BSBI Recorder

www.bsbi.org.uk

Newsletter for BSBI County Recorders
February 2002

Alex Lockton

The Vyrnwy Aqueduct in Montgomeryshire
This canal contains about 90% of the British population of *Potamogeton compressus* but is subject to a planned restoration project that would enable motorised boats to use it. Off-line reserves and translocations have been proven not to work, so the *P. compressus* is almost certainly doomed. The only other significant site for this species in Britain is the Grantham Canal, which is also being restored.

Including…
BSBI Volunteers Officer advertisement
News from the BSBI
Progress with the Threatened Plants Database
A new MSc programme in Biological Recording
How to cope with Records Centres and the NBN

Plus requests to contribute to the BSBI Literature Database and the Arable Weeds Survey 2002.

BSBI

Contents

Contact details

For information about the Volunteers Officer post, contact:
Ailsa Burns, 3 Rosliston Road, Stapenhill, Burton-on-Trent, Staffordshire
01283 568136

For information about the Threatened Plants Database, contact:
Alex Lockton, 66 North Street, Shrewsbury, SY1 2JL
01743 343789
coordinator@bsbi.org.uk
or dial up to the web site, www.tpdb.org

For information about the society's other activities, contact:
David Pearman, The Old Rectory, Frome St. Quintin, Dorchester, Dorset, DT2 0HF
01935 83702

BSBI Web Master: Alan Hale, adhale@bryos.co.uk

News from the BSBI

David Pearman

We have just been informed that we have been successful in a joint bid to the Heritage Lottery Fund with Plantlife. From our side, this will mean funds for a post to, *inter alia*, work better with the county recorders, promote County Rare Plant Registers, look for species that appear to be on the edge of "Scarce" or "Rare," and work out how (and how many) of our members become involved in monitoring. It will also involve some re-run of the Monitoring Scheme, but we still have to make detailed plans on that.

The post was advertised on February 13th in The Guardian (see also the back cover of this newsletter). Please could all readers cast their minds over any of their colleagues and see if you can think of anybody suitable – and then tell them and tell me! Closing date for applications is 5th March 2002.

County Rare Plant Registers

BSBI Executive and Records Committee are terribly keen on the promotion of these, both for the obvious reasons, and also as a way of:-

a) Helping to stimulate recording locally. We imagine that many counties will need to supplement book work with field work to update older records, or records of rarer plants that are relatively frequent in you vice county, but have previously only been recorded by, say, tetrads. At last we are preparing a list of members in each v.c. and hope to let you have these by April. It should be possible to let the v.c. recorders in the less populated counties have these lists by region, or surrounding vice counties.

b) Helping some v.c. recorders to get started. We should be able to provide any v.c. recorder with a list and details of all the plants in the BRC database, checked to the VCCC. That would give us and you a basic framework.

c) Integrating with the TPDB. As explained in more detail later in this newsletter, the TPDB is our flagship Ecological Database, and needs to be fed with far more detailed information than the traditional distribution database. Rare Plant Registers are a first (easy!) step towards our future recording activities.

d) Showing the conservation people both nationally and locally that we are the experts with the information. At the moment it is too easy for conservationists to ignore good science because the information is not being made available to them in an accessible form – we need to correct that situation if we want to get government money working for the good of plants rather than for the good of conservationists (sorry, only joking!).

The salient points from the Guidelines for Rare Plant Registers are given later in this newsletter. The full document is available on the BSBI web site or from the coordinator.

Reintroductions and translocations

One of the really scary lessons of the Atlas was realising just how many species have been dealt with in this way – probably as many as 100 species. Far more worrying is that no register of reintroductions and translocations exists anywhere, except for the small number of species on the Threatened Plants Database. Even organisations like English Nature, at a national level, have no knowledge of what may have been reintroduced locally.

There are widely divergent views about the ethics and the reasons for reintroduction. Mine is purist and simplistic: "don't do it." But to do it, and not document it, seems ludicrous. Many of the instances that we found out about in the New Atlas were quite fortuitous, and heaven knows how many species have "benefited" from this, encouraged by BAP targets. I would very much like to hear the opinions of recorders. One of our bids to the Country Agencies is to set up a country-wide register of reintroductions.

National Biodiversity Network

There is a great deal potentially going on, with new staff based at BRC, and initiatives in SW England and elsewhere. It is very difficult to summarise and possibly too early to make any conclusions, but I feel I need to say something.

The NBN Gateway

Briefly, this is a development housed at BRC which aims to put all BRC data on a web site. Access to this site is password controlled, with us able to grant access to our own members. In theory it would be possible for a v.c. recorder to view all of his or her data held at BRC and, in a separate development, be able to correct it or add to it. When this works it should make an enormous change to our data access and verification procedures. We have given permission for our data held at BRC to be used for the pilot project.

Local Records Centres

When the NBN concept was launched there were ambitious plans to create new LRCs and upgrade existing ones, with what I perceived to be a marginal role for our v.c. recorder network, which was slightly ironic since we are "quite good at producing records and acting as experts in identification." Two years on the picture is more blurred, although English Nature are funding a SW England Pilot Project which seems to involve requests to our recorders to hand over all their records. Similar initiatives are under way across Britain, and are at least under discussion in Ireland.

Broadly, I feel we wish to cooperate, and on my good days I feel that you can set up all the conventions and concepts you like, but we continue to provide both the expertise and the new records. But we do feel strongly that, if a county recorder is to co-operate with an LRC, they should do so with the utmost caution, especially over the ownership and retrieval of their records. At the end of the day, a county recorder's responsibility is to make sure that they are able to provide the Society and their successor with the information that we need to do our job.

Our coordinator, Alex Lockton, can provide support for recorders who want to collaborate with an LRC. This involves the LRC depositing with us a copy of at least all the botanical records, for safekeeping and quality control. In this way we can be assured that we will be able to fulfil future activities, rather than finding out too late that the database has been lost, corrupted or otherwise made unavailable to us. Please bear this in mind – as county recorder, you are custodian of our records, and we depend on you, not anyone else, to look after them carefully.

Biological Records Centre

Again, plans are still fluid, but we should be receiving our promised copy of the entire Vascular Plants Database early this year. This will enable us to service enquiries, mainly from those county recorders without web access, and plan projects on a county or regional scale.

We intend, this year if possible, to expand our data collection capabilities, in conjunction with BRC, and will issue clear instructions (wishes?!) on what data we would like from county recorders, and in what form (Pink Cards, computer disks, or whatever), now that the Atlas is over.

Plantlife

At the moment, we are trying to see if we need to be more formal in our relations with Plantlife, who now have 20 staff, particularly in relation to our county recorder network.

In the last ten years, many of our recorders have helped Plantlife "Back from the brink" staff, including Ro Fitzgerald, Tim Rich, Liz McDonnell and Phil Wilson. I think it has worked well, and in recent years Plantlife have been excellent in feedback and acknowledgement. They have now appointed Welsh and Scottish officers, who will inevitably come into contact with our recorders in areas where botanists are a lot thinner on the ground. I'm sure we wish to help, and I do feel it would be nice to know their plans when they have evolved them. I'm sorry if this seems laboured (or vague, or both!), but I feel our county recorder network is our jewel, and I just don't know whether

the growth of NBN funded LRCs (creating, if you like, a parallel store of records in many counties), the appointment of Plantlife paid officers (inevitably calling on our expertise), and the continuing growth of the number of paid consultants individually or collectively represent an opportunity or a challenge, or a threat! Certainly, to read the internal plans and strategies of some of these organisations, they believe that the days of the traditional naturalists societies are over, but I have not seen much evidence of that yet. Our advice to our recorders is to keep doing your job to the best of your ability, and with a proper degree of independence, and do not put too much store in other people's grand plans.

Consultants & payments

I've mentioned this before, but I promise we will write guidance notes this spring!

BSBI Recording Strategy

Alex Lockton

One of the roles of the BSBI in the 21st century will be to contribute towards an understanding of ecology. With hundreds of millions of pounds of public money now being invested into conservation management, the BSBI is desperately needed to give sound scientific advice on how that money can best be spent. Our task for the last hundred years or so was to show where plants grow; now we need to move beyond these large-scale phytogeographical studies, and look more towards a small-scale, ecological understanding of plants.

At a recent Records Committee meeting we discussed this question. Do we want to become a more ecological society, or should we stick to our traditional, relatively simple task of ticking lists for ten kilometre squares? With reservations about whether the membership would endorse such a change in emphasis, the committee universally welcomed the idea in principle.

The next question is therefore for the county recorders. Would you like to take on a new challenge of studying ecology? It would not mean abandoning everything done in the past – distribution data is essential background knowledge. We would keep on doing all the things we do already, but we would add a new perspective, to collect lots of additional information about plants.

If you are keen – or opposed - please let us know. Of course many members have been doing this sort of thing for years, decades, even. Some of the definitive ecology texts are County Floras such as Gordon Graham's *Fl. of Co. Durham*, Charles Sinker's *Fl. Shropshire*, and Ronald Good's *Fl. Dorset*, but there is a lot more we could be doing. The new Atlas is a wonderful opportunity. We can see it as the stimulus we need to look at other aspects of plant distribution. The archaeophyte / neophyte issue is one that will challenge us considerably for the next few decades, and there are many other interesting spin-offs to consider.

Guidelines for County Rare Plant Registers

Approved by the Science & Research Committee

The categories for inclusion in a CRPR are as set out in Farrell & Perring 1996. No species should be included if it is not native to the vice-county or thought to have expanded its range into the vice-county by anthropogenic processes (except under rule 7 below). In practice this is often a matter of judgement, and some species are likely to be present both as natives and as garden escapes. Where a difficult choice has to be made, the facts as known can be set out in the text, allowing the reader to come to an informed decision. It is important to include under each entry – and preferably in a summary table – which category each species qualifies under.

1. Internationally Rare

It is very useful to give a full account of those species which are characteristic of a particular area, or even endemic to it. The current definition of an internationally rare species is any which:-

- is endemic to Britain. This includes endemic hybrids involving alien taxa. It might be argued that such alien endemics are of lower conservation importance than native ones, but they should be included and then the details can be explained in the text.
- is of restricted distribution internationally, and has its status recognised by some international standard such as the IUCN Red Lists, the EU Habitats Directive, or the Bern Convention. Wherever possible, the global distribution of these species should be described in the text of the CRPR and the importance of the local population evaluated.

2. Nationally Rare

The third edition of the British Red Data Book, by Martin Wigginton, should be used for this. It is probably the Nationally Rare species which are most vulnerable to damage caused by plant hunters and collectors, so it is entirely justified if a CRPR does not give detailed locations. The reasons for this can be explained in the text.

3. Nationally Scarce

In many cases it is the Nationally Scarce species which are of the greatest interest ecologically, rather than just for their rarity. It is often the case that a few such species are quite widespread within the counties in the middle of their range, and they are sometimes indicators of good quality habitat. It is particularly useful for a CRPR to go into some depth in their analysis of these species, highlighting threats and opportunities for their conservation.

Accounts of the Nationally Scarce species can be found in *Scarce Plants in Britain*. Experience shows that there are often Nationally Scarce species present in a county as casuals or as garden escapes. Such species should be included, even if there are no current sites or if it likely that they are not native to the region, but the entries can be short and should explain the circumstances.

4. Locally Rare

The category "locally rare" is of some interest. It draws the attention of planners and sites managers to species which might be on the edge of their range or for some other reason uncommon within the county. In general it has been used to make up at least half of all the species included in CRPRs.

The original proposal by Farrell & Perring is that a species should be defined as "locally rare" if it was known to be present within three or fewer "sites" within a vice-county. In this context a "site" is a discrete area within a moveable kilometre square, which seems at first glance to be slightly vague but in general is fairly easy to apply in practice.

The number three is convenient to deal with in any size of county, whereas a category that is based on a proportion of the size will produce either very long lists for the larger counties or very short lists for the smaller ones. There is nothing unscientific about this principle – the people in Luxembourg, for example, are just as entitled to draw up lists of nationally rare plants as we are, even though Luxembourg is much smaller than

Britain. It is a consequence of geography that political and social organisation corresponds to other features than surface area, and it is largely to those units of organisation that a CRPR is addressed.

Using this system, Locally Rare species tend to fall into a number of categories:

- Native species which occur in restricted habitats such as ancient woodlands, for instance.
- Casuals, often found on the edge of their range within the county.
- Species which are difficult to identify.

Of these three groups it is of course the first which is of most interest to conservationists, but the second group are well worth including, as information on species on the edge of their range can reveal changes in their distribution. It is a matter of judgement what to do with the third group, which includes many hybrids and critical taxa. There is little point in making a long list of plants that are simply under-recorded, although the inclusion of some of these species can be useful in eliciting new records.

5. Locally scarce and declining

Species which are native, present in 10 sites or fewer, and thought to be in decline. This category is inevitably somewhat subjective, and must be based on the v.c. recorder's judgement, but there is sometimes good reason to include species which are evidently in decline and which may qualify as rare under one of the categories above in the near future. This can be done for a limited number of species, but it is not practical to include too many under this heading. Perhaps a simple list can be given if desired.

6. Extinct

Any species which was formerly native to the county but which is now thought to be extinct there.
It can be difficult to decide which species are extinct and which have simply not been recorded for a while. The IUCN suggests that an absence of 50 years is appropriate, but recording effort must also be taken into account. The county recorder is probably the best placed person to make such a decision, so the most helpful thing is for them to do so. Any uncertainties can be explained in the text. It is particularly valuable to research the old records to find species which became extinct a long time ago, as they are often very interesting from an ecological point of view.

7. Alien species of particular interest

Any non-native taxon that is present in three or fewer sites in the vice-county which has been established for a long time and which is of particular cultural, historical or ecological interest.

This clause recognises that there are species which are not native to Britain but which are worth including. Among these are the arable weeds which may have been present for centuries and which are often the focus for conservation initiatives, but which may not be truly native. It is also reasonable to include some plants that may have been deliberately introduced – for example the old Whitty Pear (*Sorbus domestica*) of the Wyre Forest would have been included under this category in a CRPR for Worcestershire even before it was discovered to be a native species.

It is best not to have too many species included under this category, and it must remain up to the author what to include. One possible guideline would be to include everything relevant that is listed in the 18th century *Flora* of the county, if there is one.

BSBI Bibliographical Database

Mike Walpole & Chris Boon

The BSBI database, compiled at the University of Leicester over the last twenty years, is one of the most popular and useful parts of the BSBI web site. It contains four important data sets:-

1) A taxonomic checklist, continuously updated, which forms the basis of botanical recording in Britain. This is the list used in Stace's *New Flora of the British Isles*, although on the web site it contains more information on synonyms, Gaelic names, etc., than you will find in the book.
2) A literature database, consisting of published references to the British Flora. For many years this information was compiled by Douglas Kent and published annually in BSBI Abstracts.
3) A cytology database, consisting of detailed information about the chromosomes and genetics of British plants.
4) The Vice County Census Catalogue (not yet available on the web), which keeps a running total of all the species properly recorded in each vice county, together with its status there (native, planted, etc).

We now need people to help with the literature database, and are making plans to decentralise it by networking across the internet. We hope recorders and other volunteers will be persuaded to contribute references from local publications. For now we would appreciate it if members could send us some abstracts from local publications for incorporation into the database. What we are looking for are summaries of papers published in local periodicals (not *New* or *Watsonia*, as we already cover those). If people would complete the form below in the way illustrated by the example, it would help us to judge the level of response we might get; alternatively, please send us a photocopy of any article or a copy of your local journals for us to extract the information from.

Item	Example	
Author	Rackham, O.	
Date	1992	
Title	Gamlingay Wood	
Reference	Nature in Cambridgeshire 34:3-15	
Taxa mentioned in text	Quercus Fraxinus Primula Hyacinthoides	
Vice County/ies	29	
Abstract	Examines the history and ecology of Gamlingay Wood from 1086 to 1992.	

Please return completed forms to Michael Walpole
68 Outwoods Road, Loughborough, LE11 3LY

Rare plant recording

Alex Lockton & Sarah Whild

When a botanist sees a rare plant, they need to be aware that there are a small number of techniques that they can use to record it. A person does not just invent a new recording procedure each day, depending on their whim. In the same way, a troop of soldiers who find themselves confronted by a tank do not sit down and debate which weapon might be best under the circumstances. They immediately spring into action and set up their armour-piercing missile-launcher, or whatever it is they use these days.

Like soldiers, or any other professional for that matter, botanists have a number of tried and tested methods for doing their job. The good ones know all these techniques and set about them straight away. They are all quick and efficient, if you know what you're doing. Here are some of the techniques used by rare plant researchers:-

Individual record

This is the quickest and simplest. You can do it under almost any circumstances, even while out walking with a bunch of non-botanical friends. The TPDB record card is ideal for this. There are just five steps: 1, record the species (identifying it properly!). 2: record the location with a six-figure (or, if you have a GPS, 8-figure) grid reference and a site name. 3: note down the date – day, month and year. 4: note down your own name. 5: make any other observations you have time for – population size, anything that you think might be useful.

Vegetation sample

Otherwise known as a quadrat or a relevé. You can come across all sorts of variations of this, but beware of diluted versions. They seem easy, but they're almost useless. If you are going to record phytosociology, do it properly. Otherwise, you can save time by making an individual record.

A vegetation sample is, ideally, an NVC quadrat. This varies in size from 2m x 2m in short grassland to 50m x 50m in a wood, but in each case the principle is the same: record all species in the sample, and measure their abundance using a scale such as Domin or percentage cover. The advantage of vegetation samples is that they can be compared with each other. If people invent their own procedures, this comparability is lost, so it is best not to. There is also a loss if the samples are not recorded thoroughly. All botanists should familiarise themselves with vegetation sampling techniques. Have a look at the *Flora of Co. Durham* if you need examples.

Full site list

This is another extraordinarily useful technique, but a lot of the benefits are lost if it is done half-heartedly. At its best, you need to visit the site at least twice during the year, and record as many species as you can. Notes on the abundance and distribution of the more interesting species certainly helps. Site lists are given in many county Floras – see, for instance, Edees' Fl. of Staffordshire, or Primavesi & Evans's Fl. Leicestershire. To the ecologist, these lists are far more useful than any number of distribution maps or species accounts.

These three techniques make up the bulk of good recording of rare plants. If we could have just one of each for every rare plant locality in Britain, we really would know something about these species. At the moment, we have nothing comparable to this. The most important thing, however, is to be absolutely clear in you mind which technique it is you are using. Most of the data available to the Threatened Plants Project is collected half-heartedly – short site lists, too small a quadrat, or individual records without date or detailed grid reference. If anyone wants any advice or suggestions, please don't hesitate to get in touch.

Pillwort, *Pilularia globulifera*

We have as complete as possible a data set for Pillwort, thanks in part to the work of Clive Jermy, who has looked at specimens in almost every herbarium in Britain, and has visited many sites. Particularly good recent data is available for the New Forest area, where our recorder, Pete Selby, is ably assisted by a very active Flora Group; but many other people take an active interest in this species, and have been good enough to send in regular reports. In Britain there are 84 hectads in which it is known to occur since 1990, out of an all-time total of 286 squares. At the tetrad level, there are 164 current squares out of a total of 516. By either measure this is a "decline" of about 70%, although of course there has never been a period in which it has been found in all its sites.

Given the quality of our historical information and our active monitoring programme, the next thing that needs to be done is to explore its ecology further. An interesting questions is whether *P. globulifera* is a mobile species. It certainly seems to crop up in new sites such a reservoirs and gravel pits, and can act as a pioneer. In some years it is very abundant, but in other years it can appear to be entirely absent.

It turns out that the NVC gives us an excellent clue about its precise habitat requirements. Probably the main vegetation community for it is called OV35 *Lythrum portula-Ranunculus flammula* community. The plants in this type of vegetation can often survive for years, or even decades, entirely submerged, but a key feature is that they are occasionally exposed, especially during exceptionally hot, dry summers. This is the opportunity for many of the plants to flower and set seed (or produce spores, of course, in the case of *P. globulifera*), and there are a number of really quite rare species which favour these conditions.

Unfortunately, in some sites it is very difficult to catch the vegetation in this state, so we are entirely dependent on County Recorders and local botanists to seize any such opportunity to record properly. Plants to look out for include *Alopecurus aequalis*, *Littorella uniflora* and *Elatine hexandra*. For those with a bryological interest, I suspect that *Physcomitrium sphaericum* and *Aphanorhegma patens* might well form a part of this vegetation.

This seems to account well for many of the known sites for Pillwort, in reservoirs and lakes, and goes some way towards explaining why it grows in some parts of a lake and not in others. Sue Scott, who has looked for it in numerous lakes in Scotland, has observed that it is often restricted to the shallow muddy areas at the point where the burn enters the loch. Could these areas actually be exposed during some dry years? It can be very difficult to tell from a visit when the water level is typically high.

But there is apparently another community in which Pillwort occurs. This is, on the face of it, an entirely different type of vegetation altogether, the M29 *Hypericum elodes-Potamogeton polygonifolius* soakway, typical of the edges of mires and flushes in mountain areas. It is very much more acidic, and although probably susceptible to periods of drought, certainly not subject to the same degree of inundation. I have far less information about it in this vegetation community.

Using the TPDB, we can look at the species recorded within each site that Pillwort grows in. Some 589 such sites are listed, and a total of 14,000 records of associated species are given. Sometimes these are records deliberately collected as "associates" and sometimes they are not, but an analysis like this often seems to work. The top 20 such associates are listed below:-

The top 20 species associated with *Pilularia globulifera*

Species	No. of sites
Ranunculus flammula	101
Juncus bulbosus	92
Juncus effusus	84
Juncus articulatus	78
Agrostis stolonifera	77
Hydrocotyle vulgaris	76
Galium palustre	71
Eleocharis palustris	69
Apium inundatum	68
Littorella uniflora	66
Lythrum portula	62
Eleogiton fluitans	62
Glyceria fluitans	55
Mentha aquatica	54
Potamogeton polygonifolius	53
Carex nigra	53
Juncus acutiflorus	50
Equisetum fluviatile	48
Molinia caerulea	46
Hypericum elodes	45

My guess is that, of this list, *Potamogeton polygonifolius*, *Molinia caerulea*, *Hypericum elodes*, *Carex nigra* and possibly *Galium palustre* are characteristic of M29 mire vegetation, while the rest are all from the OV35 inundation community. It suggests that the OV35 is a more significant habitat for Pillwort than mires are, but we do need more data.

Information like this can be really useful in conserving a species. It is possible that many of the *P. globulifera* sites in the Midlands were damaged by the stabilisation of water levels in lakes, often to protect water supplies, or for fishing. Even conservation management plans often call for water levels to be stabilised. Is this always appropriate?

So please gather information about associated species and habitat if you have any *P. globulifera* sites near you. Does it fit the descriptions of either of these communities? And please watch out for dry summers, when reservoirs are drawn down, and the submerged vegetation has a chance to thrive. There must be many regional variations, for example in Cornwall I suspect it rains enough in the winter for ruts in farm tracks to provide the same sort of habitat, whereas in the east of England only a much more sizeable water body would do.

Purple Ramping-fumitory, *Fumaria purpurea*

There was very exciting discovery in 2001. It is something of a Holy Grail to rare plant researchers to be able to predict where their species might grow, and then find it there. Hardly anyone actually manages it, and the rare plant files are full of pointless expeditions to look for species in likely places. However, last year precisely that was accomplished by one of our top *Fumaria* spotters, John Crossley, who is an agricultural ecologist in Orkney.

F. purpurea is a particularly difficult plant for a variety of reasons. It is extremely difficult to identify, and we always want specimens to support any new finds. It also grows with other, almost identical, species of fumitory. In Cornwall it is a hedgerow plant, rarely, if ever, growing in arable fields. But in the north, from the Scottish border as far north as Orkney, it is almost exclusively an arable weed, often growing among root crops and in garden vegetable plots. It does not occur in Shetland at all. In the Welsh Marches, where it was first discovered, it was a hedgerow plant, but it has completely disappeared. In Wales there are only a few records for it as a casual, in waste places such as along railway lines.

Quite what determines its strange distribution no-one knows, but Crossley observed that the fields in Caithness, where it had never been recorded, were very similar to those in Orkney, where it is well known. I told him that the BSBI would by no means fund such a speculative expedition, as it was a very long shot indeed, so I was mortified and delighted when he and Ken Butler did

indeed find it! Congratulations are definitely due for an excellent bit of detective work.

Please continue to look out for interesting fumitories, and never neglect to take a specimen. It's entirely possible that the taxonomy could be revised one day, when the molecular geneticists get to work on the genus, and if that happens, specimens will be very necessary.

Grass-wrack Pondweed, *Potamogeton compressus*

It looks likely that this species will soon be moving from the Scarce to the Rare category, as recent results show that it may now occur in just nine sites in Britain and fewer than 15 hectads. In Scotland it was formerly known in a series of lakes in the lowlands, but has not been seen there for a decade or so; in England there are some eight known sites for it – four canals, two oxbow lakes, and two ditches in grazing marshes; and in Wales there is just the Montgomery Canal, but this holds some 90% of the entire British population. There are a couple of sites in Northamptonshire where Gill Gent assures me it was definitely present recently, but apart from that we have no recent records for anywhere else in Britain. Glen Cooper, recently of the University of East Anglia, has been particularly helpful in searching Norfolk sites.

Current sites

Montgomery Canal, v.cc. 40 & 47
Ashton Canal in Manchester, v.c. 59
Shugborough Park, v.c. 39
Oxbow of the River Dove at Marston, v.cc. 39 & 57
Grantham Canal west of Grantham, v.cc. 53 & 55
Grand Union Canal at Aylestone, v.c. 55
Grand Union Canal at Watford Locks, v.c. 2
South Walsham Marshes, v.c. 27
Upton Marshes, v.c. 27

The vegetation community in which Grass-wrack Pondweed occurs is almost certainly A11 *Potamogeton pectinatus-Myriophyllum spicatum* community, which does not tell us much, because it is a very widespread and diverse community. It seems that the majority of clear water macrophyte assemblages are assigned to this community, from lowland English rivers and canals, to lochs in the Outer Hebrides. It is not obvious why *P. compressus* should be so restricted in distribution within this community.

In an attempt to gain some understanding of its ecology, we have been collecting community data at every site where it occurs or used to occur. Standard NVC quadrats would not be applicable, as you would have no idea where to record them in sites where it was not found – and, anyway, in some of these sites there are almost no aquatic plants at all. So what we decided to do is record all the plants in the water and on the banks for a stretch of about 100m. There is some sense in this: for example, you can tell something about the trophic status of the area by the abundance of nitrogen-requiring plants such as *Urtica dioica* on the banks. In fact, from initial results, there seems to be a strong negative correlation between *U. dioica* and *P. compressus*, not all that surprisingly.

One pleasant surprise was to discover that other botanists have used this technique before. In Primavesi & Evans's *Flora of Leicestershire* there are habitat studies of four canals, one of which actually had *P. compressus* in it. Pat Evans tells me that the habitat studies were the hardest bit of the *Flora* to do, but I would like to assure all future *Flora* writers that these ecological bits are the most valuable and enduring work they could possibly do. I found another such canal study by D.E. Coombe amongst the JNCC's rare plant files, where a stretch of the Basingstoke Canal had been covered in the same way in the 1950s; and a similar study of the Prees Branch Canal by Charles Sinker about the same time. And, most usefully of all, a complete survey of the Montgomery Canal by Jonathan Briggs and colleagues in the 1980s gives what I am sure is the best data ever collected on a canal ecosystem.

Analysis of all this data might well produce some useful findings, and I am hoping a student at the University of Wolverhampton will be taking on this challenge for us. What

I hope for is the ability to predict which water bodies might contain *P. compressus*, which are declining in quality (i.e. the plant is under stress) and which might even be suitable for reintroduction, if it comes to that. So far all attempts to conserve *P. compressus* have failed completely, and The Waterways Trust is currently restoring all the canals where it occurs. This will inevitably lead to the elimination of some 99% of the remaining population unless some sort of suitable ecological management can be devised.

Maiden Pink, *Dianthus deltoides*

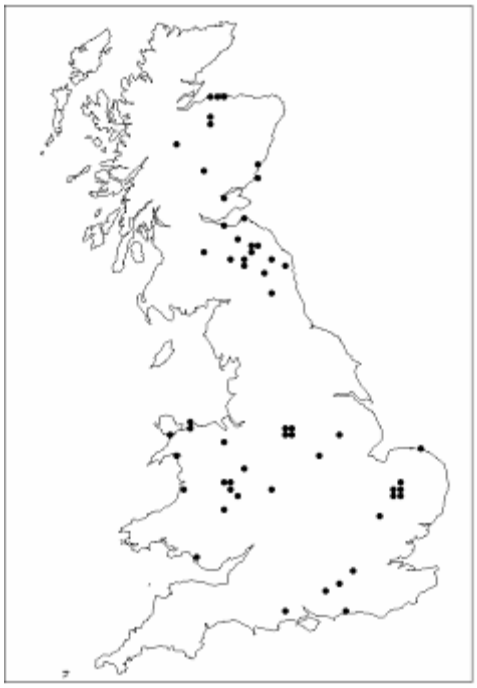
I appealed for records of *Dianthus deltoides* and got a superb response from the membership, including new records for 10km squares. Thank you! County Recorders can view all the records for their counties on the BSBI web site – just follow the links to the TPDB and select *D. deltoides* records in your patch. However, I did not get any ecological data this way, and I hope I can persuade recorders to fill in some of the gaps.

Unlike so many of our rare and BAP species, *Dianthus deltoides* is a native of a typically native habitat. It grows in short grazed grassland over outcrops of Dolerite; on sandy soils in coastal and inland locations; and on eroded river shingles and cliffs. These habitats would always have existed since the last Ice Age, so it seems safe to assume it is a truly wild plant.

It has experienced a severe decline in recent decades. Even including all introduced populations and garden escapes, the number of hectads in which *D. deltoides* is recorded has fallen from 273 before 1990 to just 62 since then – nearly an 80% crash. If you take 20th century records only, the number has fallen from 205 to 62 – a 70% decline. If you exclude the introductions, there may now be fewer than 56 10km squares for this species left in Britain, and that is made up of only 73 tetrads. This places it firmly within the Scarce category, and it is declining fast.

Not all the dots shown below are for sites where it is accepted as a native in the forthcoming Atlas, but I do wonder how these decisions are made. What would be most useful is an ecological description of the sites in which it occurs. A list of all species within 1m or so would be useful, plus a fuller list of everything else growing in the same habitat. If anyone can describe the geology as well, that would be ideal.

Dianthus deltoides in Britain. Post-1990 records only, for natural or semi-natural locations.

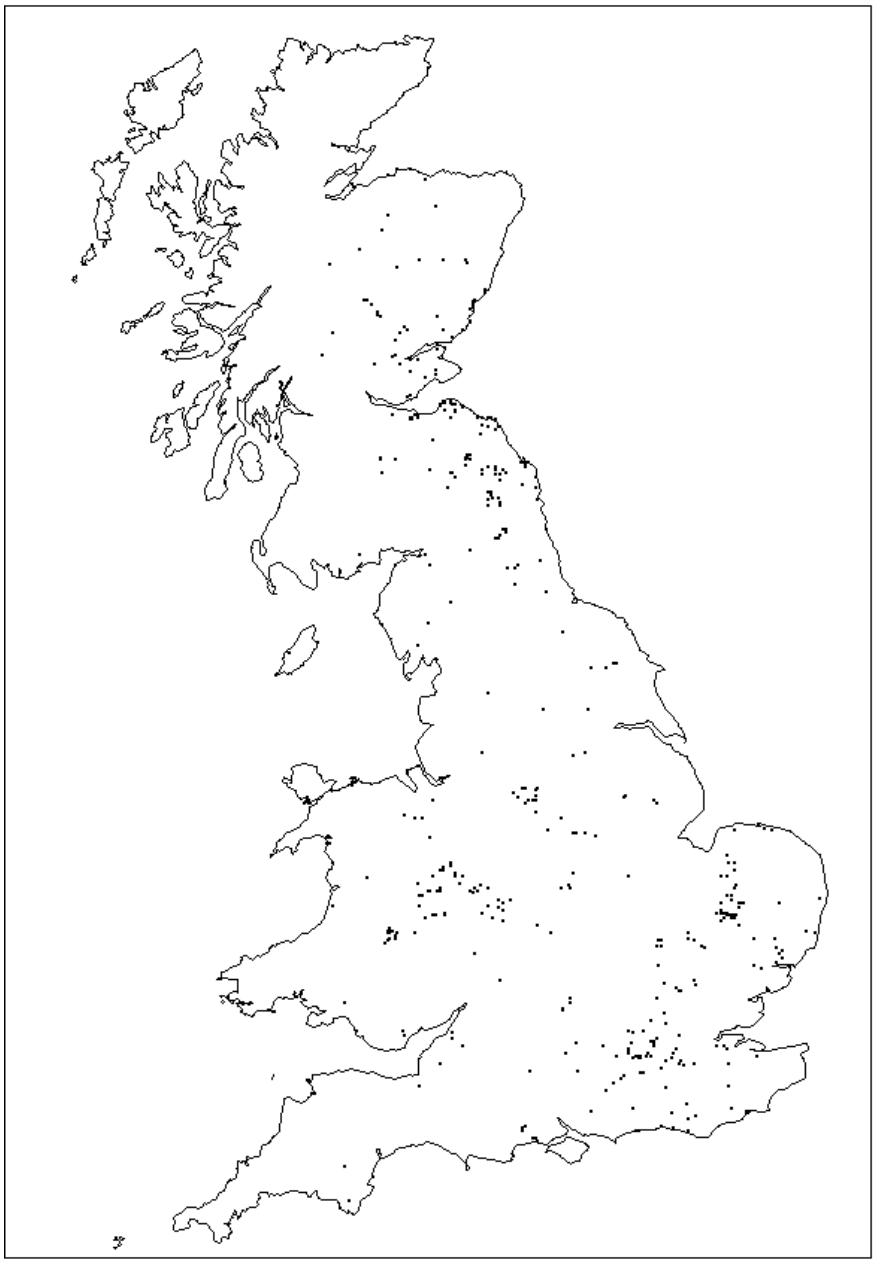


If we do not understand the ecology of a species such as *Dianthus deltoides*, we have no real chance of conserving it. Being a typically British plant (not Irish, I'm afraid, but more Scottish and Welsh than English) it is of course omitted from the BAP and the Red Data Book, which tend to concentrate on archaeophytes and other aliens of greater rarity. The problem with being omitted from the Biodiversity Action Plan is that there are no legal instruments to encourage conservation. This is reflected in the fact that, although the government is spending huge sums on money on agricultural subsidies to conserve upland grasslands in

AONBs and other conservation schemes, most of this money goes into high-nitrate intensive farming of these grasslands, to encourage *grass* – i.e. *Lolium perenne* - rather than the native vegetation that one would expect them to conserve. And, of course, *Dianthus deltoides*, possibly the most characteristic species of upland acid grasslands, is never mentioned by DEFRA at all. This is an opportunity for the BSBI to provide information that has real value, but which no-one else can provide. Please see if you can visit your nearest *D. deltoides* site next year and let me know everything you can about it.

One final request, if I may? Please look out for *Orobanche rapum-genistae* in the vicinity of *Dianthus deltoides* – in the same general area, that is. I would like to know if there is much similarity in their habitats.

Thank you.



Dianthus deltoides (all records)

MSc in Biological Recording

Sarah Whild

It is a common complaint of employers and students alike that identification skills are rarely taught on undergraduate ecology programmes. To get to the level where ID skills are of any practical use would take a large proportion of the entire syllabus, and there are so many other skills that are a higher priority. Nevertheless, a lot of people are now working in jobs where some botanical knowledge is useful and really good botanical knowledge would be a real asset. The sad truth is that you could get away with being a local records centre manager or even an Area Officer in one of the Country Agencies without knowing a sedge from a sedge warbler, but many of the more talented people in such jobs are keen to take up natural history knowledge as part of their continuing education programme, and many employers are willing to pay for this.

The joint initiative between the BSBI, the University of Birmingham and the Field Studies Council has filled the gap very nicely. The programme has now been expanded to three more levels of academic achievement, leading eventually to a MSc in Biological Recording. The first intake of fourteen students onto the MSc programme took place last year. Students attend for nine weekends a year and are required to study such subjects as managing data, research techniques, databases, and other aspects of academic study. The identification of difficult plants is also obligatory (there are lower plant and invertebrate options too); but we're not talking critical groups here – that may always have to be a non-vocational calling! One particularly popular subject is the formulation of scientific argument.

The benefits to the BSBI are two-fold. Firstly, many of the students join the society and contribute to its activities. Secondly, the standard of botanical work is enhanced by good-quality training, often delivered by members of the BSBI. The environmental sector (in particular biological recording) has grown so rapidly in recent years that it wouldn't be possible to find enough people with the right skills, but this life-long learning approach seems to be the right one.

For more details, contact Linda Marsh at the University of Birmingham, The Gateway, Chester Street, Shrewsbury SY1 2JL Tel. 01743 355137 L.Marsh@bham.ac.uk.

The Arable Weeds Survey 2002

Alex Lockton

The arable weed survey in 2001 was hampered by foot & mouth , but several recorders still sent in results. One of our ambitions for the survey was to collect data from all over Britain & Ireland, and I am pleased to say that we received data from, among other places, Cornwall, Kerry and Caithness, so that objective looks realistic. As far as I can ascertain, there is no other arable data set with comparable coverage. The first stage for us is to establish which species can occur in fields throughout this area, then we can look for the fields with the widest, or largest, populations of them. And finally, we can monitor particular fields to see how they change over time.

There is not going to be a full-scale arable survey in 2002, but a small band of enthusiasts has formed and we shall continue to work on this subject. This is one of the advantages of undertaking thorough surveys of properly localised fields – they will always be repeatable, and it does not matter whether they are done simultaneously or not. It is very robust data. Basically, the secret is to record all the plants in the ploughed part of the field, with notes on abundance and anything else of interest.

Arable site recording form

Use this form if you want to – any piece of paper, with the same information, will do.

Name of Farm	Status SSSI / CWS / other:
GR of field	Vice county:
Recorder's name(s)	
Date(s) of survey	
Size (ha) and description of field	
Management	
Ownership details	
Crop	
Any other information	
Species list	

Please return completed forms to Alex Lockton, 66 North Street, Shrewsbury, SY1 2JL

Threatened Plants Database

Alex Lockton

We still need your help with records for the Threatened Plants Database. The database itself is fully ecological, holding site information for any rare plant locality. This includes, where possible, full site lists (preferably of all vascular plants, bryophytes and stoneworts) and NVC communities. Each site has a short description of a few lines.

The following list shows all the TPDB species, and records of these are always greatly welcomed. Please note that records must be sent to the coordinator, Alex Lockton, and not to BRC at Monks Wood. All the data on the TPDB is made available to county recorders, the Country Agencies, and to the BRC; but records do not flow so well in the other direction. So if you don't want to send in records twice, please send them to us! In most cases, Local Records Centres would charge us for access, and we can't afford that, so sending records to them does not do the job, either.

If you would like to see more of the TPDB, a sample of the data can be viewed on the web site, available via the BSBI home page www.bsbi.org.uk or directly www.tpdb.org. This web site gives you *full* details of all records of half a dozen species, including *Pilularia globulifera* and *Dianthus deltoides*.

The structure of a database as complex as the TPDB creates great confusion among people who are only familiar with simple mapping software. The 'black & white' certainties of the Atlas are replaced with a whole range of greys. Did the original recorder mean *here* or *there* when they wrote "opposite New Inn?" If Lord de Tabley left the county in 1873 and died in 1874, is it reasonable to leave the date of his Cheshire records as 1899, or should we move them back to one of the earlier dates? And do we believe any or all of Miss Hillard's Hayling Island records?

Your input is vital for this process. It is astonishing what information can turn up when you start looking closely at the data. Many questions take time to resolve. It can be a challenge to realise that the data in the Atlas – which we have always assumed was perfect and true – can be as much as 40% incorrect at the 10km scale and over 90% incomplete at finer scales; but this opens up a fascinating new opportunity to make a real contribution to botanical knowledge. Please, carry on recording and researching the old records, and keep sending us information of all sorts.

The TPDB Species

(in checklist order)

Chara baltica
C. canescens
C. connivens
C. curta
Lamprothamnium papulosum
Nitella gracilis
N. tenuissima
Nitellopsis obtusa
Tolypella intricata
T. nidifica
T. prolifera
Lycopodiella inundata
Diphasiastrum complanatum
Isoetes histrix
Ophioglossum lusitanicum
Pilularia globulifera
Trichomanes speciosum
Asplenium trichomanes ssp. *pachyrachis*
Athyrium flexile
Cystopteris dickieana
C. montana
Woodsia ilvensis
W. alpina
Dryopteris cristata
Juniperus communis
J. communis ssp. *communis*
J. communis ssp. *alpina*
Nuphar pumila
Pulsatilla vulgaris
Ranunculus arvensis
R. reptans
R. ophioglossifolius
R. tripartitus
Adonis annua
Fumaria occidentalis
F. reuteri
F. purpurea
Ulmus plotii
Chenopodium chenopodioides
C. vulvaria
Atriplex pedunculata
Arenaria norvegica ssp. *norvegica*
A. norvegica ssp. *anglica*
Minuartia rubella
M. stricta
Holosteum umbellatum
Cerastium nigrescens
C. fontanum ssp. *scoticum*
C. brachypetalum
Sagina nivalis
S. saginoides
S. boydii
Scleranthus perennis ssp. *perennis*
S. perennis ssp. *prostratus*

Corrigiola litoralis
Herniaria glabra
H. ciliolata
H. ciliolata ssp. *ciliolata*
Polycarpon tetraphyllum
Spergularia bocconei
Lychnis viscaria
L. alpina
Silene otites
S. gallica
S. conica
Petrorhagia nanteuilii
P. prolifera
Dianthus gratianopolitanus
D. deltoides
D. armeria
Persicaria mitis
Koenigia islandica
Polygonum maritimum
Rumex aquaticus
R. rupestris
Limonium binervosum agg.
Armeria maritima ssp. *elongata*
Elatine hydropiper
Hypericum linariifolium
Lavatera cretica
Althaea hirsuta
Tuberaria guttata
Helianthemum apenninum
H. canum ssp. *levigatum*
Viola rupestris
V. canina ssp. *montana*
V. lactea
V. persicifolia
V. kitaibeliana
Frankenia laevis
Salix lanata
Matthiola sinuata
Arabis glabra
A. alpina
A. scabra
Draba aizoides
Cochlearia officinalis ssp. *scotica*
C. micacea
C. atlantica
Thlaspi perfoliatum
Coincya monensis ssp. *monensis*
C. wrightii
Phyllodoce caerulea
Erica ciliaris
E. vagans
Pyrola media
Moneses uniflora
Diapensia lapponica
Primula scotica
Ribes alpinum
Crassula aquatica
Saxifraga hirculus
S. rivularis
S. cernua
S. rosacea ssp. *rosacea*
S. cespitosa
Rubus arcticus
R. trelleckensis
R. dasycoccus
Potentilla fruticosa
P. rupestris
Alchemilla glaucescens
A. monticola
A. subcrenata
A. acutiloba
A. gracilis
A. minima
Pyrus cordata
Sorbus domestica
S. pseudofennica
S. arranensis
S. leyana
S. minima
S. anglica
S. leptophylla
S. wilmottiana
S. eminens
S. lancastriensis
S. vexans
S. subcuneata
S. bristoliensis
Cotoneaster cambricus
Astragalus alpinus
Oxytropis halleri
O. campestris
Anthyllis vulneraria ssp. *corbierei*
Lotus angustissimus
Ornithopus pinnatus
Vicia parviflora
V. bithynica
Lathyrus palustris
Ononis reclinata
Medicago polymorpha
Trifolium glomeratum
T. strictum
T. incarnatum ssp. *molinerii*
T. bocconei
Cytisus scoparius ssp. *maritimus*
Genista pilosa
Lythrum hyssopifolium
Ludwigia palustris
Buxus sempervirens
Euphorbia peplis
E. villosa
E. hyberna
E. platyphyllos
E. serrulata
Polygala amarella
Eryngium campestre
Scandix pecten-veneris
Bunium bulbocastanum
Sium latifolium
Seseli libanotis
Meum athamanticum
Physospermum cornubiense
Bupleurum falcatum
B. baldense
B. rotundifolium
Trinia glauca
Apium repens
Petroselinum segetum
Selinum carvifolia
Peucedanum officinale
Tordylium maximum
Torilis arvensis
Centaurium scilloides
C. tenuiflorum
Gentianella ciliata
G. anglica
G. anglica ssp. *cornubiensis*
G. uliginosa
Gentiana pneumonanthe
Gentiana verna
G. nivalis
Polemonium caeruleum
Lithospermum purpureocaeruleum
Echium plantagineum
Pulmonaria obscura
Myosotis alpestris
Cynoglossum germanicum
Stachys germanica
S. alpina
Galeopsis segetum
G. angustifolia
Teucrium chamaedrys
T. scordium
T. botrys
Ajuga chamaepitys
Clinopodium menthifolium
Thymus serpyllum
Mentha pulegium
Salvia pratensis
Limosella australis
Veronica fruticans
V. triphyllos
V. verna
V. spicata ssp. *spicata*
Melampyrum cristatum
M. arvense
M. sylvaticum
Euphrasia rivularis
E. vigursii
E. pseudokerneri
E. cambrica
E. marshallii
E. rotundifolia
E. campbelliae
E. heslop-harrisonii
Bartsia alpina
Rhinanthus angustifolius
Orobanche purpurea

O. rapum-genistae
O. caryophyllacea
O. reticulata
O. artemisiae-campestris
Pinguicula alpina
Campanula patula
C. persicifolia
Phyteuma spicatum
Lobelia urens
Galium constrictum
G. pumilum
G. tricornutum
G. parisiense
Linnaea borealis
Lonicera xylosteum
Valerianella rimosa
V. eriocarpa
Cirsium tuberosum
Centaurea cyanus
C. calcitrapa
Arnoseris minima
Hypochaeris glabra
H. maculata
Scorzonera humilis
Lactuca saligna
Cicerbita alpina
Crepis foetida
C. praemorsa
Pilosella peleteriana ssp. *peleteriana*
P. peleteriana ssp. *subpeleteriana*
P. peleteriana ssp. *tenuiscapa*
P. flagellaris ssp. *bicapitata*
Hieracium tavense
H. radyrense
H. asteridiophyllum
H. cambricum
H. cillense
Filago lutescens
F. pyramidata
F. gallica
Gnaphalium norvegicum
G. luteoalbum
Pulicaria vulgaris
Aster linosyris
Erigeron borealis
Artemisia norvegica
A. campestris
Otanthus maritimus
Chamaemelum nobile
Senecio paludosus
S. cambrensis
Tephroseris integrifolia ssp. *maritima*
T. palustris
Homogyne alpina
Luronium natans
Alisma gramineum
Damasonium alisma
Hydrilla verticillata
Scheuchzeria palustris
Potamogeton nodosus
P. epihydrus
P. rutilus
P. compressus
P. acutifolius
Najas flexilis
N. marina
Zostera marina
Eriocaulon aquaticum
Juncus compressus
J. capitatus
J. pygmaeus
J. filiformis
Luzula pallidula
L. arcuata
Eriophorum gracile
Trichophorum alpinum
T. cespitosum ssp. *cespitosum*
Eleocharis austriaca
E. parvula
Scirpoides holoschoenus
Schoenoplectus triqueter
Blysmus compressus
Cyperus fuscus
Schoenus ferrugineus
Kobresia simpliciuscula
Carex appropinquata
C. vulpina
C. muricata ssp. *muricata*
C. chordorrhiza
C. davalliana
C. elongata
C. lachenalii
C. depauperata
C. flava
C. ornithopoda
C. humilis
C. filiformis
C. atrofusca
C. rariflora
C. buxbaumii
C. norvegica
C. recta
C. microglochin
Leersia oryzoides
Festuca longifolia
Poa flexuosa
Koeleria vallesiana
Deschampsia setacea
Corynephorus canescens
Hierochloe odorata
Calamagrostis purpurea
C. purpurea ssp. *phragmitoides*
C. stricta
C. scotica
Mibora minima
Phleum phleoides
Bromus interruptus
Anisantha madritensis
Cynodon dactylon
Lloydia serotina
Gagea bohemica
Polygonatum verticillatum
Maianthemum bifolium
Muscari neglectum
Allium ampeloprasum var. *babingtonii*
A. sphaerocephalon
Leucojum aestivum ssp. *aestivum*
Asparagus prostratus
Romulea columnae
Gladiolus illyricus
Cypripedium calceolus
Cephalanthera longifolia
C. rubra
Epipactis youngiana
E. leptochila var. *dunensis*
Epipogium aphyllum
Spiranthes aestivalis
S. romanzoffiana
Liparis loeselii
Hammarbya paludosa
Dactylorhiza incarnata ssp. *cruenta*
D. incarnata ssp. *ochroleuca*
D. lapponica
Neotinea maculata
Orchis ustulata
O. militaris
O. simia
Himantoglossum hircinum
Ophrys sphegodes
O. fuciflora

Alex Lockton

Fumaria purpurea at Duck's Nest Hill, Trebellan, Cornwall
Is it an arable weed, or is it a hedgerow plant? That depends on whether you are in Scotland or England. In Scotland it grows in arable fields and vegetable gardens, whereas in southern parts of England it prefers the undisturbed soils of ancient, species-rich hedgerows. In Wales it is only known as a casual plant of waste ground.

BSBI Volunteers Officer

£20,000 per annum

The Botanical Society of the British Isles, the Society that gives all who enjoy wild flowers the opportunity to share their enthusiasm, is seeking to employ a botanist with good experience of plant recording to energise its recorders network to deliver "Making it Count for People and Plants," a three-year joint project with Plantlife.

BSBI

The post-holder will co-ordinate the generation of rare plant registers at county level and their monitoring, and will co-ordinate a repeat survey of the BSBI Monitoring Scheme for indicator species.

The post-holder is likely to be based at home, with some flexibility as to hours worked. To receive an application form please apply to the address below. The closing date for applications is 6th March. Interviews will be held in London on 20th March.

Ailsa Burns, 3 Rosliston Road, Stapenhill, Burton on Trent, Staffordshire, DE15 9RJ

bsbihongensec@aol.com

Supported by the Heritage Lottery Fund