1975

May 17th: Field Meeting, Florence Court, County Fermanagh. Leader: Not yet decided. Co-leader: Mr. D. Kelly.

July 16th-20th: Field Meeting, Portumna, County Galway. Leader: Professor J. J. Moore.

August 9th: Field Meeting, Howth Head, County Dublin. Leader: Mr. H. Hudson.

September 4th-8th: Field Meeting, Glenveigh, County Donegal. Leader: Mr. M. Telford. Organiser: Dr. Alan Craig (Office of Public Works, National Parks and Monuments Branch, Upper Ely Place, Dublin 2).

October 25th: Irish Regional Annual General Meeting and Quadrennial Meeting. Venue: National Botanic Gardens, Glasnevin, Dublin.

Further details of any of these meetings from: Mrs. J. A. Neff (Honorary Secretary Irish Region), 435 Woodpark, Ballinteer, Dublin 14.

Anyone specifically wanting details of the Glenveigh Meeting should contact Dr. A. Craig of the Office of Public Works.

BOOKS FROM OUNDLE LODGE

The following have been added to the list of books available to members:

The Botanist in Skye, C. W. Murray, 83 pp duplicated, £1.00.

Critical Supplement to the Atlas of the British Flora, F. H. Perring, £4.80.

Because of increased postal charges prices of other books on sale have been altered as follows:

Flora of a Changing Britain, £1.15.

Check-List of Dumfries, etc., 58p.

Botanist in Ireland, £4.10.

A Flora of Cambridgeshire, £1.05.

All available from Dr. F. H. Perring, Oundle Lodge, Oundle, Peterborough, PE8 5TN. Cheques payable to F. H. Perring, Book A/c.

DERBYSHIRE FLORA

The supplement to the *Flora of Derbyshire* (1969), covering new records for the years 1969-1974, is now available from Derby Museum and Art Gallery, Strand, Derby. The price is 15p plus 10p postage and packing, not 8p as previously stated owing to increased rates. It is regretted that stamps cannot be accepted in payment.

KATHLEEN HOLLICK

CHANGES IN COUNTY RECORDERS

At recent meetings of the Records Committee, the following appointments were made:

Essex V.-cs 18 & 19	Dr. K. J. Adams
Cambridgeshire V.-c 29	Mrs. G. Crompton
Montgomeryshire V.-c 47	Mrs. P. A. Parr
Dumfries V.-c 72	Mrs. M. E. R. Martin

NEWS FROM THE IRISH REGION

Field Meetings 1974

On May 18th at Brittas Bay, a party of 16 including four visitors from England, led by Professor Webb, recorded in the region of Pennycomequick Bridge and then moved on to the Mizzen Head. This latter proved less fruitful than had been hoped due to an extension of farming on to the headland itself. Later in the day a visit was made to Wicklow Head.

June 21st-24th Lough Carra. Approximately 20 people including professionals, amateurs and students took part in a survey of the lake-shore vegetation at Lough Carra, County Mayo. Here the zonation of vegetation due to the normal fluctuations of the water level are threatened by a drainage scheme which will maintain the lake at the same level throughout the year. Despite the scorching weather—most welcome on such a field meeting but not the most conducive to hard work—much was done and there are records from 80 sites. These were worked on transects from the water's edge, and each site has a complete species list made for it. Both aquatics and algae, etc. were also recorded and water samples collected for analysis. The results are being analysed and synthesised and it is hoped that the final results will be published. This meeting was led by Mr. M. Neff of the Forest and Wildlife Service, Dublin.

July 17th-21st. The Limerick/S. Clare Meeting, led by Mr. R. Young of An Foras Forbatha, was unfortunately poorly attended, there being only three main participants besides the leader. They were however joined by some interested local people, which helped the recording.

August 17th. Newpass, County Westmeath, led by Mr. Johnston of Newpass. This Meeting was attended by 18 members. Areas looked at included a lake which has been drained almost entirely, there being standing water on only a small part of the original area, leaving damp marshy ground with species such as *Parnassia palustris* quite abundant. In wet weather flooding occurs across the original lake surface, also a small piece of dense scrubby woodland on very marshy ground with

Pyrola rotundifolia and a raised bog which has a fairly extensive colony of *Sarracenia purpurea*. Efforts to find *Daboecia cantabrica* which was once reported from this bog, proved unsuccessful.

Annual General Meeting

This was held in October 1974 and at the Meeting the committee for 1974/1975 were elected as follows:

Miss M. Scannell (Chairman)	Dr. A. O'Sullivan
Mrs. J. A. Neff (Secretary)	Mr. R. Forbes
Prof. J. J. Moore	Mr. D. Kelly
Prof. D. A. Webb	

Miss E. Ni Lamhna was co-opted onto the committee, due to her position in the Irish Biological Records Centre.

There were three lectures during the public part of the meeting, these were, Irish trees in the Brehon Laws. (Fergus Kelly), aspects of the history of Irish botany and some relevant centenaries (Miss M. Scannell), and Conservation in the North of Ireland (Dr. Heal).

Meeting to Discuss Recording in Ireland

This meeting was held on January 27th, 1975 in Dublin and was attended by 22 members most of whom are recorders for at least one vice-county in Ireland. Matters which were discussed included such topics as the relative roles of Monks Wood, the Irish Biological Records Centre at An Foras Forbatha and the Ulster Museum in storing and/or processing records; the role of the Irish centres in stimulating recording such as concentration on rare and interesting species, gaps in common species, etc.; the English/Irish grid controversy; the role of county recorders; the correct use of recording cards, etc.; the position of aliens and so on.

It was considered that this was a very useful meeting, especially as Dr. Perring was able to come so that Monks Wood was represented and a number of matters elucidated.

Detailed minutes of the meeting are being sent to all who attended and to all recorders for Ireland and other interested persons. The meeting was organised for the B.S.B.I. Regional Committee by Miss E. Ni Lamhna of the Irish Biological Records Centre, An Foras Forbatha.

MRS. J. A. NEFF
Honorary Secretary, Irish Region

MAPPING IN FRANCE AND BELGIUM

I have received information that a mapping scheme is in progress which covers Northern France, the Cherbourg Peninsula eastwards, and Belgium. The recording unit is a 4×4 km square. The majority of species which occur in this area will be familiar to British botanists and I feel sure that their assistance would be welcome. If anyone is visiting this area and would like to contribute I suggest they write to F. Vignon, Faculté des Sciences, 33 Rue Saint Leu, 80039 Amiens Cedëx, France for details.

F. H. PERRING

REX GRAHAM RESERVE

The Suffolk Trust for Nature Conservation is holding its annual Open Day at the Rex Graham Reserve, Mildenhall, West Suffolk on Saturday, 7th June 1975 when *Orchis militaris* should be in flower. Members of the B.S.B.I. will be welcome. The Reserve, which is owned by the Forestry Commission and is jointly managed by them and the Trust, will open from 11.00 a.m. to 3.30 p.m. No permits will be required and admission will be free, but the Trust is charging photographers 50p if they wish to take photographs. Donations towards the management expenses will be welcome from others.

The Reserve should be approached from the north side of the Icklingham to Barton Mills road (A.1101) by Forestry Commission fire route No. 305 (at TL 741741). Proceed north along the track for about 300 yards then turn left and in 100 yards right or so to the car park. The Reserve is reached in a further 200 yards on foot. No dogs will be allowed and access from the A.11 will be prohibited.

E. MILNE-REDHEAD

RARE SPECIES RECORDING IN EAST ANGLIA

With the help of a special grant from the Nature Conservancy Council, a project has been launched to document and, if appropriate, propagate stocks in cultivation of the nationally rare vascular plants which grow in the East Anglian region. The project is centred on the Cambridge University Botanic Garden, and is under my personal supervision as Director of the Garden. Mrs. G. Crompton is the Research Assistant.

The success of this project is essential if the rare plants of East Anglia are not to be lost. For this reason I believe it is in the interests of conservation that the information needed is not withheld from the Conservancy by private individuals. I fully sympathise with those reluctant to divulge their information, but I can assure you that the information being collected by Mrs. Crompton will be treated with the strictest confidence and will only be given to the Nature Conservancy Council. This information will also be used to compile the British Red Data Book for plants, but this book will include no localities and will mention only counties in which species occur; it will therefore give no more information than a County Flora, and usually considerably less.

I hope that members will be willing to co-operate with Mrs. Crompton and that any of you who have exact information about current, old or extinct sites of nationally rare species (Watsonia 9, 1972, 67-72) occurring in East Anglia (Humber to the Thames, Notts. to North Sea) will get in touch with her c/o University Botanic Garden, 1 Brookside, Cambridge.

In addition, B.S.B.I. members with special knowledge or interest in floristic conservation in East Anglia are needed to help with collecting information on changes in population size of the species concerned. This would entail reporting annually on at least one site. Some money is available under the grant to repay limited travelling expenses, and Mrs Crompton would issue to you an individual "monitoring" card.

S. M. WALTERS

EAST ROSS

Miss U. K. Duncan (Parkhill, Arbroath, DD11 5RG) would be grateful for lists of plants for the Flora of East Ross (V-C-106) which it is hoped to complete before long. Locality, 10-km grid square, collector and date are required. Postage will be refunded.

RESEDA AND EUPHRASIA

Dr. P. F. Yeo, University Botanic Garden, Cambridge, CB2 1JF, would be grateful to receive seed of the form of *Reseda alba* which has the sepals and petals numbering six instead of five. It appears that the six-sepalled form is peculiar to Britain, yet the plant is said to be an alien. The sepals are persistent in the fruiting stage.

He also regrets to announce that he cannot at present keep pace with the identification of *Euphrasia* specimens from members. He therefore asks members not to send any more specimens between the publication of this notice and October 1976, unless a request is made in advance giving good reasons for an urgent need for identification, and stating exactly how many gatherings are involved.

ISOETES

Mrs. M. Gibby and A. C. Jermy, Botany Department, British Museum (Natural History), Cromwell Road, London, SW7 5BD, are studying the geographical distribution of cytotypes of the two aquatic species of *Isoetes* (*I. lacustris* and *I. echinospora*) and would welcome living material (in a polythene bag, suitably protected from crushing). Exact location with an eight figure grid reference, whether collected *in situ* or as drift and, if possible, with a list of associated vascular flora, should be included. Mature megaspores are required for positive determination. Postage will be willingly refunded if requested.

RANUNCULUS AURICOMUS

I am intending to undertake a study of *Ranunculus auricomus* in the British Isles. In order to grow as wide a range of material as possible I would be grateful to receive single plants in the wild state from sites in the British Isles—in particular from Scotland, Ireland, Wales and the N. and S.W. of England. (Please do not take specimens from populations which are very small). Specimens may be sent to The Experimental Garden, University Botanic Garden, Cambridge (labelled 'for the attention of A. C. Leslie). All specimens will be acknowledged and postage refunded. A six figure grid reference and any other details concerning the locality would be additionally welcome.

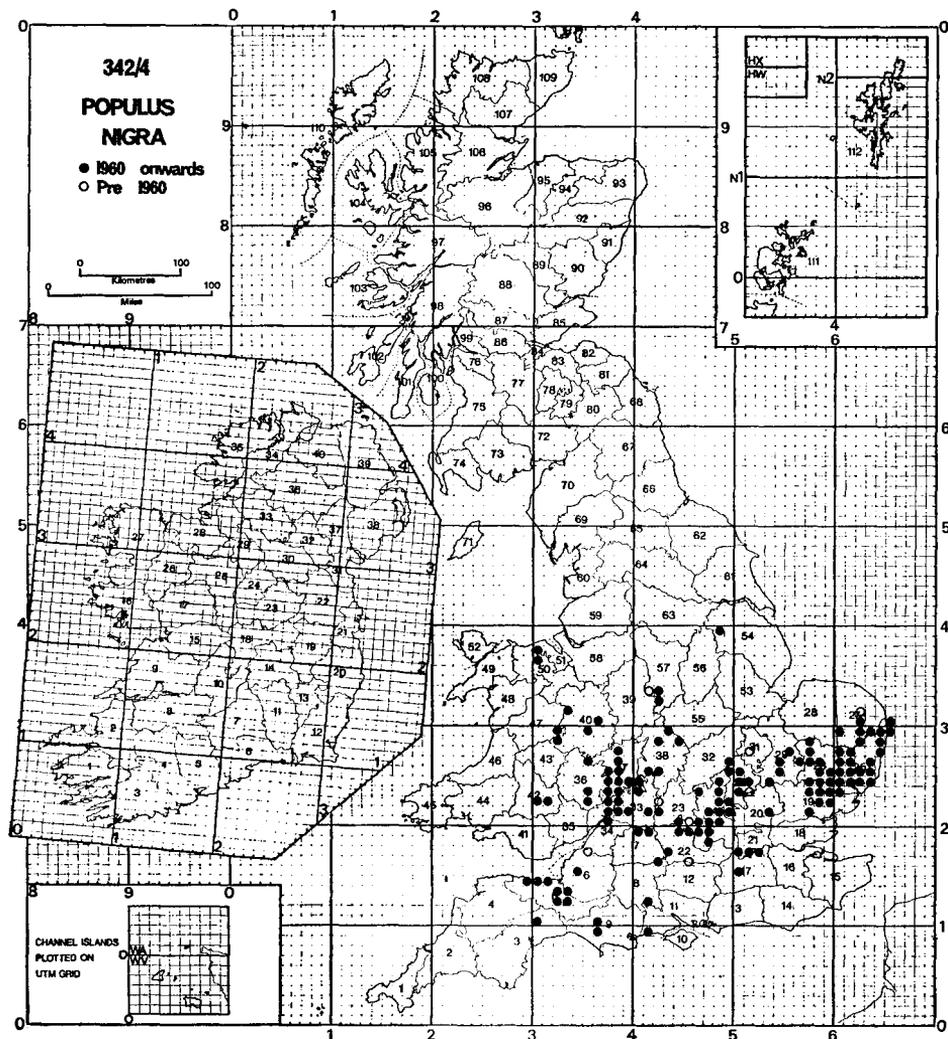
A. C. LESLIE

BLACK POPLAR SURVEY

The Black Poplar (*Populus nigra*) Survey has made some progress since my report at the A.G.M. on 4th May, 1974 (see *Watsonia* 10: 295 (1975)). Forty-two 10 km grid squares have been added to the map (kindly prepared by the Biological

Records' Centre), and several records from literature, notably in Gloucestershire have been confirmed. Much help has been received from Mr. A. G. Mackay of Bryant and May (Forestry) Ltd. who has shown me his personal records. In return I am sending my records of fine native trees to him.

The most interesting development is the discovery of *P. nigra* in the Vale of Clwyd, North Wales by Mrs. D. Stephenson. Not only does it extend the distribution considerably north-west, but it adds two further counties to its occurrence in Wales



making a total of four. I hope it will be admitted as a native tree when the third edition of *Welsh Flowering Plants* appears!

I still have no records of the tree in suitable 'wild' habitats from Cheshire, and records in Kent and Sussex have so far drawn blank. It has, however, been recorded by the lower River Stour in Hampshire and the Frome valley in Dorset.

I feel there is a lot more work to be done and I propose to keep the survey active for another couple of years. Perhaps after the black poplar field meeting in Suffolk in May, more members will be in a position to identify this magnificent tree.

E. MILNE-REDHEAD

OXALIS

I have become increasingly aware from discussion and correspondence that several less generally known species of *Oxalis* are to be found in gardens, perhaps surviving in odd corners or persisting as weeds. As Referee for the genus I am anxious to learn of the occurrence of any unusual or unidentified species, and hopefully to see material.

O. corymbosa is now a serious garden pest in many gardens, spreading by its little bulbils; *O. pes-caprae* and *O. latifolia* are troublesome in market gardens particularly in the warmer S.W. parts of the country; *O. corniculata* and its numerous varieties are common weeds of borders, paths and greenhouses, whilst *O. articulata* with its tough rhizomes flourishes in neat tufts in rock gardens. But there are several other less common species; some probably introduced originally from nurseries as garden plants but others arriving as seeds or bulbils in soil or compost and perhaps not so welcome!

I should be glad to have information from anybody with interesting types of *Oxalis* plants in their gardens—or even greenhouses. The nature of the underground root-system is often critical for identification, and it is therefore desirable to know whether this is fibrous, stoloniferous, rhizomatous or bulbous.

RICHARD P. LIBBEY
143 Gaywood Road,
King's Lynn, Norfolk, PE30 2QA

AMSINCKIA IN BRITAIN

Colonies of *Amsinckia* have been reported with increasing frequency in Britain in recent years, especially in the eastern half of the country. Although I have no special knowledge of the genus and am not proposing to work on it in the future, I have had to try and name some of the British material and have been asked to give some indication of how I think the various species can be recognised. *Amsinckia* (known in America as Fiddleneck) is a genus of the Boraginaceae bearing a superficial resemblance to *Anchusa arvensis*, but with long, lax cymes of very small yellow flowers. It contains between 20 and 300 species (Suksdorf in the 1930s having described some 250, most of which are not generally accepted nowadays) and is native in western North America and west temperate South America. There is no general agreement on the taxonomy of this difficult genus even in America, and a further complication is that the type specimens of two of the species that occur as aliens in Britain (*A. lycopsoides* and *A. menziesii*) are in Australia and

seem to have had their labels exchanged at some time in the past before they were properly mounted. The result is a taxonomic and nomenclatural nightmare, made no easier by the fact that the plants press very badly and the characters used to separate the species are very inconstant and difficult to describe effectively in words. A great deal more work needs to be done on the genus in America before we can have any hope of sorting out the British plants satisfactorily. Meanwhile, the following notes and key may be helpful. Specimens for identification must have both flowers and ripe fruit, and a note should be made of the exact colour of the flower. Voucher material should always be preserved. The more interesting plants are those that seem reasonably naturalised and that turn up in the same place year after year. The east coast is probably the best hunting ground.

The species most thoroughly naturalised in Britain is *A. lycopsoides* (Lehm.) Lehm., which has been growing in abundance on the Farne Islands for over 50 years (the name originally and erroneously used for this plant on the Farnes was *A. intermedia*); it is also a not infrequent casual in other parts of Britain. It can be distinguished from all other species recorded from Britain by having the throat of the corolla half-closed by hairy processes. The cymes of flowers have no bracts on them, or only a solitary bract at the base, and the nutlets are covered with irregular little pointed tubercles and are either not ridged at all or have only a few indistinct ridges near the apex.

The species most frequently reported in recent years, especially in East Anglia where in places it is abundant among crops and in gardens, gravel-pits, etc., is *A. intermedia* Fischer & C. A. Meyer. This has the corolla glabrous inside and of a rich orange-yellow colour. The cymes have no bracts, or only one or two bracts at the base; the nutlets, besides being covered with pointed tubercles, also have more or less distinct transverse ridges across them. Mr. E. L. Swann tells me that this species is believed to have been introduced in one part of East Anglia with Canadian linseed in about 1947.

A. calycina (Moris) Chater, the correct name of the plant often known as *A. hispida* (Ruiz & Pavón) I. M. Johnston or as *A. angustifolia* Lehm., is quite a common casual, but never seems to occur in quite such abundance as *A. intermedia*. It has the corolla glabrous inside and usually of a medium or pale yellow. The cymes have several quite conspicuous bracts in the lower part; the nutlets have prominent pointed tubercles and a few rather weak transverse ridges.

These are the three species most likely to be found, and it is not always at all easy to distinguish *A. intermedia* from *A. calycina*. Two more species are worth including, however, and one of them, *A. tessellata* Gray, is easily recognised because the calyx-lobes are partly fused together giving the appearance of a 3- or 4-partite rather than the normal 5-partite calyx; the tessellated pattern of the nutlets, from which it gets its name, is often not very distinct. This species is a not infrequent casual around harbours and on mill-refuse. My final species, *A. menziesii* (Lehm.) Nelson & Macbride, is also an infrequent casual although several reports from E. Anglia in recent years suggest that it may be becoming a fairly regular alien. It can be recognised by its combination of pale yellow corolla, glabrous inside, cymes usually without bracts and the nutlets having pointed tubercles (sometimes also with minute setae amongst them) and no or only a few, weak transverse ridges.

The following key covers all five of these species :

- | | |
|--|-----------------------|
| 1. Corolla with hairy processes inside the throat | <i>A. lycopsoides</i> |
| 1. Corolla glabrous inside | 2 |
| 2. Calyx lobes partly fused so that calyx is 3- or 4-partite | <i>A. tessellata</i> |
| 2. Calyx lobes 5 | 3 |
| 3. Nutlets with more or less distinct transverse ridges | <i>A. intermedia</i> |
| 3. Nutlets without ridges or with only indistinct ridges near the apex | 4 |
| 4. Cymes with several bracts in the lower part | <i>A. calycina</i> |
| 4. Cymes without bracts or with only a single bract at the base | <i>A. menziesii</i> |

Further, sometimes conflicting information about the genus can be found especially in P. M. Ray & H. F. Chisaki, *American Journal of Botany* Vol. 44, pp. 529-554 (1957) and in P. A. Munz, *A California Flora* pp. 587-589 (1959). If *Amsinckia* becomes even commoner in Britain, and no further progress is made with its taxonomy, it may be useful to know that the young shoots of several species were considered a delicacy by the North American Indians.

A. O. CHATER

N.B. The author has expressly asked that he should not become involved in identifying specimens of this genus. If anyone feels willing and able to take this on the Editor would be glad to hear from them.

VERBASCUM PHLOMOIDES

Records of this species, *small* collections of seed and any specimens of weevils or glistening slug like larvae (preferably alive) found on these plants would be very much appreciated.

P. Cunningham, Lecturer in Biology, Biology Department, Portsmouth College of Education, Locksway Road, Portsmouth, Hants.

VICIA ANGUSTIFOLIA

In *Watsonia*, August 1974 page 228, I made the suggestion that *Vicia angustifolia* var. *angustifolia* and *V. angustifolia* var. *segetalis* produced a near sterile hybrid in nature, and suspect that some of the intermediate forms may prove to be similar. Material therefore that appears to be intermediate, and particularly any with malformed pods would be welcome. Please record the colour of the individual petals. The flower lengths quoted in *Watsonia*, July 1973 pp. 428-9, refer to dried material; living flowers can be 20% longer.

H. J. KILLICK
17 Bradgate, Cuffley,
Potters Bar, EN6 4RW.

ADVENTIVE NEWS No. 2

Only a handful of members wrote to me, but I am sure that many more will communicate their finds and problems as the season develops. Meanwhile I would be pleased to receive any old unpublished records or attempt to determine any problematical pressed specimens. The past is certainly not to be excluded from these columns, particularly since aliens are often first correctly named long after their original discovery.

Grass-Seed Aliens at Ware

Introductions of alien plants with imported grass-seed are seldom recorded, so C. G. Hanson's notes on a new school sports field at Ware (Herts.) were very welcome. Sown with imported seed (origin unknown, although it may be significant that all the European species listed here are well-established weeds in N. America) in the autumn of 1972, the next two years produced:

Bromus briziformis Fisch. & Mey. First record for Herts. Of the 30 plants seen in 1973 two were introduced into cultivation by CGH and plentiful seed is now available—it's a fine ornamental grass, much resembling *Briza maxima* L. except in its hairy leaf-sheaths, from Asia but introduced into Europe and N. America. It is often wrongly spelt as *B. brizaeformis* and incorrectly claimed as a native of Europe (e.g. in *Hortus Second*). Hb, EJC, CGH. Det. EJC.

B. commutatus Schrad. Several hundred in 1973; none seen in 1974. Hb. CGH. Det. EJC.

B. inermis Leyss. None seen in 1973, 10 in 1974. Perhaps much more present in a vegetative state only? Hb. CGH. Det. EJC.

B. tectorum L. 100 plants in 1973, 3 in 1974. Hb. CGH. The only other Herts record is from 1847.

Hordeum jubatum L. 50 plants in 1973, over 300 in 1974. There are four other recent Herts. records for this N. American grass which is at present fairly frequent in newly-sown grass mixtures used for road-verges and lawns and is, perhaps, purposely included as a component seed. Can anyone confirm this for me?

Linum usitatissimum L. Many thousands in 1973, none in 1974. The capsule size for this species "1 cm or more" given in *CTW2*, unlike in *Flora Europaea*, includes the beak (c. 1 mm long) which is easily overlooked, but 7-10 mm seems to me to be more normal.

B.S.B.I. Alien Hunt, 6th October 1973

A combination of circumstances resulted in no report of this meeting appearing in *Watsonia*, so a few notes on the rarer species is appropriate here: voucher material of all species is in Hb. EJC. It was not appreciated at the time but waste from imported soya-beans (*Glycine max* (L.) Merr.) produced the best plants at Stone (N. Kent) tip. Judging by the species observed the soya-beans and their associated weeds appear to have come from the S.E. part of the U.S.A.; J. R. Palmer is at present compiling records for N.W. Kent which suggest as their origin the locally expanding oil-milling industry.

Amaranthus arenicola I. M. Johnston, "possibly, but not a good fit" (as det. J. P. M. Brenan). A single female plant at Stone tip—this dioecious N. American

species was grown on by JRP but no fruits developed before the frosts precipitated pressing of the specimen.

A. standleyanus Parodi ex Covas. Crayford (N. Kent) tip; lack of time prevented us finding the two large plants seen previously by EJC and JRP. A native of Argentina and a rare casual in Britain. Det. JPMB.

A. palmeri S. Wats. A single male plant at Stone tip. This dioecious N. American species was seen by Mrs. J. G. Dony and others and det. JPMB. Re-collected by Dr. J. L. Mason and EJC on 21.10.73 when a single plant of *A. viridis* L. was also spotted nearby.

Anoda cristata (L.) Schlecht. var. *brachyantha* (Reichb.) Hochr. One plant at Barking (Essex) tip and one at Crayford tip were named in the field as *Malvastrum* sp., but later correctly determined by J. E. Lousley. "I have had it four times before but it is superficially extremely variable—the flowers can be larger than those of *Malva sylvestris*!" The complete lack of an epicalyx and the five calyx segments exclude the majority of malvaceous genera.

Cassia occidentalis L. One of 3 seedlings seen at Crayford tip was grown-on successfully to maturity and determined by Mrs. M. C. Foster. Conf. EJC. It's a pantropical leguminous weed, but quite new to me (and Britain?).

Chenopodium bushianum Aellen. Seen on the meeting at Stone tip but its identity was not suspected; it was later collected by JLM and EJC and determined by JPMB.

Ipomoea hederacea Jacq. Stone tip. Both the form with the leaves three-lobed and (much scarcer here in 1973 and 1974) the form with unlobed leaves were present; both have smaller flowers than *I. purpurea* and recurved calyx teeth so cannot be confused. The species is a well-known troublesome annual weed in the U.S.A. climbing over "corn and soybean" crops.

Ipomoea purpurea Roth. Stone tip. Known as a bird seed alien as well as a garden plant, it was doubtless here a soya-bean alien.

Momordica charantia L. Aveley (Essex) tip. A cucurbitaceous tropical food plant (balsam pear) but also grown as an ornamental climber.

Ononis baetica Clem. (*O. salzmanniana* Boiss. & Reut.) One very depauperate plant at Barking tip had set a few seeds from which CGH grew fine herbarium specimens. It is a well known bird seed alien.

Panicum subalbidum Kunth. Known by many synonyms. One plant at Barking tip with many inflorescences but mostly immature (det. Dr. C. E. Hubbard) and one at Stone tip. This species has the mature spikelets oblong-lanceolate to oblong-ovate and acute to acuminate and closely resembles the better known bird seed alien *P. laevifolium* Hack. (mature spikelets oblong and more or less obtuse). A few records of the latter may need revision; both have recently occurred as wool aliens (det. CEH).

Polygonum pensylvanicum L. Several plants at Stone tip. A very variable North American species; my voucher specimen was not collected until 29.9.74 when I noticed it was var. *laevigatum* Fern. (i.e. leaves glabrous beneath, not strigose-pubescent as in the type).

Sida spinosa L. One plant at Stone tip (several in 1974). This species is much confused in the earlier literature with *S. alba* L. which is the African equivalent of this New World plant (but nowadays they are introduced into each others' domains).

It is sometimes almost inseparable apart from technicalities of the carpel—in *S. spinosa* this opens from above and the lower part of the back is transversely rugulose and firm (in *S. alba* it opens irregularly below by a whitish membrane). Luckily our specimen was sufficiently mature to show this feature clearly. The taxonomic significance of this character (constant in Hb. BM) seems to me to make treatment as a sub-species or variety unacceptable; in contrast C. D. Adams *Flowering Plants of Jamaica* p. 467 (1972), says "This species is very similar to the next; further study may confirm that their continued separation cannot be maintained".

Solanum carolinense L. A leafy plant at Stone tip was patiently grown on by JRP and it flowered in the autumn of 1974. A rhizomatous perennial, unlike our commoner prickly annual adventives, viz. *S. sisymbriifolium* Lam. (flowers bluish-white with anthers equal in length) and *S. cornutum* Lam. (*S. rostratum* Dunal, flowers yellow with lowest anther larger and longer than the other four). *S. carolinense* has pale violet to white flowers and equal anthers. Leaves ovate in general outline, commonly 7-12 cm long, with 2-5 large teeth or shallow lobes on each side. A soya-bean alien perhaps new to Britain. Dr. A. Hansen of Copenhagen kindly sent me a copy of his 1972 paper on adventive species in Denmark: he lists (as *S. cf carolinense*) a lone record for 1970.

Xanthium strumarium L. subsp. *cavanillesii* (Schouw ex Didr.) Löve & Danser. (*X. echinatum* Murr.). Very many plants at Stone tip some very tall, and obviously a serious pest in the soya-bean fields, identified here by means of CTW 2 where the genus is recognised as having only five species. "Many more have been described on inconstant and inconsequential variations in the bur" (quoting H. A. Gleason)—for example, J. C. Willis' *Dictionary of Flowering Plants and Ferns* (8th ed.) now recognises 30 spp. Other American floras sink almost everything into one variable species *X. strumarium* L., and recognise only varieties, admitting that they "intergrade profusely".

Mixed Bag

Among the other interesting records submitted were the following:

Althaea hirsuta L. A large, trailing plant (unlike our ?native plant) on the old part of Crayford tip (N. Kent) 19.10.74. JRP. Conf. EJC.

Anchusa officinalis L. Guildford (Surrey) rubbish tip. August 1973. R. C. Stern. Hb. RCS. Det. EJC. In my experience *A. azurea* Mill. is today a more frequent casual than this species; this was certainly not true in the past—witness the very many specimens in Hb. BM. Indeed, more than one book (incl. *Royal Horticultural Society Dictionary of Gardening*) quite wrongly suggests that it is native to Britain. Both species occur in bird-seed and both are grown in gardens. *A. azurea* being by far the more splendid subject.

Gunnera tinctoria (Molina) Mirb. "Well naturalised above Onchan Harbour (Isle of Man) having long since escaped from Majestic Hotel grounds, together with *Pernettya*". Dr. L. S. Garrad sent me a fresh fruiting spike for naming. Only two of these giants occur in and out of our gardens—CTW2 does not mention the useful inflorescence characters:

1 Infl.-branches slender, flexuous, over 6 in. long,

longer than the bracts *G. manicata* Linden ex André

1 Infl.-branches stouter, 1-3 in. long, equalled by
the bracts *G. tinctoria*

Both species are known by a variety of synonyms.

Lathyrus aphaca L. Poyldooie tip, Ramsey. 4.1.75. The distinctive leaf-like stipules only were seen by LSG who reported that this is a new record for the Isle of Man and mentioned that "the fresh plant had a conspicuous reddish patch at the base of each stipule", but I could not distinguish this on the pressed specimen.

Origanum virens Hoffmans. & Link. A native of S.W. Europe, found by W. Langham persisting on waste ground near the unused canal at Langley (Bucks.) in 1973. The three small plants were in association with other aliens including three plants of *Mentha pulegium* L. Hb. EJC. Det. EJC and conf. KEW.

Trigonella maritima Del. ex Poir. Wool alien, Blackmoor, (N. Hants.). 13.10.74. Mrs. B. Turner et al. Hb. EJC. Det. R. M. Burton. A native of the E. Mediterranean area and perhaps new to Britain. In flower it looked like a rather large-flowered *Medicago* sp. among which it was growing.

Finale

Please write if you doubt any determinations or disagree with any statements—I welcome criticisms or corrections. Do drop me a line also if you are working on or planning to study any alien genus or species: by means of these columns we may be able to help.

It is not possible to print every record here, but all will be filed for future reference and usage.

I would like to thank all members who sent in contributions and especially J. E. Dandy who very kindly read my typescript and corrected the nomenclature.

Eric J. Clement, 13 Shelford, Burritt Road, Kingston, Surrey, KT1 3HR.

PROBLEMS OF CONSERVING THE FLORA OF BRITAIN

The flora of Britain is threatened: at least a dozen wild flowers have become extinct this century and over 20 of our native species have disappeared since recording began in the 17th century.

These figures are based on a survey which has been underway at the Biological Records Centre for the last six years. The survey also reveals that many of our rarer species are now approaching extinction. A measure of the frequency of species is the number of 10 km squares in which they occur. If we compare the data available from different data periods and exclude extinctions we find that before 1900, 44 species occurred in only one or two 10 km squares. By 1930 the number had risen to 59 and today 110 species are confined to one or two squares. If we take our native flora as having about 1,500 species, then about 7% of our flora is threatened.

There are, too, several species which are declining so rapidly that they may shortly be entering the endangered zone. This is particularly true of species of marshes and wet meadows which are subject to draining: the fritillary, *Fritillaria meleagris*, once known from over 100 localities is now known from only 13, mainly in the upper valley of the Thames. The green hound's-tongue, *Cynoglossum germanicum*, once widespread in S.E. England in woods and on hedgerows is now

known from only seven localities. One of our most attractive weeds of farmland is the cow-wheat, *Melampyrum arvense*, but it is now on the verge of extinction, hanging on in a few hedgerows where it is under constant threat from burning or clearance. Once reported from nearly 50 localities, it is now known from only five.

Overall the survey suggests that we have already lost two-thirds of the localities of our rare species of wild flowers: if this loss is to be halted there is need for comprehensive action. Much progress has already been made and more action is proposed. The rest of this article reviews the present situation.

Means of Conserving our Flora

The first essential is to ensure the protection of the remaining sites of our rare species, but this is a very large task and we need to establish priorities.

At the Biological Records Centre since 1968, in addition to collecting data on the numbers of localities, we have been asking amateur and professional botanists who visit any of the sites of our rare species to complete a simple form on which they record the exact locality, make a sketch map indicating the limits of the population and where possible, count the number of plants. They are also asked for brief ecological notes and, most important, what protection, if any, is already given to the site. We now have c. 850 such forms. From these returns we are acquiring a national picture of the state of each species and can decide for each a threat number based on the following criteria:

- (i) the absolute size of the population(s) in Great Britain;
- (ii) the rate of decline;
- (iii) the attractiveness of the species;
- (iv) the accessibility;
- (v) the present conservation of its site(s).

Each criteria has a weighted scale which gives a maximum threat number of 15.

The threat number makes it possible more objectively than in the past to decide which species are most in need of protection—at the same time as a result of the survey we have removed certain species from the list which had a low threat number and turned out to be more widespread than originally supposed. When the work is complete, county lists of nationally rare species and copies of any population forms available will be sent to the appropriate County Conservation Trust and members of the regional staff of the Nature Conservancy Council (in confidence of course) with the request that they do all in their power to ensure the safeguarding of each of the localities in the list, giving those with the highest threat numbers the greatest priority.

Action at the County Level

You might expect that if a species has achieved the status of being nationally rare that all its sites would already be protected. But this is far from the case. Analysis of the information on our forms suggests that no more than 40% of the localities are in National Nature Reserves or other reserves.

Even if a locality is already a nature reserve the safety of the species is not ensured unless the management of that reserve takes account of the presence of the rare species and the appropriate action to maintain its populations are taken. Wicken Fen can claim to be the oldest nature reserve in Britain, but in its history as a reserve several rare species have been lost including fen orchid, *Liparis loeselii*,

and the bladderwort, *Utricularia minor*, because the importance of peat-digging to maintain certain open habitats was not appreciated.

If a locality is not a nature reserve then it is to be hoped that local conservation organisations will try to acquire the site or, failing that, ensure that the owner understands its importance and allows management to be carried out where necessary. Local action is most likely to be successful; personal contact with an owner or tenant can often succeed where official letters fail. It is hoped that, within the next twelve months, a new tool will be available to assist local initiative in the form of a book listing all the rare plants in Britain and, for each species, indicating past and present distribution (not including exact localities, of course) and the rate and probable cause of decline. It should be the first of a series of Red Data Books for Britain, others are due to follow for all the major groups of plants and animals. Published statements like 'now only known from two localities in Britain' may be valuable ammunition when talking to a farmer who owns the site of one of them. And infinitely preferable to describing it as a rare plant.

Even when conservation organisations are successful, control over a site has been acquired, and an effective management policy put into operation, there is still the problem of the general public. The more attractive the site and the smaller its area the greater the problem. Not only is the species exposed to the unscrupulous but, if the habitat is fragile, the plant may be destroyed by too much trampling by the very well wishers most keen to protect it. The site of the military orchid now befits the name of the plant it protects. There is an unclimbable perimeter fence with barbed wire at the top, and visiting is confined to particular open days. Similar precautions have to be taken to guard lady's slipper in its one known British locality—it is watched day and night in the flowering season.

Action at the National Level

Special precautions to protect rare species would not arise if the public were better behaved and better informed about the need to respect rare species and leave them where they find them. We need a change in attitude to collecting—a change which has been brought about in the bird world in Britain in the last 20 years by a combination of legislation and publicity.

This Society made a start a few years ago by producing a *Code of Conduct* for its members, particularly aimed at restricting collecting instincts to species which will not be harmed. The most important clauses say: members will not pick or collect any material of nationally rare species; members will not collect specimens from any Nature Reserve, Nature Trail or National Trust property without official permission; members will not collect specimens of any species in any locality in which it is scarce; when living material of rare or local species is required for experimental work, members should raise it from seed or cuttings whenever possible.

The *Code* also includes warnings about the dangers of large numbers of botanists visiting or photographing the site of a rare species, and the 2nd edition incorporates a list of rare species not to be collected for England and Wales, Scotland and Ireland.

A popular version of the *Code* was prepared by our Society in 1970 for European Conservation Year and with financial assistance from the World Wildlife Fund 130,000 have been distributed—an enormous operation which, in the end, can only have reached a quarter of 1% of the population. One of the main messages of this

code is 'Leave wild flowers for others to enjoy', and it is this message which is at the heart of our present campaign to change attitudes. The intention is not to prevent picking altogether but to create an awareness that, particularly where a large number of people gather together for recreation, it just is not possible for everyone to collect flowers in quantity without destroying the amenity which they go there to enjoy.

The campaign is supported by our two posters—the first carrying that simple message 'Please leave wild flowers for others to enjoy' and a second directed specifically at our endangered species headed 'Save these Flowers' and illustrating 20 of our scarcest and most attractive wild flowers. These are now being distributed by the B.S.B.I., the Council for Nature, the County Conservation Trusts and the World Wildlife Fund. If these posters were on every school and parish notice board, they could bring about a significant change in attitudes.

But persuasion is not enough and this Society has long been of the opinion that legislation is necessary to support the work of the conservation organisations and give teeth to all the other actions being taken to protect wild plants. There is no general law against picking or uprooting flowers in Great Britain though in most counties bye-laws exist which make it an offence to dig up plants in places to which the public has access. These bye-laws are largely forgotten and there is no evidence that a successful prosecution has ever been brought. In recent years the Thefts Act and the Criminal Damage Act have included plants as property so that an owner or the police could take proceedings where plants are stolen or damaged but the Acts are clearly intended to cover plants having a commercial value to the owner, either real or because they enhance his property, and were not framed to cover scientific value.

So for many years a Wild Plant Protection Working Party (W.P.P.W.P.) drawing its members from the B.S.B.I., S.P.N.R. and Council for Nature worked on a Bill to present to Parliament—and at last ten years after their work began it seems possible that their labours will be rewarded. After a first attempt to get a Bill through the House of Commons in 1967 failed, a new Bill was drafted which was adopted by Lord Beaumont of Whitley, a Liberal Peer, who introduced it into the House of Lords on 21st January, 1974, where it received an unopposed second reading. Although lost with the dissolution of Parliament which followed soon after, a revised Bill, incorporating several improvements, suggested after consultation with the Department of the Environment, was again introduced to the Lords by Lord Beaumont on 21st November, and had an unopposed second reading. At this point Mr. Peter Hardy, M.P., a frequent spokesman on conservation matters in the Commons, drew first place in the Ballot for Private Members and agreed to promote the Wild Plant Protection Bill combined with the Wild Creatures Bill which had been introduced to the Lords by Lord Cranbrook on the same day as the Wild Plant Protection Bill. The combined Protection Bill had an unopposed second reading in the Commons on 24th January, and there seems no reason why it should not become law by the middle of 1975.

If the Bill becomes law as at present drafted, then under clause 4 it would be an offence for anyone other than an authorised person without reasonable excuse to uproot any wild plant (excluding fungi and algae). As an authorised person includes the owner, the tenant or his agent, or anyone who is given their permission, the law would not prevent anyone from weeding his own garden, or digging a trench across

a playing field. The Bill is aimed at controlling those unscrupulous people who go into the countryside with trowels at weekends to dig up primroses and anemones to take back to their own gardens. The primrose has almost disappeared from woodlands in the London area as a result (and the same process follows the development of any new area for housing).

However it is the fifth clause of the Bill which mainly concerns us in relation to endangered species. This "if . . . any person without reasonable excuse picks, uproots or destroys any protected plant he shall be guilty of an offence."

The protected plants are listed in a Schedule which at present includes only 21 species—these are those included in the large poster, with the exception of fritillary, pasque flower and alpine catchfly, and the inclusion of three ferns (*Woodsia alpina*, *W. ilvensis* and *Trichomanes speciosum* and fingered sedge, *Carex digitata*. The list is not long and no doubt every botanist can think of species he would add, but the Minister will have powers to alter the schedule on advice from the Nature Conservancy Council, and it is felt that the important thing at this stage is to have a Schedule accepted, howbeit based on all the evidence available.

As it stands this clause still gives problems for it would be a defence for anyone charged with picking, uprooting or destroying these species, that it was an incidental result of an operation which was otherwise lawful—and this of course allows agricultural operations to proceed unhindered—and agriculture has been the main cause of the decline of species in the past. So it is still hoped that an amendment will be accepted which will make it the function of the Nature Conservancy Council to inform all owners or occupiers having scheduled species on their land, and then make it obligatory on the owners to give notice of any action which they propose which could lead to the destruction of the plants. This would give time for discussion and then, if all else failed, a rescue operation could be mounted to move the plants to safety.

Rescue operations need a force to carry them out and an organisation to receive and maintain the material. This is where botanic gardens are beginning to play an increasingly important role. Their function in conserving living stocks of known origin is now widely appreciated. Not only can they hold and build up stocks of endangered species, but they can help to reduce the pressure on wild populations by acting as sources of supply to botanists who would otherwise collect their material from the wild. So at B.R.C. we are collaborating with botanic gardens and private individuals to produce a register of living material of nationally rare species. When we know what is in cultivation already we shall ask gardens to take responsibility of obtaining material of populations of rare species not yet being grown and build up and maintain these stocks. Once this has been done we hope that all those wishing to work on any species in the list of those not to be collected would obtain material for study from the appropriate botanic garden rather than from the wild.

This system would work particularly well for perennials which propagate vegetatively and would remain unaltered genetically in cultivation: but there would be problems both genetic and practical in maintaining annuals and biennials in this way. So, for these species agreement has been reached with the Royal Botanic Gardens, Kew, that they will maintain stocks of seed in their seed bank: where, under carefully controlled low temperature conditions, seed remains viable for decades rather than years.

If material from the remaining sites of our diminishing rare species are safely in cultivation or stored as viable seed we shall at least be certain that the potential genetical and physiological interest of these usually isolated populations has not been lost to science for ever.

If material from all localities of rare and endangered species can be propagated successfully, another possibility for their protection arises. If the site of a species is temporarily destroyed or endangered the species can be removed and subsequently reintroduced after the danger has passed. If the site is permanently destroyed or in danger of destruction it is also possible to introduce the species to an apparently suitable habitat in the immediate vicinity. The kinds of danger involved includes the laying of pipe lines, construction of motorways and creation of reservoirs. However these introductions should only be carried out when the need is absolutely clear and with the approval and guidance of the appropriate conservation organisation, and they must be fully documented.

There are many naturalists sympathetic to the aims of conservation who wish to carry the idea of introductions further and spread rare species at will through the countryside. There are, however, strong arguments against introducing populations to new areas without very careful consideration of all the biological consequences. Unless there is complete certainty that the species concerned is absent from the area the mixing of a native and an introduced population could seriously affect the results of genetical experiments. Introductions also seriously affect work on distribution studies of species. B.R.C. is trying to establish the native distribution of all our plants: and any indiscriminate introductions undermine that work. Finally it must be remembered that whilst we *are* concerned about saving the species, if this was our sole concern this could be carried out adequately in botanic gardens and we would not need nature reserves at all. What we are trying to save is the species in its natural community. If we take the attitude that species can be conserved by moving them to other sites where they have never apparently been native we weaken the case for saving the sites where it is native.

Rare plant species are often relicts surviving in restricted ecological niches. The opportunities for them to spread to other suitable habitats are minimal. Thus a site lost now is usually a site lost for ever. The challenge is immediate and extremely urgent as losses are occurring every year.

But it is a challenge which every member can help to meet—especially now that we are about to have a Wild Plant Protection law in this country for the first time. Put one of our posters in your car and another in the window of your house: give some to your friends and make sure the local schools have copies prominently displayed. More posters are available from Oundle Lodge, Peterborough, 15p the large, 10p the small, post free.

As soon as, but not until, the Bill becomes law post a letter to your local paper, using the information in this article, telling the public how the Bill particularly affects your area (name any species in the schedules which occur nearby but not their localities, of course).

Make sure your local education authority and the County Trust produce a 'Plants You May Pick' booklet for your county. Ideally this would include a copy of the Code of Conduct and the main clauses from the Bill.

If the challenge is met in all these ways by all members then I feel confident that our endangered wild flowers will survive; but *everyone* must contribute: the law is not an end but a beginning.

F. H. PERRING
*Biological Records Centre,
 Institute of Terrestrial Ecology,
 Monks Wood Experimental Station,
 Abbots Ripton, Huntingdon.*

CONFERENCE REPORTS

Stocks of some volumes are now very low. The following may still be obtained from E. W. Classey. Numbers 1, 2, 3, 4, 5, 6, 7, 8, 13 and 14.

STOP PRESS

The recent discovery of a species of *Gagea* new to Britain might lead to a rush of visitors to the site. This could not only endanger this species, but seriously harm the habitat itself which includes several other rare or local species. The attention of members is drawn to our *Code of Conduct*, especially the section on Visiting. The plant grows on private property, which should, on no account, be entered without permission.

MARY BRIGGS

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