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Spring 2007



A.J. Lockton

Potamogeton ^x*gessnacensis* G. Fisch. (*P. natans* L. × *P. polygonifolius* Pourr.)
at the Loch of Gards, Scatness, Shetland.

Data for the hybridization project needs to reach us by April 2007.

BSBI Recorder

A newsletter for county recorders, referees and herbarium curators in the Botanical Society of the British Isles

Spring 2007

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Summary information

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Some of the feedback we received last year included a request for a summary the duties of recorders and referees in an easily-digestible form so, at the risk of being autocratic, here goes...

- Send us a **feedback form** about your recording, refereeing or herbarium activities. You can write what you like, but some headings are suggested on the enclosed form, which can also be downloaded from the web site – look for the hyperlink for the county recorders section on the home page. Recorders in the Republic of Ireland will receive their newsletters from Caroline MacDaeid and should send their feedback forms to her at the address given.
- Send your records in for **Watsonia** each year, even if it is just one or two. In brief, the idea is to keep the Vice County Census Catalogue up to date, so if you get any exciting finds in the county, do publish them. A form can be downloaded from the web site, complete with instructions. The records should be sent to Mike Porter, not to BRC, as in the past. Pink cards are acceptable.
- Think about preparing a **County Rare Plant Register**. This is a long-term initiative for the BSBI, and we feel that all recorders should be able to keep an eye on the rarities, at least, in their county from decade to decade. Bob Ellis is available to provide help on Mondays to Wednesdays each week.
- We have no national **projects** running this year, so there are no specific demands from us, but there are lots of voluntary initiatives that you might participate in, including the Irish Orchids Project, the *Carex maritima* survey, Site Floras, and drawing up lists of axiophytes to help with nature conservation.
- If you are computerised at all, please send me a backup of your database each year, or sync your files regularly to Bob Ellis. The data will find its way to the **Maps Scheme**, where you can view the maps of all species. If you are not computerised at all, then please think seriously about how you will cope in future. Nearly all county recorders now have email, and almost all our data management is electronic... for now we can accept some hand-written or typed lists for the AUP, but not too many.
- **Referees**, please consider saving and passing on any interesting records that come your way. We can establish a database of your specialist subject for you, allowing you to produce maps and helping with any publications you write. Contact me (Alex) to submit or receive records.
- **Herbarium curators** should now be seriously thinking about making their herbarium virtual through the use of Herbaria@Home or their own database-driven web sites. Not only does this slash the cost of computerisation, but it makes the collection infinitely more usable and accessible. Our recorders are keen to see the results of herbarium digitization, so please let us know if you are starting. Taking the photographs is quick and costs very little.

Keep an eye on our web site, www.bsbi.org.uk. Here you can find useful resources such as help files for Mapmate, digitized papers from Watsonia, News and Proceedings, electronic versions of the Plant Crib, and up-to-date distribution maps of all species of vascular plants and charophytes. Field meetings are advertised on the web site, and news items about the activities of the society. Do please send us details of important events of your own to promote, such as any book launches or conferences: with 5,000 people a month visiting, this is good publicity.

News

David Pearman

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Welcome to this issue – each year Alex and I think must do at least twice a year, but time never allows – perhaps next year!

Over the last few years we have tried to move from a passive provider of records, handing over to BRC almost entirely as a response to particular projects, towards an active encouragement to VCRs to deposit data with us. This is for the Society's benefit to allow us to see as up-to-date a picture as possible (projects like the Maps scheme – aka Atlas Updating project), or for passing onto BRC (for incorporation into the Vascular Plant database and onto the Gateway) or for custodial purposes (computers do break down and most of us die at some point!).

I do not allow myself to say this often but I do think, thanks to our team, our *de facto* Plant Unit, and considering we are handing millions of records on an absolute shoestring, using largely our own money, that these last few years have seen a giant step forward. Of course we have been aided by the phenomenal growth of personal computers, by super new software programmes such as MapMate, by projects like the Atlas, Local Change and hybrids, by the resurgence (in some quarters at least) of interest in Museum herbaria, but for about £30k a year of core funding we have the bones of a sustainable system.

New Head of R&D

After the lacuna of Gabriel Hemery's departure we have refocused, decided our priorities need to be more tangible, and have just appointed as his successor a new Head of Research & Development, Kevin Walker, currently working as an HSO at CEH, Monks Wood. He is our joint VCR for Hunts, author of a number of papers in *Watsonia* (for instance on extinctions and floristic change) and a great number elsewhere. He will start about June (a special dispensation to allow him to finish his PhD and his share of the *Flora of Rum!*), and will be responsible for putting flesh onto our Review (adopted by Council in November and available, electronically, to any member), principally by assessing what we have, what we need, and how we can best inform the country conservation agencies as well as our fellow conservation societies. His post is for an initial three years, largely, again, using our own funds but with many hopes of outside support, but we envisage the job as being permanent.

Projects

We have no major project this year, other than the continuation of initiatives such as County Rare Plant Registers, together with a host of small ideas from Site Surveys to Axiophytes. The first and major job for Kevin and his team will be to work on our strategies for recording and monitoring Rare and Scarce plants, in conjunction with the new Red List, and Michael Braithwaite has already done much preparatory work on this. Most of you will be aware of the fundamental changes in approach that this Red List encompassed, and there is a wealth of work to do. I should point out that I was the BSBI's representative on this group (though all the others are members too), and just want to place on record that I completely disagreed with the concept of altering the list on a yearly basis. I think this is a recipe for confusion, and I think it distracts from the huge amount of work that the 2005 list highlighted as necessary or desirable, and the limited amount of time and money to do it. My wish was to amend once every five years, as a minimum.

Internal work

We have to build on and support the initiatives we have started. We need to resolve how we deal with records on the MapMate hub – that is how to separate those that are 'work-in-progress' such as regular synchronisations, and those that are meant to be records for 'publication', that is ready to go to BRC and the Gateway. Does this apply to the Maps Scheme too? We have to make further steps towards ensuring VCRs submit each record only once. Computers help here, but also hinder in that the same records come to and fro in slightly different guises! We work closely with BRC, as the operator of the jointly run VPDB and

conduit to the Gateway, but the huge flow of data threatens to overwhelm them! We are actively exploring how to update the Vice County Census Catalogue (VCCC), and Mike Porter from Cumbria is cautiously taking this on.

How we hold your data

We have taken the opportunity to issue a clear, simple statement of what we do with your data (see below) and must, this year, revise the various standard guidance notes we issue such as support for VCRs and agreements with LRCs.

This possibly sounds all a bit bureaucratic, but I am quite sure that if we ask you to do things then we have to support you and show you how we are doing this and using your fabulous data! Whilst I am possibly the person to enthuse, my admin skills are less certain (B+), and are certainly stretched (C). I look forward to handing on the baton (A+!!) and take this opportunity to thank the superb help from Alex, Bob, Jim and Quentin, and to welcome Kevin.

Email addresses

At Records Committee we discussed publishing County Recorders' email addresses, and agreed that these could be listed in the Yearbook if we had permission from the recorder in question to do so. One reason we are reticent about publicising lists of email addresses too widely is because we are worried about other organisations and consultants treating our network as a free source of data. Sometimes, for example, we negotiate reciprocity agreements with people before handing over data, which can be done centrally, but not by 159 individuals. So if you do want your email address published in the next Yearbook, please let me know, and we will see how it goes.

Data submission from VC Recorders

Until recently, BSBI has only handled data electronically, other than for projects such as the new Atlas and for the hybrid scheme, as completed data sets (e.g. county floras) to be incorporated into the Vascular Plant Database (VPDB) or as a backup on behalf of vice-county recorders.

BSBI is now increasingly receiving data as 'work in progress', e.g. as synchronisations to the MapMate hub or as interim datasets for incorporation into the Maps scheme (AUP) and county rare plant registers.

To encourage the submission of data and to allay any fears about the misuse of work in progress, we feel it is appropriate to make the following clear statement:

Whilst BSBI fully supports the distribution of vascular plant data to a wide audience, current policy regarding data received since the new Atlas, particularly from incomplete datasets, is that such data will not be passed on to any third party (e.g. through the NBN gateway, countryside agency, local record centre) without consultation and agreement with the appropriate vice-county recorder.

When this stage is reached it might be appropriate to agree the level of access for third parties (whether at any finer scale than 10km, or even tetrad).

Existing NBN Gateway arrangements are that we, with their agreement and encouragement, set the access and the resolution of access.

This policy was agreed by Records Committee, October 2006.

Readers may recall that we started the Atlas Updating Project in 2005 in a fairly quiet way, and formally launched it at the Recorders' Conference last year, when we appealed for recorders to send in their data. The idea is to continuously update the distribution maps of all species on-line, because printed Atlases are inevitably infrequent. The response to the project has been great, and the distribution maps are now the most visited part of the web site.

There was widespread support for the plan to rename the AUP the 'Maps Scheme,' after the original BSBI project that was started in the 1950s, but it still gets called the AUP by most people, so the names are interchangeable. About five million records have been incorporated this year, adding 2.7 million dots to the maps. Half of these are actually old records – those made prior to 2000 which didn't get into the Atlas either because the species were not mapped, or because they were not submitted (e.g. from subsequent computerisation projects). The Maps Scheme database now contains 5,327,712 records[†], where each record represents a 10km square on the map for one of the four date classes that are mapped. The full breakdown showing the number of records for each county is given below.

The question we are asking ourselves now is precisely what can we do with the Maps Scheme. It seems most promising for five main uses so far:-

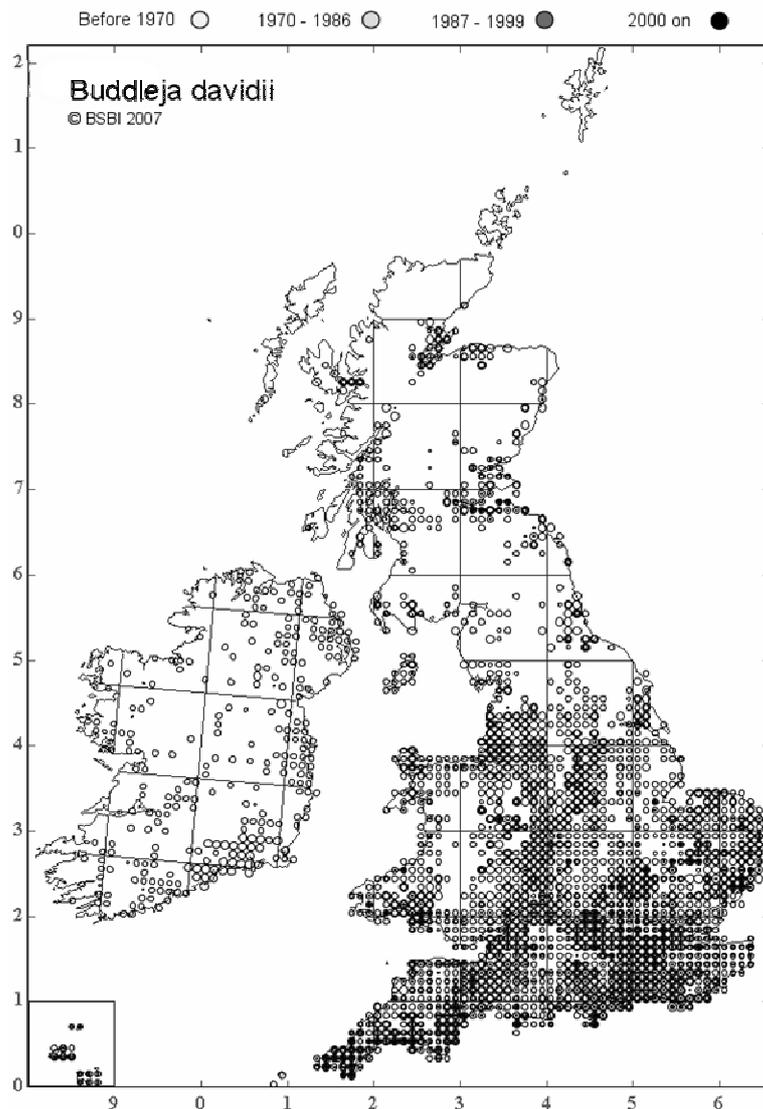
- It is good for spotting errors. Each week we spot half a dozen erroneous dots. This is very useful in helping people avoid mistakes whilst inputting records, although it does mean that any new dots appearing on the web site have to be viewed with caution.
- It is also good for communicating new finds of interesting species. If a researcher wants to know if any new sites have turned up for, say, *Festuca longifolia*, they can look on the Maps Scheme web site and have a look. Although sometimes such new dots turn out to be errors, most of the time they are correct, and this is one of the few ways people can find out about them.
- It is handy in plotting the distribution of species which have been spreading rapidly since the Atlas. It usually is (although not always) aliens that spread rapidly, of course, and there is no other system in existence that tracks their spread.
- It is a good way to display information on obscure and new taxa for which maps are otherwise unavailable. Of course the maps are not always very complete for things like critical taxa, but at least it is a start.
- Finally, it may well prove invaluable as a monitoring process for changes in the flora associated with, for example, climate change. The AUP currently has four date classes, which we intend to increase to five (pre-1930), and of course to add a new DC each decade in the 21st century. This could be a very powerful database for detecting changes and we are already discussing its uses with academics who are interested in using it.

These are 'real' uses of the data, but it is also handy for housekeeping purposes. We can keep track of which counties are actively recording by having a look at the maps and the statistics. There is no obligation on county recorders to continuously submit data, and there are some who have chosen not to send in records for the Maps Scheme – usually because they have just finished a Flora and don't want to start again. But as time goes by it will become more important to update the records for all counties, and this is a way of seeing how well that is going.

[†] NB, some records are not localised to vice county, so this total is slightly greater than the sum of the records in the table of vice counties below.

To date we have had about 50% re-recording of the English counties, compared with the Atlas, and slightly lower proportions for Scotland, Wales and Ireland. This is in a period of just two years of data collection and seven years of fieldwork. We will probably get almost comprehensive coverage of England by the end of the current date class (2000-2009) but not of the other countries. We could therefore, if we wanted, produce new Atlas maps based on ten years' recording in England and 20 years' recording elsewhere. If that process were to be repeated in each decade of the 21st century, it would give us a system for continuously updating the Atlas.

What we shall do, therefore, is to end the current date class as planned in 2009. In the lead-up to that we shall provide some information to county recorders detailing what they have found and not found in each square of their counties since the Atlas. This feedback can be used as a checklist of the county's flora.



Experimental map showing the changes in the distribution of Butterfly-bush, *Buddleja davidii*. Records from the different date classes are shown as concentric circles, the smallest being the oldest records (i.e. <1970) and the largest being the most recent. Large open circles therefore show where it is spreading to, while solid black areas show the core of its distribution. In some places, small black dots show where it has declined after early colonisation (or, possibly, low levels of recording in recent years).

County Recording Statistics

The table below shows how many records have been received by February 2007. The date classes are as follows: DC1 = <1969; DC2 = 1970-1986; DC3 = 1987=1999; DC4 = 2000-2009. The last column shows the percentage re-recording in DC4 compared with DC3. For many counties this score has actually gone down since the last newsletter, as we have received more records for DC3 than for DC4. The numbers show how many dots would appear in an Atlas, so each species can only be recorded once in each square during each time period. Obviously some counties are larger and/or more species-rich than others, so there is bound to be variation between counties.

v.c.	DC1	DC2	DC3	DC4	4/3	v.c.	DC1	DC2	DC3	DC4	4/3
1	19,134	14,004	17,429	11,163	64%	48	9,471	3,328	10,881	962	9%
2	20,839	11,326	23,713	10,822	46%	49	12,128	3,962	19,499	1,166	6%
3	24,979	5,506	35,969	14,890	41%	50	8,565	13,865	18,774	1,592	8%
4	17,751	3,191	25,077	8,389	33%	51	5,686	3,045	7,746	443	6%
5	12,558	3,165	26,057	11,431	44%	52	6,232	2,817	9,287	4,700	51%
6	15,698	4,674	28,009	11,037	39%	53	14,546	4,297	19,839	1,246	6%
7	11,070	1,397	12,192	2,657	22%	54	23,486	6,559	29,285	3,224	11%
8	13,147	3,450	19,874	3,865	19%	55	14,315	5,027	17,905	1,841	10%
9	25,056	10,457	33,650	3,884	12%	56	15,507	2,073	20,198	2,865	14%
10	5,152	2,230	6,701	4,573	68%	57	15,321	5,150	22,154	16,118	73%
11	15,631	3,519	26,260	15,765	60%	58	16,022	3,196	26,315	16,650	63%
12	12,672	4,753	17,668	8,828	50%	59	15,542	2,595	24,263	25,925	107%
13	14,331	1,986	16,549	16,265	98%	60	10,502	3,888	12,559	1,712	14%
14	17,412	3,074	18,201	15,430	85%	61	15,130	5,958	16,431	4,343	26%
15	18,900	6,188	21,303	1,326	6%	62	16,994	3,678	20,385	539	3%
16	13,898	4,453	16,583	3,754	23%	63	14,762	6,317	21,745	3,247	15%
17	21,531	8,915	26,654	14,677	55%	64	17,910	4,799	31,059	1,696	5%
18	11,872	2,613	13,952	6,116	44%	65	12,537	4,666	15,090	2,031	13%
19	16,840	3,627	23,168	2,257	10%	66	15,223	20,252	18,262	11,216	61%
20	13,427	3,337	18,949	2,224	12%	67	17,801	8,012	17,980	7,844	44%
21	11,265	2,708	12,562	3,755	30%	68	11,634	5,319	11,928	5,002	42%
22	18,359	4,563	24,023	22,703	95%	69	13,253	9,811	22,904	2,287	10%
23	12,434	9,769	18,718	1,413	8%	70	19,962	11,802	30,835	2,585	8%
24	14,454	19,079	24,667	8,270	34%	71	6,292	1,398	8,171	73	1%
25	21,732	10,896	20,039	16,314	81%	72	10,724	4,297	12,513	3,640	29%
26	14,312	5,826	14,164	11,653	82%	73	11,664	6,855	16,269	817	5%
27	16,465	3,575	28,011	10,840	39%	74	7,217	3,943	9,425	3,162	34%
28	16,217	3,561	30,816	12,748	41%	75	12,335	2,589	16,517	185	1%
29	18,609	11,894	19,996	1,716	9%	76	2,846	3,726	5,646	442	8%
30	11,168	11,440	14,286	10,508	74%	77	7,867	2,318	14,976	1,088	7%
31	5,052	4,476	7,028	1,484	21%	78	4,865	3,577	5,436	346	6%
32	12,187	3,605	20,872	1,635	8%	79	2,415	956	4,991	1,023	20%
33	10,787	6,100	14,645	8,795	60%	80	8,224	2,713	12,426	2,261	18%
34	12,692	5,387	18,861	9,606	51%	81	8,296	1,676	10,864	4,953	46%
35	6,599	3,083	14,794	1,028	7%	82	5,391	2,067	7,524	1,247	17%
36	10,886	2,886	20,306	2,662	13%	83	6,078	1,859	9,942	489	5%
37	11,791	5,765	24,780	20,832	84%	84	2,436	1,428	4,668	893	19%
38	19,961	3,041	21,568	2,064	10%	85	10,026	5,856	13,961	1,340	10%
39	17,518	4,233	21,833	25,959	119%	86	4,399	1,542	8,745	2,662	30%
40	19,256	19,622	26,256	14,946	57%	87	4,981	7,015	10,701	936	9%
41	13,960	9,536	20,204	1,206	6%	88	13,916	5,044	14,553	2,079	14%
42	8,987	4,939	13,071	438	3%	89	7,347	3,546	11,543	3,037	26%
43	8,304	8,885	10,074	2,074	21%	90	10,842	2,964	13,692	866	6%
44	10,256	2,851	22,677	12,885	57%	91	4,003	952	6,426	4,885	76%
45	11,088	10,019	15,714	1,143	7%	92	9,483	2,556	11,274	3,136	28%
46	8,889	3,885	20,845	2,061	10%	93	6,892	3,223	11,789	6,433	55%
47	8,755	3,595	15,915	1,355	9%	94	8,605	9,183	9,461	6,370	67%

v.c.	DC1	DC2	DC3	DC4	4/3	v.c.	DC1	DC2	DC3	DC4	4/3
95	8,146	3,303	14,772	7,208	49%	211	5,480	144	7,251	1,065	15%
96	18,705	11,094	17,513	1,472	8%	212	9,790	2,285	15,028	5,229	35%
97	16,289	7,158	16,520	3,526	21%	213	3,885	232	2,903	26	1%
98	17,024	2,862	22,328	1,533	7%	214	5,615	251	5,173	5	<1%
99	3,704	1,286	8,305	203	2%	215	5,139	221	6,216	17	<1%
100	5,190	4,086	8,730	2,940	34%	216	8,362	2,199	10,272	73	1%
101	9,799	3,037	12,525	1,429	11%	217	5,837	373	6,629	2	<1%
102	7,322	1,882	11,218	601	5%	218	5,735	76	9,043	25	<1%
103	11,309	3,011	9,645	6,181	64%	219	3,632	2,488	6,499	7	<1%
104	13,852	6,029	14,133	11,348	80%	220	6,824	431	11,034	300	3%
105	12,173	3,024	11,175	1,439	13%	221	3,353	897	8,482	180	2%
106	13,966	6,449	15,711	10,584	67%	222	5,455	357	12,390	115	1%
107	9,217	3,686	8,806	1,560	18%	223	5,824	2,679	9,489	24	<1%
108	11,673	5,077	14,084	5,080	36%	224	2,811	168	5,446	0	0%
109	6,083	7,745	4,652	1,405	30%	225	7,556	178	10,114	3	<1%
110	16,195	3,589	15,129	11,775	78%	226	5,633	369	7,642	3	<1%
111	8,280	3,176	8,147	5,115	63%	227	13,984	291	12,866	60	<1%
112	8,525	4,265	10,360	3,150	30%	228	7,749	354	10,150	49	<1%
113	5,351	1,332	8,422	2,494	30%	229	5,142	566	11,307	21	<1%
201	10,582	835	13,316	4	<1%	230	5,394	125	6,850	0	0%
202	5,399	580	14,525	19	<1%	231	2,376	498	5,421	51	1%
203	10,128	145	16,867	117	1%	232	3,239	442	8,557	456	5%
204	6,004	207	13,118	4	<1%	233	8,514	5,602	13,185	182	1%
205	6,393	196	12,622	15	<1%	234	5,164	180	11,060	1	<1%
206	7,040	1,412	14,385	18,828	131%	235	10,298	451	13,182	1	<1%
207	5,609	190	7,884	106	1%	236	9,600	3,829	22,541	1,384	6%
208	6,108	189	12,057	1,114	9%	237	5,767	2,591	7,671	629	8%
209	8,832	1,243	10,567	27	<1%	238	11,702	8,243	17,241	6,001	35%
210	5,126	1,382	13,553	29	<1%	239	12,136	11,270	18,752	4,987	27%
						240	6,247	4,923	11,755	3,538	30%

Totals

	DC1	DC2	DC3	DC4	DC4/3
England	877,490	353,690	1,190,526	467,627	39%
Wales	118,920	73,810	199,481	31,053	16%
Scotland	368,304	160,644	467,095	128,839	28%
Ireland	269,464	59,092	433,043	44,697	10%
Man	6,292	1,398	8,171	73	1%
Channel Isles	5,351	1,332	8,422	2,494	30%
British Isles	1,645,821	649,966	2,306,738	674,783	29%

Projects

Alex Lockton

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The main activity in the society over the last year or two has been the Hybrids Project, of which the data gathering phase is coming to an end this spring (deadline is the end of March). Many recorders and referees have been absolutely superb in supporting this. We anticipated some 20,000 new records and have ended up with four times that number – a response that has somewhat overwhelmed us. Thank you to everyone who has contributed; too many to list all here, but I would like to mention with gratitude the contributions by Alison Lean, Geoffrey Kitchener and Roger Maskew in particular.

We have no equivalent activity for 2007, but there are a lot of smaller projects to be getting on with. The advance of computerisation has made some things possible that previously were a ridiculous amount of work, and these have been coming to the fore in recent years.

Site Floras are one such activity. In the 1970s there was a flurry of these, as naturalists started documenting the flora of the nature reserves that the new Wildlife Trusts and conservation charities were purchasing. Now it is time to repeat them, and the ability to manipulate the data on computer makes it feasible to analyse changes in the vegetation. A site, for these purposes, is a large but usually recognisable landscape feature such as an island, a mountain or a wood. Tim Rich's Flora of Ashdown Forest is in essence a Site Flora, as is the forthcoming Flora of Rum by David Pearman *et al.* Eric Greenwood published his Flora of the Lancaster Canal recently, and Michael Braithwaite has just completed a second Flora of St. Abb's Head. On the ShropshireBotany web site you can download our repeat of Franklyn Perring's Flora of Attingham Park and our new Flora of Haughmond Hill. These explore the methodology and potential analyses to some extent, and show how such Site Floras can be used for conservation and ecological research.

Another powerful use of computers is to generate lists of **axiophytes** and to use these to inform nature conservation strategies. An axiophyte is a 'worthy plant' – the sort of thing that inspires (in unscientific terms) the comment 'that's nice!' when you come across it. The definition of an axiophyte is a plant that is an indicator of a habitat type that has been identified as a conservation priority. Five counties have now drawn up lists of axiophytes, and they range from about 40% to 50% of the native flora, plus a small number of archaeophytes and neophytes. You can find 100 or more species of axiophyte in a good site, and the changes in their presence and abundance over the years is probably the best way to monitor the effectiveness of nature conservation work.

We need more counties to draw up axiophyte lists. They are mostly going to be plants that are locally uncommon – in 25% of tetrads, or something like that – and restricted to good habitat types. So *Geum rivale* might be a good axiophyte in the Midlands, but possibly too common and widespread in the north-west and too rare and randomly distributed in the south-east. *Circaea lutetiana* is the opposite, being a frequent coloniser of secondary woodland and gardens in the south, and a rare casual in the far north, but an ancient woodland indicator somewhere in the middle. A lot of local knowledge is needed to draw up such lists. When we have enough, we may be able to analyse them further and draw up more detailed guidance.

I have recently started to distribute the **National Vegetation Classification** database to county recorders. Most counties will have dozens or even hundreds of quadrats, recorded using the standard methodology some time in the 1970s and 1980s. The potential for detecting and quantifying change by repeating these quadrats is huge, and there is also scope for much phytosociological work. If recorders add the records to their databases, can you all please use the same reference, which is 'Rodwell, J. (ed.), 1991-2000, National Vegetation Classification.' That would be enormously useful in separating out the records again in future, especially if you flesh out the data with site names, redeterminations, and so forth.

Progress with the *Carex maritima* survey

David Pearman & Alex Lockton

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For the last couple of years we have been collecting information on Curved Sedge *Carex maritima* in the hope of finding out more about its true status. Many recorders have been good enough to spend time looking for it and sending in new records. There were some highly productive surveys during the field meeting in the Outer Hebrides in July, with several new sites, containing thousands of plants, being found. Many thanks to Richard Pankhurst and Paul Smith for compiling the results and sending them on, and to all the surveyors who took part. These new sites added two whole hectads to the distribution map.

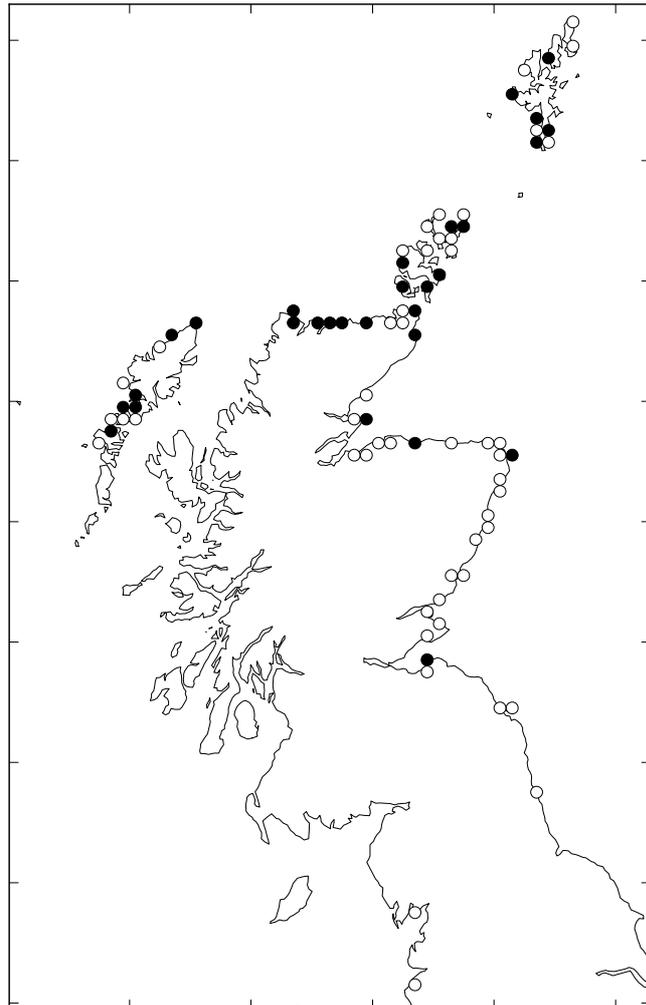
In June Ian Green re-found a population at Lossie Forest in Spey Bay (NJ36) that had last been seen in 1953. Pat & Ian Evans carefully measured the extent of the colony at Faraid Head (NC37) and found it crossed the 10km line into NC36 as well, adding another new dot to the map.

Ken Butler re-found the plants at Bay of Sannick (ND37), where it had been thought lost; and Barbara & Brian Ballinger discovered a new population at Tarbat Ness (NH98) – a square where it had last been seen as long ago as 1842, albeit not in the same place. Other post-2000 updates include Deerness (HY50, Eric Meek) and Sands of Meal (HU33, Sarah Whild & Alex Lockton). The updated distribution map (right) also contains several historical additions and deletions, based on further research into the old records.

The main question we want to answer is whether this species is in decline or not. On the one hand, there are plenty of places where it was recorded in the past and seemingly does not occur now – mostly along the east coast of Scotland and in the more southerly sites. On the other hand, it seems to be doing well in the west and the north, and we know of more sites for it now than at any time in the past. Some of this, of course, must be down to better exploration.

The information is therefore open to interpretation: it could arguably be declining, or simply remaining about stable whilst moving about a bit, or just possibly increasing.

We proposed in the last edition of *BSBI Recorder* (March 2006) that *Carex maritima* is a mobile species that exists in meta-populations that move about in space and occur intermittently in time. We have some direct evidence of it colonising new sites, such as at Helliars Water reservoir on Unst (HP60), where it has been for several years since being inadvertently imported with sand; in a former sand quarry at Traigh Mhor on South Harris (NG09) – arguably a site



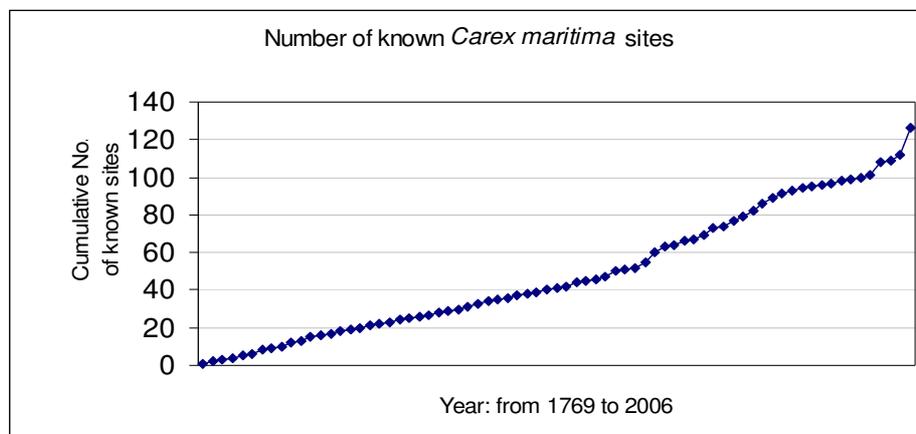
Curved Sedge *Carex maritima* in Britain. Black dots are for current sites (post 2000).

where it might have been already, but certainly new habitat for it; and a roadside on Wideford Hill near Kirkwall, Orkney (HY41), where it grew for a short while after sand was dumped there. At St. Andrews Links (NO51) several large populations were found on the fairways in the 1980s, but they did not last long and it is possible that they were also accidental introductions from the nearby native population. These examples provide evidence of colonisation of new sites, and it is not unreasonable to assume that it gets around by the traditional ‘bird’s foot’ mechanism to new sites on a regular basis.

We also have evidence of its lack of persistence at natural sites. Elaine Bullard documented a place at Hundland on Papa Westray (HY55) where it grew in ‘thick, almost fen vegetation’ in 1965 and has not been seen since. Ursula Duncan recorded a site at Barry Sands (NO53) that was invaded by *Phragmites*. *Carex maritima* usually grows in places where there is fresh water in otherwise unvegetated sand, such as in dune slacks and alongside streams. These are inevitably temporary habitats, prone to either drying out or becoming overgrown by natural succession. The large, hard seeds of *C. maritima* are presumably adapted to surviving for long periods buried in the sand and for surviving long journeys to potential new sites.

So how can we assess the status of a plant that moves around? The traditional system, as used in the Change Index and in calculating the threat status of species is not altogether helpful as it depends on the assumption that all populations are both stationary and persistent.

The only solution would be to monitor the plant for a period of years and decades and see how it gets on. The number of new sites discovered in the last few years suggests that we have not yet found all the populations currently in existence. The graph below shows no sign of producing a plateau, and raises the possibility that there could be many more populations waiting to be discovered. Either that, or new populations will continue to spring up at the rate of about one a year, and many of those will subsequently be discovered.



The rate of discovery of new sites for *Carex maritima*, taking a 1km square as a site. Approximately one site is discovered every two years, and has been since the 18th century. Is this due to colonisation of new sites, or is it just the result of more survey work?

Can we recommend any action to nature conservation organisations, based on the information that is available? Well, it is clearly a Nationally Scarce species with a large number of individual plants – hundreds of thousands, at least. It has declined in certain parts of Britain, but not noticeably so in recent times, so it would be best considered not threatened. For scientific purposes, we need time to study it without anyone attempting to influence the findings, so it is very important that it should not be planted anywhere or deliberately translocated, other than in the traditional, accidental way that it gets about. Therefore there should be a ban on any funding for targeted conservation work if we are to have any serious chance of quantifying its metapopulation dynamics.

Plant Record Notes

Mike Porter

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In the two most recent editions of *Watsonia* (August 2006 and February 2007) just over 800 individual plant records have been published, all relating to 2005 and earlier. I had originally expected to include some records from 2006 but, as things turned out, there were sufficient records from earlier years to fill the space available. This means that records from the year 2006 will appear in the *Watsonia* for August 2007 and, all being well, in that for February 2008. I would like to reach the position of being able to publish most of the records for any given year in the year immediately following but think this might be quite difficult to achieve. It would mean, for instance, a good number of the records for a given year reaching me before the end of October of that year and, since people may well be botanising until well into autumn, this could prove problematic. (My own yearly timetable as Plant Records Editor is to compile the records during May before sending them off to Martin Sanford at the end of that month for inclusion in the August *Watsonia*. Similarly I compile records during November, sending them off at the end of that month for inclusion in the February *Watsonia*.) It would be possible to revert to the system of one set of Plant Records per year, publishing all records in one large batch in the August *Watsonia*. This would make it easier to deal with records from the previous year but would mean a large proportion of that *Watsonia* would have to be devoted to records. My preference is to continue publishing records twice yearly, since checking up to 1000 records in one go is very demanding and makes mistakes more likely. I would be interested to know what Vice-County Recorders think - please let me know if you have strong preferences.

Number of vice-counties represented in Plant Records

Records from 52 different vice-counties have been published in the last two editions of *Watsonia*. This is an encouraging number, particularly as some Vice-county Recorders prefer not to submit records every year but to wait two or three years in order to have a fair number of records to send. This seems a perfectly reasonable approach, although I am equally happy to deal with small numbers of records every year from any given vice-county. On the other hand, I suspect that some recorders who have not sent in records for a number of years may feel that they have too many records outstanding and that sending in such an extremely large number would lead to flooding the system. I think the best way to deal with this situation is just to send records for one or two years, either the earliest years for which no records have been submitted, or the most recent. However, it is possible to incorporate a large number of records from one vice-county; this has been done several times in recent issues of *Watsonia*. The important thing is to ensure as wide a coverage as possible - for the interest of botanists countrywide and also to make those BSBI members who have submitted records feel that their efforts have been recognised.

Omissions and errors

If a record you sent in has been omitted from Plant Records this is probably for one of two reasons:

- 1) It does not fit in with the guidelines set out in the introduction to Plant Records in each *Watsonia*: 'First records of all taxa (species, subspecies and hybrids) included in the VCCC, designated as native, archaeophyte, neophyte or casual.' In other words varieties and forms and second records are not included.
- 2) It has been planted. The question of plantings is a vexed one with many grey areas and will no doubt continue to exercise record keepers for many years to come. My aim will be to try to follow the statement in the VCCC: 'Records are those of plants found in the wild in natural or man-made habitats, but not those planted in gardens, formal parks, council plantings or similar sites.'

I fear that in the past I have not always been as consistent in this as I would have wished. Equally, I am aware that, although I check several times all the records I send for publication, mistakes do creep in. Please accept my apologies if these mistakes have affected you and do tell me so that corrections can be made if these are necessary.

Email Problems. Early in 2006 I switched to broadband and a new service provider. This has caused a number of problems since my new ISP is blacklisted by various other ISPs. Worse, a number of emails I have sent have failed to reach their destination without my being told that this was the case. My apologies if you have not received a reply from me when you were expecting one. My 'back-up' email address appears to be much more reliable so I may in future make this my main contact for Plant Records: carexmike@yahoo.co.uk . In the meantime, however, I will continue to use the address on the website (mike@carex.wanadoo.co.uk) and acknowledge all Plant Records sent by email. If you have not received an acknowledgement within a week of sending your Plant Records, please use my Yahoo address or contact me by telephone (016973 43086).

New lay-out for Plant Records

Following discussion at a Records Committee meeting and comments from several BSBI members, I have looked into the possibility of making changes to the way Plant Records are presented. Bold face instead of small capitals for plant names will be of considerable help to those who need to work on Plant Records for the purposes of indexing, so this has already been adopted in the February 2007 Watsonia. Other proposed changes are the placing of the Kent Number after the name of the plant, and different indentation to make the plant name stand out more. I enclose sample pages, the first of records in the old style and the second of the same records with the proposed changes incorporated. Once again, any comments would be very much appreciated.

Old Style...

1/3.1. LYCOPODIUM CLAVATUM **110**, Outer Hebrides: Lingara, South Harris, NG0585, R.J. Pankhurst, R.A.H. Smith & E. Pilling, 1997. 1st record since 1970.

4/1.2. EQUISETUM RAMOSISSIMUM ***35**, Mons.: in rough grass, a brownfield site, NW of Spytty Pill, Newport, ST323874, R.P. Kilshaw, 2005, conf. T.G. Evans, A.C. Jermy, P.J. Acock & F.J. Rumsey. 1st Welsh record. Translocation is being considered.

4/1.3. EQUISETUM VARIEGATUM **106**, E. Ross: forested dunes, Morrich More, NH802833, B.R. & C.B. Ballinger, 2005, **herb. B.B.** 1st record since 1970.

New Style...

Lycopodium clavatum 1/3.1 **110**, Outer Hebrides: Lingara, South Harris, NG0585, R. J. Pankhurst, R. A. H. Smith & E. Pilling, 1997. 1st record since 1970.

Equisetum ramosissimum 4/1.2. ***35**, Mons.: in rough grass, a brownfield site, NW of Spytty Pill, Newport, ST323874, R.P. Kilshaw, 2005, conf. T. G. Evans, A. C. Jermy, P. J. Acock & F. J. Rumsey. 1st Welsh record. Translocation is being considered.

Equisetum variegatum 4/1.3 **106**, E. Ross: forested dunes, Morrich More, NH802833, B. R. & C. B. Ballinger, 2005, **herb. B.B.** 1st record since 1970.

Training and Education in the BSBI

Sarah Whild

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The Training & Education Committee has been in existence for almost two years now, so what do we do and, most importantly, what can we do for recorders?

Most of the work of T&E is aimed at university age and above. We offer grants to attend plant identification courses so, if there are keen botanists in your vice-county who would like to upgrade their skills in order to enhance their botanical recording, please let them know about the application form on the web site. We can offer training grants of up to £200, which can cover attendance at a day school or a ten week evening course, or even a short residential weekend at a field centre.

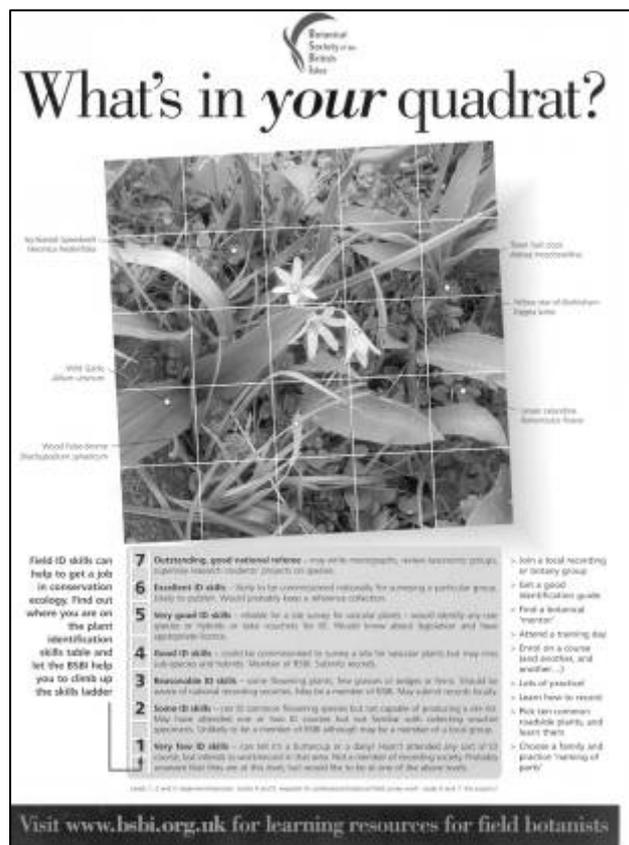
A major task is to raise the profile of the BSBI in universities and colleges, and enclosed with this issue of Recorder is an A4 poster which is being sent to a large number of institutions where biology is taught. The poster is also available in A3 so if you would like more, or you can think of a place that would be suitable to display it, please get in touch with me.

T&E have been working with Meetings Committee to run specific training meetings, so that 'improving' botanists can focus on identification of particular groups such as grasses sedges and rushes or wetland plants for a day or two. If any readers are willing to run a training meeting next year, can you contact Sarah Whild or Sue Townsend of T&E in the first instance.

Perhaps our most exciting venture last year was trialling a new method for assessing plant identification expertise. Sue Townsend and I developed an Identification Skills Pyramid a couple of years ago, and last year we persuaded 25 brave guinea pigs to let us experiment on them for a day by giving them a wide range of ID tests in the lab, in the field and in quadrats. We analysed their results and ranked them alongside the levels on the Skills Pyramid (see the 'Quadrat' poster enclosed). The tests appeared to work well – we set five separate exercises designed to test not only their keying out and identification ability, but also that rather mysterious skill, the 'field eye' by asking them to survey a small field in a sedge swamp. All of the scores were measured against a Level 5 'gold standard' survey carried out that morning by an independent botanist.

The upshot of this is that we are offering Field Identification Skill Qualifications (FISQs) this year at Preston Montford Field Centre, to any improving botanist who wants to have a quantification of their skill level. You can't fail – you are just allocated a skill level from 1 to 7. The precise cost is yet to be finalised, but we expect it to be no more than £50.

If you are interested in finding out more about FISQs or any other aspect of the Training and Education committee's work, please contact me on S.J.Whild@bham.ac.uk.



County Rare Plant Registers

Bob Ellis

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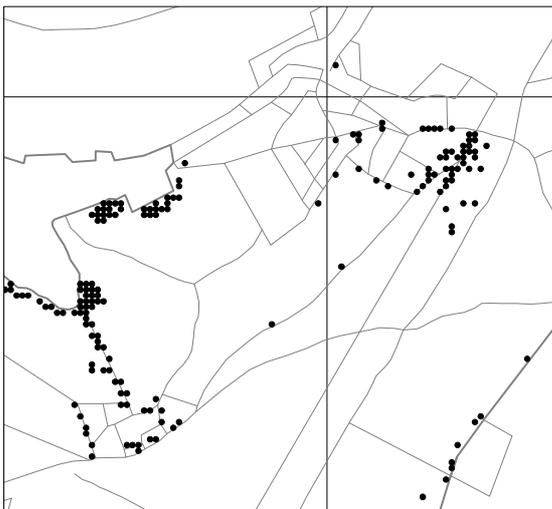
Catalogues of rare plants have been around for many years but, in about 1990, Frank Perring suggested that all BSBI vice-county recorders should produce lists of the localities of rare plants, both nationally rare species present within their area and any that are locally rare. He suggested a number of criteria and these have been refined several times since. In 2001 the BSBI circulated the first approved guidelines to the production of 'county rare plant registers', as these lists were now called. The guidelines were revised in 2005, taking into account the current Red List and are available from the web site or by contacting me.

To date, across the British Isles, some 19 registers have been completed, of which 13 have been published. Some are published as books or reports; some are simply supplied by the authors on request; some are in electronic form as spreadsheets (often lodged with a countryside agency or Wildlife Trust); and several are available on the web as pdf files. The level of detail reported for the records is variable, ranging from 8-figure grid references to the simple naming of localities. The presentation of the records also varies – some are tabulated and some are embedded in the text of species accounts. In some areas, 'county red data books' have been published containing information on vascular plants but these generally do not list detailed records and localities are usually only mentioned for the very rarest of taxa.

The recommended format for a CRPR is to show 6-figure grid references whenever they are available and to tabulate the records. Ideally these tables will reflect an accompanying computer database and the register can easily be maintained and updated. In 2001, Sussex set a standard with a register in this form and has been followed by others such as Dorset and County Down in 2004 and Anglesey in 2006.

List of published RPRs, giving the date of the most recent edition and the resolution of the grid references.

Anglesey, 2006, 100m
Berkshire, 2005, 100m
Berwickshire, 2004, 100m
Cardiganshire, 2001, 100m
Carmarthenshire, 1999, 100m
Cheshire, 2006, 1km
Co. Antrim, 2006, 100m
Co. Down, 2004, 100m
Dorset, 2004, 100m
Shetland, 2002, 1km
Shropshire, 2005, 1km
Staffordshire, 2007, 2km
Sussex, 2001, 100m



For monitoring purposes, species are increasingly being mapped at 10m intervals, using GPS.

We hope and believe that CRPRs will act as an invaluable baseline for developing a programme of monitoring rare and scarce species. However, it quickly becomes apparent when compiling a register that monitoring requirements will vary greatly from species to species and that there is a need to develop a range of methods. Perhaps the simplest case is where there is just one colony of a perennial species that can simply be visited and assessed from year to year. A much more complex case might be a widespread annual species that is dependent on cultivation or disturbance for germination but that can survive unseen in the seed bank for many years. There are many variations in between and many other factors to consider, so we have a fascinating and exciting challenge for the years to come.

Anglesey Rare Plant Register

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First, a word about the Anglesey Rare Plant Register. It is a very utilitarian document, compared to Carmarthenshire or Dorset. It was set out on a spreadsheet, with much help from Trevor Dines, and was hoped to be a standard for use by a number of other VC's in Wales.

For each taxon the usual data was set out in columns, originally in Excel; but now in OpenOffice. I had thought it was nearly complete when the JNCC Vascular Plant Red Data List appeared in 2005 and caused a great deal of extra work to include the new categories. The introduction and summary tables were added to an edited down version of the spreadsheet early in 2006 and CCW (whose help and support has been invaluable) printed 70 copies and made a small number of read-only CDs of the full spreadsheet.

Copies were distributed to three types of potential user. The bulk went to conservation and land managing organisations covering Anglesey, some having the full electronic spreadsheet as well as the paper version. Others went to botanists who had contributed significant numbers of records, or might be stimulated to now do so! Finally, copies went to fellow VCRs in Wales in the expectation of receiving a copy of their productions when ready.

- Example page from the Anglesey RPR -

Has the Register made any difference? For those in the first category the absence of any feedback has been pretty complete. The Isle of Anglesey volunteered that it would not be much use to them as their staff need information on a map base. Some recipients in the second group have responded marvellously sending in new and updated records which are being added to the master spreadsheet.

Of the third group I'm still hopeful the postman will be delivering new Registers soon.

An additional use is that the Anglesey Register has formed the basis of a Data Exchange Agreement with Cofnod, the new Local Record Centre for North Wales.

The New Atlas has additional post1987 records from SH49, 57 & 58.					
Elatine hexandra - Six-stamened Waterwort - <i>Gwybybyr Chwebrigerog</i>					
National rarity: None (Included in Scarce Plants in Britain)					
Local rarity: County Scarce (4 sites). Anglesey Species of Conservation Concern.					
N	SH2230.8198	08.1999		Twr, edge of reservoir	
N	SH2230.8202	08.1999		Twr, edge of reservoir	
N	SH37.69	1970-86	SSSI	Llyn Coron	
N	SH38.69	1970-86	SSSI	Llyn Coron	
N	SH31.77	08.1982	SSSI	Llyn Dinam	
N	SH37.70	1970-86	SSSI	Llyn Coron	
N	SH38.70	1970-86	SSSI	Llyn Coron	
N	SH34.82	c.1991	SSSI	Llyn Llywenan	north s
N	SH34.89	1970-86	SSSI	Llyn Llygeirian, nr. Causeway	
N	SH34.90	1970-86	SSSI	Llyn Llygeirian, nr. Causeway	washe
N	SH4.7	08.1999		Cefni Reservoir	
N	SH451.713	03.10.1998	SSSI	Malltraeth Marsh	shallow
Note: All records 1970 - to date included above.					
Elatine hydropter - Eight-stamened Waterwort - <i>Gwybybyr Wythfrigerog</i>					
National rarity: Scarce					
Local rarity: County Scarce (c.11 sites). Anglesey Species of Conservation Concern.					
N	SH22.81	08.1999		Twr, edge of reservoir	
N	SH3768.6908	08.08.2001	SSSI	Llyn Coron, west edge	
N	SH38.69	11.08.1983	SSSI	Llyn Coron	
N	SH30.76/77	02.10.1998	SSSI	Llyn Trefiesg	
N	SH311.766	07.07.2005	SSSI	Llyn Penrhyn	open v
N	SH311.775	24.07.2001	SSSI	Llyn Dinam	scrape
N	SH325.770	31.07.1983	SSSI	Llyn Traffwl	lake-s

The lack of a map base is a valid criticism and if I were more computer literate I would have been able presumably to transfer the spreadsheet to MapMate (Pete Selby did this in 2003 with an early draft). However in the last few months I am making strides putting Anglesey records directly into MapMate, so hopefully, with help from Bob Ellis, the next version of the Register will be produced from that source. Among other ideas being considered for the next edition is to include a first list of axiophytes for Anglesey.

The Small British Herbarium Project - four years on

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www.herb.hull.ac.uk/SBHP/index.htm

It is now over four years since the Small British Herbarium Project (SBHP) went live on the internet carrying an index to **HLU** and **HLL**, the two British herbaria housed in the Hull University Geography Department. Since then other indices have been added and there are now over 20 data sets publicly available. The project was intended to make available as much

information as possible about the numerous small collections of British plant material. The lists compiled by Kent & Allen show that there are hundreds of such collections languishing in museums, schools and private hands and although we may know of their existence, their content remains, in the main, a mystery to most botanists. The indices currently available for searching through the project's web site are mainly of historical collections held in museums and institutions - Bolton, Bristol, Hull & Shrewsbury but there are also some personal collections and records collected from other sources such as the notebooks of R.A. Boniface (1913-1985), now in the possession of the National Museum of Wales.

Small British Herbaria Project - selected records		
ABRN : 15 records selected		
39/4.2 2309 User ID	<i>Quercus cerris</i> Coll. M.D. Barrow 341/1/2	Piddles Wood, Dorset 18 August 1969
51/1.12 1531 User ID	<i>Hypericum pulchrum</i> Coll. L. Farrell 115/11/3	Ballard Down, Dorset 1 July 1968
52/1.2 2871 User ID	<i>Tilia cordata</i> Coll. M. Kohli 162/2/2	Great Wood, Purbeck, Dorset 18 August 1969 Map reference
75/18.3	<i>Acaena ovalifolia</i>	Studland Heath, Dorset

From the start it was seen as a pragmatic solution to the problem of data availability with little pretence to rigour. The information held on each specimen is somewhat minimal, primarily the plant name, locality, vice county, collector and date, with facility for determiner, map reference and a short note if desired. This, however, is usually enough to identify a specimen that is worthy of further investigation. With large institutional collections there is often pressure for a more thorough approach to cataloguing, meaning that the cost is high and may be perceived as an unjustifiable expense. Fortunately there is now increasing pressure to make data available and many institutions are opening their catalogues to public scrutiny.

The SBHP is aimed at institutions and individuals with limited resources and offers a free service. The only resources needed by the contributors are a PC and the time and patience to copy the data from the herbarium sheets. Some of the files received have been extracted as text from a museum's pre-existing catalogue and others arrive as simple Excel spreadsheets. Before uploading to the SBHP database the plant names are checked against a standard list to ensure that a consistent nomenclature system has been used. This simple process almost invariably reveals a number of errors which, although easily corrected, may have hindered access with a normal database search engine.

One of the great things about making an index public is that there are inevitably people out there who know more about certain aspects of your data than you do yourself. With luck they will seize the opportunity to demonstrate their expertise and inform you of your mistakes. With published data this is normally a source of continuing regret or shame, but with internet publishing corrections can be made within minutes and the data set as a whole allowed to evolve. Since the editing facilities permit the addition and deletion of records, it is actually possible to build a new index completely online. So far this has only been done with the Hull Museums index and is in progress with Eric Chicken's herbarium which has recently been donated to the University. The great increase in the uptake of broadband connections may encourage more data sets to be created by this route as no software other than a web browser is needed and the information is made immediately available. The SBHP is still open for contributions and I would be pleased to hear from anyone with data sets who is prepared to share them with the world.

Recorders' Conference 2006

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The conference this year had two themes: introductions on the Friday and talks on taxonomic developments on the Saturday. Some 79 people attended, of whom 53 were residential. We do not usually publish the proceedings of the recorders' conference but, as the proceedings are semi-formal, this year we decided to give the speakers the opportunity to submit short papers for inclusion here. The first speaker to do so was Tim Rich, who gave what one could consider a typical phytogeographer's perspective on the subject, expressing concern that any introductions should be carefully planned to not interfere with the natural distributions of plants.

The next speaker was Heather McHaffie, who spoke from the perspective of a botanical gardener. Her argument was that, if plants had been eradicated from the wild by humans, then we had a responsibility to put them back. Her position was effectively to side with the plants against the people, because her reintroduction sites are secret and little emphasis is given to the preservation of either natural processes or genetic heritage. By this argument, it is the plants themselves that matter, not the information they provide us.

Mary Gibby talked on the subject of international legislation and pointed out that the United Kingdom now has an obligation to reintroduce plants into the wild, so we can expect a lot more of this sort of thing. Strangely, these laws seem to be a misinterpretation of the international situation in which endemic species are threatened and need active conservation.

Ian Trueman gave an account of his habitat creation experiments, in which certain rare species have been reintroduced into sites without the specific intention to do so. He pointed out that habitat fragmentation and the inability of many plants to effectively colonise over long distances means that reversing environmental damage will inevitably mean that there will be more habitat creation of this sort. In contrast to the first two speakers, his story was one of increasing success, as plants thrived under semi-natural re-created conditions, rather than struggled to survive in

adverse circumstances. As a general indication of the future of nature conservation, it was doubtless a far more welcome approach but, if it comes to pass, then phytogeography will have to become a very different science.

Finally, David Pearman explained how the Introductions Database works and appealed for information on plants that had been deliberately planted. For some taxa, such as *Bupleurum rotundifolium* and *Valerianella rimosa*, the introductions now make up the majority of sites. If anyone has details of an introduction, please do send us the information and we will document it carefully.

Reintroductions of *Filago gallica* and *Cerastium brachypetalum*

Tim Rich

There is huge potential for confusion of taxonomic, phytogeographic, genetic and ecological information resulting from introduction/reintroduction of native plants to extinct or new localities. Reintroductions should only be carried out in exceptional circumstances.

Narrow-leaved Cudweed *Filago gallica* is a native annual of open habitats in SE England which went extinct in 1955 (Biological Conservation 91:1). Fortunately, David McClintock had maintained material from Berechurch in cultivation since 1948, and after consultation this was reintroduced in 1994 to the original site. The reintroduction was initially successful but, after ten years, summer drought and motorbike scrambling have proved problematical.

Grey Mouse-ear *Cerastium brachypetalum* is a rare annual in Bedfordshire and Kent which may be native. In 1994 the Kent population was threatened by the Channel Tunnel Rail Link proposals; five of the six sites and 85% of the population would be lost. After negotiation, consultation, trials and mitigation, the soil seedbank from the main site was moved 50m to a specially designed new site, and two sites that had been threatened were reprieved.

Monitoring shows populations vary from year to year. The receptor site has increased to c. 50% of the Kent population, whilst the nearby nature reserve population has nearly gone extinct due to neglect. Unfortunately, long term management of the receptor site has proved problematical despite a legal covenant.

Reintroductions are a last resort and must not be done at the expense of conserving extant sites. They should only be carried out for original material to be replaced to its original locality, where there is long term management. Results should be published and documented. The BSBI needs a policy.

The Reintroduction of *Woodsia ilvensis* in Britain

Heather McHaffie

Oblong *Woodsia ilvensis* is a very rare fern in Britain with fewer than 100 clumps altogether in Scotland, the Lake District and Wales. It was already rare before the Victorian fern craze but local populations had considerably larger numbers than are currently found. Early accounts of finding the fern near Moffat in the Scottish Borders described its presence 'in great abundance' (Stevens 1849). But soon declining numbers were observed and less than a decade later Sadler (1857) wrote 'The plant does not seem to be very plentiful where we visited, five small tufts being all we observed, of which we took four, leaving the other as an "egg in the nest".' The egg was not very successful as in 1909 Druce 'made a short expedition into Dumfries to see the solitary tuft of *W. ilvensis* which still survives' (Druce 1910).

A similar story was repeated elsewhere. Eleven sites in the north of England were reduced to one as populations were lost from Teesdale and most of the Lake District. Five sites in Wales were reduced to two with only fifteen plants present today and of nine Scottish sites there are now three, one of which was found only thirty years ago. Some of the decline is certainly due to natural causes as the Lake District site and the one near Moffat have crumbling rocks and many ferns have literally fallen off the hillside. Such unstable conditions could provide a good substratum for regeneration but after over fifty years of observation no small, young plants have been observed.

In 1995 Stuart Lindsay was awarded a Leverhulme Research Grant at the Royal Botanic Garden in Edinburgh. Together with Adrian Dyer he conducted an extensive survey of the past distribution and abundance of *W. ilvensis* in literature, herbaria and field sites. With a licence, spores were collected and soil samples taken from beneath the plants to demonstrate that the spores are viable and a living soil sporebank is present. After initial cultivation difficulties, an extensive conservation collection was built up with spore-grown plants from all the British sites. A study of isozymes showed limited genetic variation although interestingly the few Welsh plants encompassed the whole range of variation found. Several clear causes were identified leading to decline. Over-collecting was probably the most important and might have so depleted the populations that they are inbred and no longer capable of regenerating. Grazing goats or sheep might both nibble the plants and dislodge unstable rocks. Regeneration might occur at very infrequent intervals, or require a series of exceptionally wet years for successful establishment of young plants. It is also possible that climate change is having an effect.

As the natural populations continued to decline, and still showed no signs of recovery, consideration was given to making a positive intervention while there were still plants left to provide spores for recovery work. It was recognised that without assistance they might all be lost and it was hoped that with more plants in the near vicinity there would be an increased chance that some spores might succeed in establishing. When considering a re-introduction there are guidelines produced by the International Union for Conservation of Nature (IUCN) that ensure a controlled and responsible procedure. A detailed study prior to taking action had been carried out. Only historic sites should be used and these were well known from literature. Sites with secure future management were selected and except for the Teesdale site local sources were available to provide plants for the re-introduction. In several areas the support of the local community was available. As the RBGE are lead partners for this UK BAP species the essential monitoring was being provided and the necessary funding procured,

particularly from Scottish Natural Heritage and to a lesser extent from English Nature (now Natural England).

In 1999 and 2000 three sites were planted. The first Scottish population is on the National Trust for Scotland's Grey Mare's Tail Reserve and the plants were grown from spores derived from the nearest population only a few kilometres away. (An additional site was planted in 2003-2004 in Carrifran, another of the extinct Moffat locations). For the two re-introductions in Teesdale there were no local plants and it was decided to use plants derived from all the British sites to provide an opportunity for outcrossing. Before planting, the former locations were thoroughly searched for existing plants, using ropes in some cases. Some plants were planted in spring others in autumn and the latter was found to be best for establishment. Each plant was numbered with a plastic label pushed out of sight and photographs were taken. These photographs were labelled and laminated sheets were prepared for precise monitoring of each plant. One final planting was requested near a very small population in the north Grampians where the plants are on scree which is showing signs of movement and there is a risk of the entire colony being lost. This population was supplemented with plants derived from the original parents but located several hundred metres away.

Table 1: summary of results of four reintroductions and one supplementation

Site	Years of data	Proportion surviving
Teesdale 1	6	29/63
Teesdale 2	6	44/50
Moffat 1	6	61/126
Moffat 2	2	37/60
North Grampian	1	60/60

The reintroductions were usually visited annually and measurements were taken to quantify their successful establishment with the results to the end of 2006 shown in Table 1. After up to six years from 46 to 88% of the plants are still alive. Measurements indicated the number of fronds, and their maximum length. With the most recent data 66% of the longer-established plants were producing spores although the dry summer had reduced

their success. The number of grazed plants was not high and few had any significant damage.

When the plants were first established there was a moderate rate of mortality and some lingered for several years until succumbing. This was to be expected as it was not always possible to predict which sites were most suitable. It was found that scree was the most successful area to plant into as rock crevices are not easily planted. Plants on ledges could be more successful although two ferns were smothered by nesting grey wagtails.

Many plants from the conservation collection were dispersed to national and local botanic gardens and private individuals. The remaining plants are regularly re-potted but more plants have been grown than necessary. In 2006 a special licence from the Scottish Executive has enabled us to sell some of the surplus *Woodsia ilvensis* in the Botanic Garden shops. Public displays have been planted at the Grey Mare's Tail visitor centre and in the Cairngorm Funicular garden. This should mean that anyone who wanted to own a *Woodsia* has had the opportunity to do so and can see the plants near their wild locations without having to trample around them. In the immediate future it is planned to continue to monitor existing and re-introduced populations in alternate years. The project can only be deemed successful when re-generation occurs, and this has yet to be observed.

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Plant species introductions using the hay strewing method

Ian Trueman

Propagating species-rich grasslands by strewing hay from an existing example onto a new site is not a new idea. A superb example seen at the Zuiderpark School Garden Complex in The Hague 25 years ago led us to initiate experiments on council landfill sites in Wolverhampton. By the mid-1980s we had learnt that traditional hay meadows, whose species all need to produce viable seed at hay making time, were the ideal source. The 'hay' should be transferred as soon as it was cut so that the hay makes on the receptor site, which should not be markedly fertile. We have published details of our method (Jones *et al.* 1995, Trueman & Millett 2003, Trueman *et al.* 2007).

Our first real success was with hay from Pennerley Meadows in Shropshire (SJ358992), which was strewn on variously prepared areas of a landfill site on Bushbury Hill in Wolverhampton (SO926022). The capping soil here was light, and it proved unnecessary to raise a tilth, glyphosating and light harrowing giving as good results as rotavating. Under these conditions 22 of the commoner species established satisfactorily or increased in frequency compared with unstrewn areas, and a further seven species established less successfully compared with their frequency at the source site. Most of the less common species at Pennerley such as *Botrychium lunaria*, *Ophioglossum vulgatum*, *Platanthera chlorantha* and *Viola lutea* failed to establish at Bushbury.

The result was an attractive, forb-rich vegetation somewhere between *Centaurea nigra* – *Cynosurus cristatus* grassland (MG5) and *Lolium perenne* – *Cynosurus cristatus* grassland (MG6) in the National Vegetation Classification (Rodwell 1992). Management by a single August cut and immediate removal of the cut vegetation proved less than ideal long-term management and over the years there has been considerable reduction in the frequency of some forbs, particularly *Hypochaeris radicata* and *Leucanthemum vulgare*, but the vegetation is still attractive and species-rich 20 years later. Strewing Pennerley hay at another, less urban site (Pendeford Mill SJ889037) it was possible to

manage the resultant vegetation by hay making and aftermath grazing which produced a more stable, and generally improving sward.

Green hay from Eades Meadow in Worcestershire (SO982647) strewn on another landfill site at Kitchen Lane in Wolverhampton (SJ964026) in 1995 generated a spectacular meadow with 46 Eades species and a species density of 17.7 m² by 2001 (we estimated a species density of 26.6 species m⁻² at Eades in 1993). Kitchen Lane also demonstrated that it was possible to establish some species and varieties otherwise not seen in semi-natural meadows in the Wolverhampton area, such as *Bromus commutatus*, the pseudoradiate form of *Centaurea nigra*, *Crepis biennis* and *Hordeum secalinum*. In 1999 a population of *Orchis morio* (abundant at the source meadow) also started to flower at Kitchen Lane and is still thriving in 2006 despite less than ideal management.

Hay strewing has proved to be a very cheap and effective way of propagating many orchids: *Dactylorhiza fuchsii* and *Listera ovata* also established at Kitchen Lane from Eades and *Dactylorhiza maculata* and *Anacamptis pyramidalis* have been recorded at hay strewing sites elsewhere in Wolverhampton. More mysteriously *Ophrys apifera* has appeared on three of our Wolverhampton meadow sites despite not being recorded at the source sites.

Urban habitat creation is often undertaken by enthusiastic amateurs who need to understand that it is possible to destroy interesting vegetation in creating habitats. In Trueman *et al.* (2007) we pointed out that 'it is not impossible for valuable and attractive vegetation to develop spontaneously on landfill. Therefore before undertaking any habitat creation it is an absolute prerequisite to obtain a specialist survey of the existing vegetation to make sure that nothing of value will be lost.'

Meadow creation is more straightforward in the countryside where it is easier to provide optimum site preparation and hay-making and aftermath grazing management and where sites are often extremely species-poor after many years of intensive agriculture. In 2001, green hay from four Shropshire and one

Staffordshire meadows was strewn on five different areas totalling 8.9 ha of very light arable land at the Shropshire Ornithological Society bird reserve around Venus Pool near Shrewsbury (SJ548061). All the source sites were SSSIs. The four meadows strewn on dry areas of the receptor site produced attractive grassland rapidly, *Orchis morio*, which was present on one source site, flowered for the first time in the second summer after strewing at the Venus Pool receptor site and has steadily increased in frequency. Rayner (2005) compared source and receptor sites by quadrat surveys in 2003 and 2004 and concluded that hay-strewing had led to the rapid development of meadows that closely resembled MG5 grasslands and approached the species-richness of semi-natural meadows. Receiver species richness was not equal to corresponding source richness, but did approach it, with one receiver meadow definable as 'species-rich' (Grime 1973), with >20 species m⁻² by 2004.

A fifth area adjacent to the pool is wetter, and was designed to be flooded in winter. It was strewn with green hay from Motte Meadows NNR in Staffordshire (SJ837125), utilising vegetation intermediate between *Alopecurus pratensis* – *Sanguisorba officinalis* (MG4) grassland and *Holcus lanatus* – *Juncus effusus* (MG10) rush pasture. The receptor area was already infested with *Crassula helmsii* at the time of strewing, and this species has persisted but a vegetation dominated by *Juncus inflexus* and *J. effusus* has slowly developed. Many of the common and less common species from the source meadow have appeared in the receiver vegetation. Notable examples include *Agrostis canina*, *Bromus racemosus*, *Caltha palustris*, *Carex flacca*, *C. ovalis*, *C. pallescens*, *C. panicea*, *Cirsium dissectum*, *Danthonia decumbens*, *Lychnis flos-cuculi* and *Succisa pratensis*. By 2006 a large population of *Dactylorhiza* spp. and hybrids were flowering, examples being identified (Lockton & Whild 2006) as *Dactylorhiza fuchsii* (present at Venus Pool prior to hay strewing), *D. maculata*, *D. praetermissa*, *D. fuchsii* x *praetermissa* and *D. maculata* x *praetermissa*. Experience suggests that the persistence of species on wet sites is less likely than on dry sites, possibly

because it is difficult to manage 'wetness' sufficiently well.

DEFRA have been advocating a similar method to ours to farmers and the organisation Flora Locale is giving training in similar methods so we expect the use of hay strewing to increase. In many ways hay strewing is preferable to the use of commercial seed mixtures since the provenance of the introduced material is particularly clear. There is however an obvious need to encourage habitat creators to keep vice-county recorders informed.

Habitat creation by hay strewing is potentially a beneficial use of landfill and other despoiled or gardenesque sites and could also be used to reverse the seemingly inexorable loss of biodiverse sites within the agricultural landscape. Furthermore if we wish to conserve vegetation types and the species they include in the face of climate change, it seems obvious that we must develop methods of moving vegetation from one site to another.

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Structure of *Fumaria* in relation to identification

Rose Murphy

A workshop held at the BSBI Recorder's Conference at Preston Montford, September 2006.

Outline notes on Fumitory identification were prepared in advance for this workshop, but unfortunately a few mistakes were made in the re-typing of these. However this presented me with the opportunity of both correcting and enlarging on these so that the various topics mentioned during the two sessions held at the meeting are here more adequately covered.

Most accounts of *Fumaria* place great emphasis both on the need for fully-developed flowers and on ripe fruit for identification (Sell in Rich & Jermy 1998, Strid & Tan 2002). Care, however, is also needed in the interpretation of other characters such as the length of the raceme in proportion to the peduncle, the length of the bracts in relation to the pedicels and the position taken by the fruiting pedicels – erect, patent, divaricate or recurved.

CARE – the genus is so variable, so subject to alteration by adverse conditions, that reliance on any one particular character can sometimes mislead. A brightly-coloured, small-flowered, long-bracted fumitory is not necessarily *F. densiflora*. The proportion of corolla size to sepal may be that shown by another small flowered species. Yet when one sees a large-flowered fumitory with a white margin to the coloured wings of the upper petal there is no doubt that one is looking at *Fumaria occidentalis*.

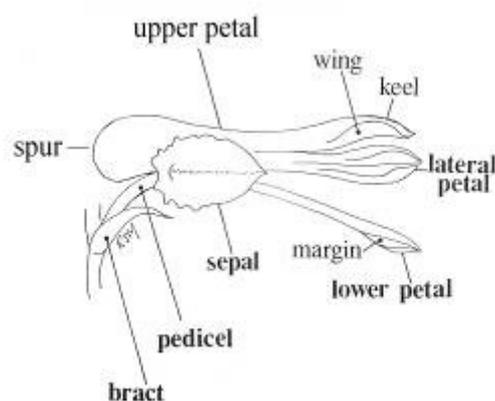
This brings me to the structure of these very distinctive flowers. Each flower has four petals, the inner two lateral ones being fused at the tips to form a hood that encloses the female stigma on its long style and the anthers on the two stamens. The lateral petals are not so useful for identification but the form, shape and colour of the upper petal is extremely important. On each side of the ridge-like keel (nearly always greenish in colour) the margins of these upper petals can sometimes be swept up to form large wings that obscure the keel as in *F. purpurea*. In other cases as in *F. capreolata*, the wings are low and the keel is readily visible when the flower is viewed from the side. The upper petal is spurred at its

base and within this one may find a nectary that is a lobe-like extension of the upper stamen.

The shape of the lower petal can also be diagnostic.

Is it spathulate (spoon-shaped) with extensive margins at its apex as in *F. officinalis*, or is it narrow with narrow patent or erect margins.

Most keys commence by separating the small-flowered fumitories (Section FUMARIA – flower 9mm or less) from the large flowered species, (Section CAPREOLATAE Hammar – flower 9mm or more (Strid & Tan 2002). Apart from the pale, small-flowered cleistogamous plants (flower often only 8mm or even less), this first step in identification is usually easy. The upper petals from a few of the longest, freshest flowers should be measured from base of spur to the apex in order to get an average length, but a note should also be made of the length of the longest flower.

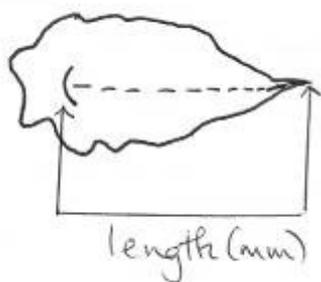


CARE – flowers produced early in the season are often longer than usual as are flowers growing well in optimum conditions. *Fumaria occidentalis* can often reach 15mm. In adverse conditions flowers can appear smaller and paler than usual without necessarily being cleistogamous.

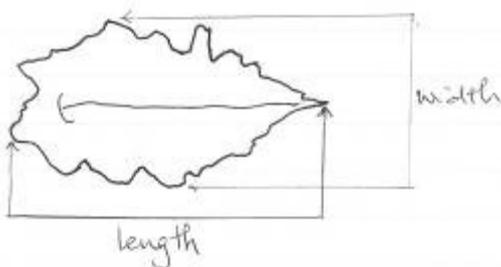
The shape and size of the sepals (placed on each side of the flower) are also of value in naming the species. Those of *F. parviflora* and *F. vaillantii* are extremely tiny, dentate

and less than 1mm long. In contrast those of *F. purpurea* are 6 to 6.5mm, oblong in shape and often hardly dentate at all.

CARE – unfortunately the method used for measuring sepals is not always made clear. In his keys M.G. Daker gives a useful diagram showing sepal length measured from point of attachment, viz:



Sepal length may also, however, be measured from base to tip, and both length and width can include the teeth (Rich in Rose & O'Reilly 2006).



Another difficulty lies in the measurement made on herbarium specimens. These will always be shorter than expected as dry material shrinks. *Fumaria densiflora* again provides the interesting example. Information from the literature gives sepal measurements as 2-3mm x 1.5-3mm wide (Strid & Tan 2002). T. Spiers writing in the first issue of *Sussex Botany* (March 2004) states that 'in some plants the sepals can be very large (5mm x 3.5mm), exceeding the dimensions given in Stace, 1997.'

The length of the raceme in relation to the peduncle is not always helpful. It is useful only when the raceme greatly exceeds the peduncle as in *F. bastardii*, *F. officinalis* and *F. reuteri*. Also when the raceme is clearly shorter than the peduncle as in *F. capreolata*. Where a plant is growing through a hedge, however, the lowest inflorescences can have

abnormally long peduncles as they struggle to reach the light.

Fruits provide some very useful characters. Are they wider than long as in *F. officinalis* ssp. *officinalis*, or do they show a tendency to be longer than wide? Is the fruit very large (3mm x 3mm as in *F. occidentalis*) or smaller? Is the base of the fruit narrower than the apex of the pedicel or is it somewhat wider, as in *F. bastardii*? Is there a distinct, fleshy neck to the base of the fruit (a character seen best in fresh specimens), as in *F. capreolata* and *F. purpurea*?

Colour differences

Colour perception can be a very personal thing so the following notes are just a guide to the colours shown by some fumitory flowers in their younger stages:

- Salmon pink - *F. bastardii*
- More magenta or rose-pink – *F. muralis* ssp. *boraiei*
- Creamy-white with very dark tips – *F. capreolata*
- Light purplish-pink – *F. purpurea*
- Clear white with white margin to upper petal wings – *F. occidentalis*.

After fertilisation, however, colours in some species can change quite markedly and this can lead to problems in identification.

In *F. capreolata*, as the flowers SUDDENLY hang downwards instead of being upright (a change that I often wonder is just as characteristic of the plant as any other feature) the dorsal side of the upper petal becomes streaked with pink or even darker. At this stage it could be mistaken for *F. purpurea* but the latter goes a dusky purple as it ages and the broad hanging flowers clump together giving an appearance quite unlike the neat narrow outline of *F. capreolata*.

F. occidentalis is considered to be an allopolyploid derivative of a hybrid that involved *F. capreolata* as one of the parents (note: cross-pollination would seem to be a rare event and many authorities refer to the fact that self-fertilisation is the norm). It is not surprising then due to the involvement of *F. capreolata* that this, our largest fumitory, also shows a marked colour change. In the

young flower the upper petal is pure white, then the inner edge of the wings gradually goes pinky-red, thus creating the characteristic white margin. After fertilisation the white margin disappears and the whole flower becomes a dark pinky-red. These changes were demonstrated at the workshop by means of photographs taken by Richard Pryce and Paul Gainey.

Colour differences can sometimes indicate different sub-species or varieties, as in *F. bastardii* var. *bastardii* and *F. bastardii* var. *hibernica*. In the former the upper petal is concolorous whilst in the latter the wings are blackish-red. How does one know that the latter is NOT *F. muralis* ssp. *boraei*? In *F. bastardii* types the peduncle is short, the sepals are small, the bracts are very short and the fruits rugose, a character readily seen when the fruits dry. A herbarium specimen of var. *hibernica* was available to allow these characters to be demonstrated. (NOTE - a third variety of *F. bastardii*, var. *gussonei*, also shows blackish-red wings to the upper petal, but it is rarely seen.)

The sessions ended with a discussion about the different species and the particular characters that they showed using photographs, herbarium specimens and drawings. During this discussion it was emphasised that *Fumaria muralis* ssp. *boraei* is the most variable taxon. Reference was also made to some of the smaller flowered fumitories, particularly *F. densiflora*, which has the most amazing 'jizz', the bright flowers projecting between two sepals that seem to be

abnormally large for the size of the flower. Tony Mundell provided useful photographs of this species.

In Britain *F. reuteri* is the rarest and is now to be seen only on the Isle of Wight. Its many large bright flowers, held on recurved pedicels, the short peduncle and the more or less entire sepals ensure that it can be mistaken for no other fumitory in this country. If on a visit to Cornwall you think you have refound this very plant, please, please do let me know!

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- If you are able to consult a copy of Opera Botanica No 88 (1986), you will find a paper here by Magnus Liden with some of the most exact and beautiful line drawings of the flowers and fruits of fumitories that I have ever seen. In this work you will also find drawings of the lower petals of *F. officinalis* ssp. *officinalis* and *F. officinalis* ssp. *wirtgenii*.

County Roundup

David Pearman, Alex Lockton & Mary Clare Sheahan

Each year we ask recorders to send us feedback on what they have been doing, together with any complaints, requests or questions they have of us. Over the last couple of years we have extended this to referees and added them to the circulation list for this newsletter. This year, for the first time, we have included some herbarium curators as well. Part of the purpose of this is to share ideas and make sure everyone knows about the most promising new developments and technological advances which have transformed the way we work in recent years.

Southern England

SIn **West Cornwall**, Colin French reports that he has done more fieldwork lately, since stopping full time work and taking on some survey contracts. It is interesting to note that 'consultants,' who are often portrayed as piratical, actually account for many of our best recorders, and they seem to be able to cope with any conflicts of interest from being involved with the BSBI. The best thing about being a self-employed consultant, of course, is being out in the field looking at plants for much of the time.

Rosemary Parslow has transferred all her data for the **Isles of Scilly** to Mapmate and is fully up to date with data entry. She requests more training on Mapmate and reports that a Rare Plants Register for v.c. 1b is on its way.

Ian Bennallick (**East Cornwall**) is one of a growing band of recorders who work for Local Records Centres, several of which are now hiring botanists as part of their teams, which brings them much more into contact with the BSBI. We welcome this trend, and look forward to working closely with more LRCs in the future.

Roger Smith reports that they held sixteen field meetings in **South Devon** in 2006. All the recorders from the south-west counties (Somerset, Cornwall and Devon) get together with Natural England to discuss botanical matters, and Roger asked for a copy of the BSBI logo to use in some work that the local BAP group had been doing. Involvement with local conservation organisations is an important activity for many county recorders, and we definitely encourage that for anyone who is interested. Roger also asked for more help and instructions on Mapmate, so we have created a section on the web site where material produced by Bob Ellis, Jim McIntosh

and Martin Rand can be downloaded. We would welcome requests for specific topics to be covered. Bob Hodgson says there is a similarly high level of activity in **North Devon** and mentions the plans for a new Flora of the county, which seems to be gathering pace.

Steve Parker (**South Somerset**) is one of a small number of recorders who work for the Country Agencies. This can be one of the more difficult conflicts of interest to balance, because it can sit awkwardly with the regulatory aspects of the job especially, perhaps, as the Agencies become more involved in farm subsidies. There is also a tendency for Agency people to be posted around the country, making it difficult to settle into the recordership. Happily, Steve has been involved for a few years now and is very much focused on rare plant recording, working towards a Rare Plant Register for Somerset. Paul Green is joint county recorder, with a general interest in more widespread species. Meanwhile, Ian Green sent in his last report for **North Somerset**, which he has now handed over to Helena Crouch and Rob Randall, and we shall look forward to receiving reports from the new recorders next year.

Sharon Pilkington (**Wiltshire**) very kindly sent a set of the Wiltshire Botany journal for the BSBI Library. She is another consultant who seems to be able to reconcile the two roles, and there is now a good level of post-Atlas recording in both vice counties, and a really positive network of active recorders. We are promised a Rare Plant Register in 2007, but Sharon grumbled a bit in her report about the referee system. This was based on the first specimen she sent being lost by the referee in question. Actually, to be fair, most referees are good, but there are weaknesses in the system and it is interesting to note that

many county recorders had stories to tell about their bad experiences. These stick in the mind better than the good ones. Records Committee tries constantly to improve the referee system, and will be overhauling the list this year.

By contrast with the above, one of us (Pearman, **Dorset**) uses referees half a dozen times a year and considers them to be absolutely super. Knowing most of them personally helps – but then we wouldn't really need a formal system if everyone knew everyone else. Dorset currently has a difficulty in maintaining continuity after both a Flora and a Rare Plant Register, and the idea of establishing a Flora Group has been mooted.

The BSBI's traditional system tends to produce a peak of recording about once every 50 years, as each county recorder will at best only write one Flora, and after that they tend to slow down a bit. This peaks & troughs effect is one that we would like to try to even out through the establishment of more Flora Groups, in which there should always be some energetic new botanists contributing records.

Colin Pope (**Isle of Wight**) is possibly our only recorder who is a County Ecologist. After publication of his recent Flora he is dealing with a backlog of jobs such as extracting records for *Watsonia*. The Flora of the Isle of Wight was one of the first county Flora datasets to go to the Biological Records Centre for incorporating into the Vascular Plants Database (VPDB). In return for making such a contribution, we give donors access to the whole VPDB, and the Council of the Isle of Wight is therefore, by a curious chance, the first local authority in Britain to get full access to all vascular plant data.

Martin Rand reports that **South Hampshire**, as always, is an active county, with a lot of interaction between the county museum, Naturalists' Trust, LRC and Forestry Commission. A backlog of data entry is being tackled, using funding from various agencies. Tony Mundell (**North Hampshire**) says he finds requests from consultants to be arduous, partly because he is not skilled enough with computers to do the analyses and partly because the consultants often don't seem to know much about botany. One anecdote he relates is of a reported *Cephalanthera rubra*

which turned out to be a pink *Aquilegia vulgaris*. To avoid this, he is looking forward to closer working with the LRC as soon as a data exchange process can be agreed. He apologises for not sending any records in for *Watsonia* recently and has promised to do better...

The main news in **Sussex** is the start of serious recording towards a new County Flora, which Alan Knapp, Mary Briggs, Paul Harmes and Arthur Hoare are all very enthusiastic about (yes, they do appear to have twice as many county recorders as anyone else – a clever stratagem). They have already collected 120,000 records since 2000 and made some exciting discoveries, including *Sagina subulata*, *Euphorbia portlandica*, *Spartina patens* and a new site for *Filago lutescens*. All this data can be seen on the Maps Scheme web site, and Alan Knapp invites any BSBI recorder to register to use the Sussex Flora web site, where full lists for each tetrad can be generated. There is an offer in their report of copies of their newsletter for the BSBI library, which would be much appreciated.

Ann Sankey is building a useful relationship with the Wildlife Trust in **Surrey**, which has offered to build a web site for the Flora Committee and publish the forthcoming Rare Plant Register. All their records are site based and, in theory, can be mapped at 1km scale. Once all historical records are computerised, there must be a huge potential for interesting Site Floras in Surrey, so it is good to have the data in this format, instead of just grid squares.

Ken Adams raises an interesting issue in his report on **Essex**, which he also presented as a poster at the Recorders' Conference last September. In his studies of veteran trees he found that 8-figure grid references (10m squares) are rarely correct, even if produced by GPS. One might argue that they are still a lot better than 6-figure grid references, but it is a fair point that if one wants to work at this much higher resolution, then a wrong record is not very helpful. For example, you can't count trees automatically using a GIS program if each one is mapped in several different locations. A particular problem appears to be the Black Poplar database which, we hasten to point out, is nothing to do with the BSBI.

Recorders need to be aware that records have to be checked carefully, especially if imported directly into Mapmate. This is potentially a huge problem, Ken points out, when you are computerising at the rate of 60,000 records a year.

Trevor James sent many records of hybrids from **Hertfordshire** this year, which was particularly interesting for us as it is the first data set we have received as output from Recorder 2000. In general the records were excellent, although it seems that the report writing facilities are still a bit limited. Trevor sent 95 separate files, which must have taken ages to generate. Anyone using a new computer program will sympathise with this, as it takes some time to find the best ways of creating the outputs that you want. If more recorders are starting to use R2K, then it would be worth setting up a group to share ideas, and we could offer some training. Other news from Herts is that the forthcoming Flora is now $\frac{3}{4}$ completed.

John Killick mentions various ongoing activities in **Oxfordshire**, such as the completion of a draft list of 380 species for inclusion in the forthcoming RPR, which he says you can find if you Google the word 'draftlist' – and it works! He has also been monitoring the changes in six stewardship fields for eleven years. Sounds like an interesting paper for *Watsonia*.

The big event in **Buckinghamshire** in 2005 was the launch of the Checklist – a properly published book, of which a copy was generously presented to the library. There was also the launch of a new LRC which, unusually, has decided to use Mapmate as its main database. They have transferred all of Roy Maycock's Aditsite data into Mapmate and added their own, producing a database of over 500,000 botanical records. These have all been sent to the BSBI, and we are reciprocating with any additional data we hold for the county. This is possibly the first formal relationship we have set up with an LRC for data management, and is an ideal model for others to follow.

In **Bedfordshire**, Chris Boon is another county recorder who uses R2K – for reporting, but not for data entry, which he finds is still faster on Recorder 3. He also records by site and, as he has all the wildlife

site boundaries digitised, the GIS function in R2K is useful in getting the data out again. The biggest problem for people who don't have GIS is extracting data for linear sites such as railways, which can involve listing a lot of grid squares if you have to type a query. Chris spent much of 2005 inputting 100,000 of John Dony's 1970s records and getting his database complete before finishing his forthcoming Flora.

We were pleased to see the first report from Kevin Walker as joint recorder for **Huntingdonshire**. His first task is going to be the computerisation of the estimated 96,000 records in Terry Wells's Flora, and the rest of the backlog. Then he hopes to create an RPR, which is a practical thing for any new county recorder to do, but is particularly worthwhile when there is a recent Flora to build upon. Kevin currently works for the Centre for Ecology and Hydrology as a researcher, which he says involves a lot of fieldwork in any county except his own.

Rob Wilson reprimanded us for writing, in the last *Recorder*, that the **Northamptonshire** RPR is in press; but it is nearly ready now. Gill Gent mentions that there is close cooperation with the local Wildlife Trust and that two LRCs have been established in the county, and she is looking forward to working with them both. Mark & Clare Kitchen (**Gloucestershire**) say they both still have their heads down whilst computerising the hundreds of thousands of records in their backlog, but still find time to lead many field meetings for various societies and attend many of the BSBI's conferences and meetings.

James Partridge has been getting established as recorder for **Warwickshire**, where he now has a small band of helpers including (astonishingly) two herbarium keepers. He is not the only one to comment that some of the society's national meetings need to be a bit more structured and interesting. He has a point – the Welsh, Scottish and Irish meetings get more positive feedback, and they are better attended. The AGM and Exhibition Meetings in particular need to be more structured, and perhaps could be combined with other events.

John Hawksford had nothing unusual to report for **Staffordshire**, having updated his Rare

Plant Register (which is available for downloading on the BSBI web site) and continued working on his forthcoming Flora.

In **Shropshire**, Sarah Whild has organised site Floras for the last couple of years – first a repeat of Frank Perring’s Fl. Attingham and then one of Haughmond Hill. These have proven to be a great success for monitoring ecological change, and have made a great impression on the owners – the National trust and the Forestry Commission.

Working in conjunction with the County Council and the Forestry Commission, the Shropshire Botanical Society has drawn up a list of axiophytes which has been used to identify areas where new woodlands can be planted without damaging good quality existing habitat. Analysis of 60,000 recent records of axiophytes revealed places where it is almost certainly safe to plant; where it would be very unwise; and where more survey work would be desirable before a decision is made. The work was paid for by the Forestry Commission, and the money was then used for the digitization of the Shrewsbury Museum herbarium.

Wales

Julian Woodman is very honest in his report, admitting that kids and work leave him with little time for attending conferences or recording in East **Glamorgan** until his life becomes quieter. Richard Pryce (**Carmarthenshire**) asks if anyone has got a workable system for data capture in the field. There have been a number initiatives in recent years, but it’s unusual still to see anyone data-logging in the field. Does anyone else know more than we do? Meanwhile, the figures for v.c. 44 on the AUP returns speak for themselves – obviously Richard & Kath are managing a fairly high level of recording.

Arthur Chater (**Cardiganshire**) raised the issue of diverging taxonomies between the various national floras, handbooks, etc., and asks how the BSBI is going to cope with this over the next few years. The only solution we can offer at the moment is to incorporate any additional taxa that come to our attention into the Leicester database, and issue annual updates (which appear on the web). Please note, however, that it makes little sense to mix your taxonomies when writing a Flora unless

you really are an expert on the family in question. The best bet is to stick to the names in the latest edition of Stace, with extra species only when necessary. Otherwise people reading your Flora won’t know where to find the names you use. Ultimately, as Arthur suggests, we need to establish a taxonomy panel to review the British and Irish lists periodically.

Wendy McCarthy was so impressed by the annual recording week that Richard & Kath organise in Carmarthenshire that she is planning something similar in **Caernarvonshire** in future. Goronwy Wynne says his Rare Plant Register for **Flintshire** is nearly finished, and suggests that we need a more ecological slant to some of our conferences, rather than just more and more detailed taxonomy. One of our initiatives, bubbling away just below the surface at the moment, is a repeat of the National Vegetation Classification surveys. We have details of 30,000 quadrats from all around Britain (not Ireland), recorded mostly in the 1970s and 1980s, and it would be really interesting to repeat them as closely as possible. If anyone would like the data set for their county so they can start on this, please email Alex (don’t write – a task of this magnitude can only be handled electronically).

Ian Bonner’s RPR for **Anglesey** was published in 2006 – the third so far produced in Wales. It is generally superb, but perhaps regrettable that recorders’ names have been omitted. This could lead to all records being ascribed to the authors, which is surely not the intended outcome. To save space, some RPRs only give initials, and then a key to recorders at the end. Some people worry that people’s names are protected under the Data Protection Act, but in the case of biological records, names indicate the ownership of intellectual property, and they can legitimately be published.

Northern England

Paul Kirby reports that the enormous task of inputting all the **North Lincolnshire** is not yet complete, as we put in the last newsletter. He has little involvement with BSBI meetings, but his team has now surveyed half of their 147 unrecorded tetrads and their herbarium is

going to be housed at Lincoln University. Michael Jeeves is planning the third edition of the RPR for **Leicestershire** in 2007, and reports on a large number of site surveys and interesting finds, such as *Carex distans* rediscovered in the county after 50 years.

The annual report on the Flora of **Derbyshire** project by Alan Willmot and Nick Moyes shows that 1,800 species accounts have been written and 662,000 records collected, most of which are post-1987. The post-Atlas data is now available on the Maps Scheme for viewing. Interesting new finds in the county include *Vaccinium uliginosum* and a (planted) *Cypripedium calceolus*. Graeme Kay has an active programme of field meetings in **Cheshire** and produces an electronic newsletter which this year had fine photographs of *Asplenium trichomanes* ssp. *pachyrachis*, *Cyperus eragrostis* and *Meum athamanticum*. There has not been a BSBI Field Meeting in Cheshire for ten years (although there is to be one this year). If any county recorders would like to advertise their field meetings on the BSBI web site, please get in touch. We would happily create a web page for each county if you would commit yourselves to sending updated material regularly.

In response to our request for local newsletters Dave Earl says there are three naturalists' societies in **South Lancashire**, (Manchester, Liverpool and the North West Naturalists) and the BSBI is welcome to subscribe to them. Unfortunately, our library is opportunistic rather than strategic, and it does not have a budget. There will probably come a time when someone in the NW with a collection of these journals is looking to dispose of them, and if that happens we hope you will mention us to them. But we don't expect v.c. recorders to dip into their own pockets.

Dave, who works part-time at the County Council's ecology unit, has sent huge numbers of records for both the Hybrids Project and the Maps Scheme, and has also been exploring much of north-western England and North Wales recording brambles. Several v.c. recorders will have received unexpected data sets for their area, which is always much appreciated.

Eric Greenwood thanked Bob Ellis for transferring all his **West Lancashire** data into Mapmate format from DMap, and says this advance has galvanized him to start a Flora of the area (not quite the vice county) including Bowland, which has only recently become publicly accessible: a great success of the CROW Act. He also published his paper on the changing flora of the Lancaster Canal, which is arguably the first serious study of the vegetation of a major canal ever published.

Dick Middleton starts his report on **South-east Yorkshire** with the phrase 'first, the excuses...' but goes on to give a lively account of his work, which included murder mysteries and the discovery of a 10km square along the coast that had never been recorded. It turned out to contain just 50 common species, and it will probably be eroded away in a couple of decades, but it's nevertheless quite fun. His web site, the Small British Herbaria Project, continues to grow and is well worth a visit, as it is still by far the fastest way to access herbarium data.

Geoffrey Willmore put in a plea for the Recorders' Conference to be held at Lancashire again, presumably because that is closer to **South-west Yorkshire**. The reason it has been at Shrewsbury for the last few years is simply to make it affordable. The BSBI subsidises it to a small extent, but we get lots of freebies such as the university facilities.

Geoffrey also sent an update on the South Yorkshire Plant Atlas, with is to be written by him, Jeff Lunn and John Rodwell. It seems to be going well, with 160,000 records collected, and some draft maps and accounts written. Geoffrey is another recorder who is a consultant and has to fit his recordership into spare time, but seems to be coping.

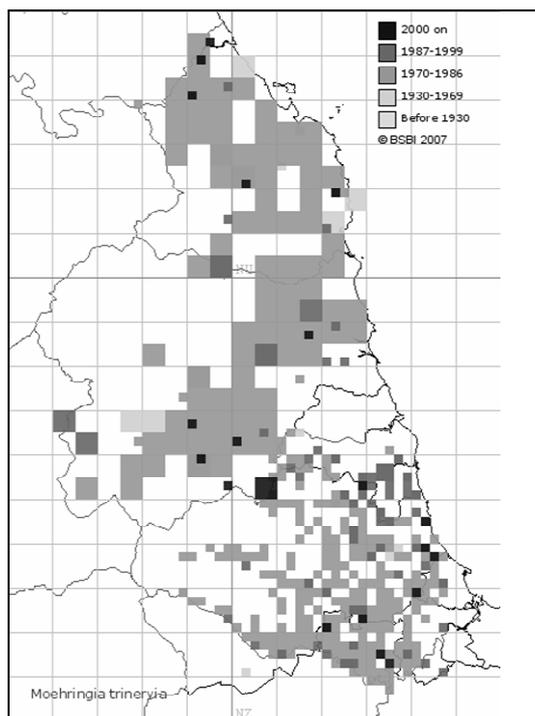
Phyl Abbott was not the only recorder to be puzzled by our analysis of the number of records that each county could be expected to generate. This was an exercise conducted for English Nature in 2005. They wanted to know how much data the BSBI could produce, but when we looked at this we found that counties tend to be active in short bursts, and these are totally unpredictable. Phyll, having just completed her Flora of **Mid-west Yorkshire**, has no intention of tetrad-bashing again in the near future. Most v.c. recorders never do two

tetrad Floras. So all the statistics for v.c. 64 will look terrible for the next decade or so, until some new energetic people come along and start the process all over again. This is, admittedly, unfair, but it is swings and roundabouts.

In the EN report, therefore, we worked out how many records could be collected in each county and compared them with how many had actually been collected, to see what the difference was. It showed that some counties had obvious areas for further work, such as gathering historical records. Hopefully that will lead to some funding to make up the deficit but possibly, in the transformation of EN to NE, the report will have been forgotten about.

Deborah Millward confesses guilt about not doing enough for the BSBI in **North-west Yorkshire**, and seems to find her involvement in nature conservation more demanding and worthwhile. Despite that, she has managed 10% re-recording for the Maps Scheme, which isn't a bad score, and says there is 'young blood on the horizon,' which sounds promising.

In **County Durham** Gavin Hardy resigned and John Durkin took over as recorder. John has put 100,000 records onto Mapmate in the last few years, including 14,000 historical ones. There are still several filing cabinets and an old Recorder database of 500,000 records to process. John is a consultant who works closely with his Wildlife Trust, and does quite a bit of survey work – unfortunately, mostly in Northumberland last year. That would have been very much appreciated by the new team that is supporting George Swan in recording this huge county. John Richards has taken on **South Northumberland** while Chris Metherell is now joint recorder for **North Northumberland**. Both are supported by Quentin Groom on the technology side. Quentin now works at the Botanic Gardens in Brussels as well as working very part-time for the BSBI running our Maps Scheme database. It is a curious arrangement having four county recorders, but it seems to be working, with about 40% re-recording having taken place already since 2000, and over 100% compared with date class 3 (1970-1987). So, welcome to the new recorders, and we shall look forward to receiving reports next year.



Map of *Moehringia trinervia* in Northumberland and Co. Durham showing the effect of recording at different scales. Quadrant (5km x 5km) records in Northumberland give a relatively crude assessment of its distribution when compared with the tetrads used in Durham.

Geoffrey Halliday is another recorder who suffers from the recently-published Flora syndrome, but he has managed about 10% re-recording in **Cumbria** since the Atlas, which is nothing to be ashamed of. Another problem is having out-of-date software. His program, Vespan, was brilliant for its time but in common with other early databases stored only a minimal amount of information in order to save disk space. The challenge is in getting all the old records into a suitable state for modern programs. Hopefully this problem will soon be solved.

I sle of Man

Linda Moore took over after Larch Garrad died in 2005. She works for the Wildlife & Conservation Division of the IoM government, which employs all three BSBI members on the island. Her first task is to try to combine the databases held by the various organisations (Wildlife Trust, museum and the government) and incorporate Larch's record cards. There are no voluntary recorders to mention, so Linda has an

ambition to set up a recording group. It sounds like there is a lot of potential.

Scotland

David Hawker is one recorder who sends records for his county (**Kirkcudbrightshire**) to *Watsonia* every year. He works as a consultant and makes a point of offering to pay for any data he receives from other county recorders. Dave Lang, in **Ayrshire**, is one of many who are essentially starting the computerisation process from scratch, and find that many of their historical records are difficult to deal with, being mostly at the 10km scale and lacking essential details such as site, date and recorder.

Peter Macpherson reports that he is progressing well with the Flora of **Lanarkshire**, and asks whether he should send the Scottish Newsletter and Glasgow Naturalist to the new BSBI library. Well, it would be much appreciated, but don't go to too much expense – opportunities for a whole set as a freebie do sometimes turn up. Another thought is whether the Scottish Newsletter could be digitised? If there is an electronic form, it is well worth saving for conversion to pdf format and loading onto the web site. So far only the Irish newsletter has been made available.

David McCosh (**Peeblesshire**) spent the year examining *Hieracium* specimens in herbaria to rename them according to the new Sell nomenclature.

Rod Corner grumbled a bit about some surveyors who made some unlikely records in **Selkirkshire**, and pointed out that he had to spend a day checking on such things, just in case they turned out to be right (they didn't). He says that the BSBI needs to do more to publicise the distribution of species so that surveyors can be aware of what is rare in a county that they don't know well. Happily, we do have some progress on that front: Quentin Groom has created recording cards for each vice county, based on the Maps Scheme database, which omit any species that is rare in the county. These can be downloaded free

from the BSBI web site. All we have to do is somehow let surveyors know that this facility is available – it could go a long way towards solving this problem.

Another development in the county is that Rod's record cards have now been computerised under the aegis of the SNH-funded inputting programme this year, organised by Jim McIntosh.

Michael Braithwaite confesses that his **Berwickshire** herbarium is a pile of boxes with many unsorted specimens that he has accumulated over the years. From the responses of various recorders, it seems there is a wide variation between those that do not collect at all, to those with large and well curated collections. At the moment we do not issue any advice or recommendations on the maintenance of herbaria, or on the deposition of material in national institutions. This year we have asked for reports from some of the herbaria that are active on British botany, and hopefully that will start to address the issue.

Michael has an active programme of field meetings and seems to be fully up to date with his computerisation.

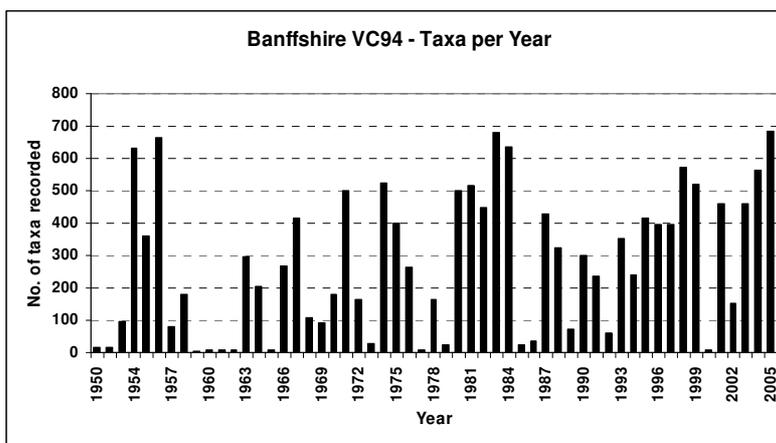
In **West Lothian**, Jackie Muscott also has an active programme of field meetings and is involved with many organisations such as the Edinburgh Natural History Society and the LRC. George Ballantyne says he needs someone to help with computerisation in **Fife & Kinross**, and asks what he should do about the Maps Scheme without a computer. The answer is to make sure that any paper records that are collected can be separated into date classes (the current date class, 4, runs from 2000-2009 inclusive) so they can be computerised at some point in the future. This could be done under the SNH computerisation project in time for the end of the decade.

Edna Stewart sent some record cards of Allan Stirling's that he had not sent off, and we computerised those. She also sent her entire database for **Stirlingshire** to be converted from Recorder 3 format to Mapmate; Jim McIntosh has been helping with that.

Alistair Godfrey and Jim McIntosh report that in **Mid Perthshire** they still record by 5km or 10km square, and they don't tackle critical taxa. Is it really any more effort to record by tetrad, even if you amalgamate the data to produce distribution maps at this scale? Fortunately, there is a reasonably large amount of fieldwork that goes on in Perthshire, especially on the critical taxa, so what is really needed is a serious computerisation initiative to draw all the disparate data sets together. Meanwhile, in **East Perthshire** Martin Robinson says he has really enjoyed exploring the county and getting to grips with new taxa such as

judged worthy of inclusion? Does the extra information justify the enormous amount of work involved in preparing the data – and the risk of making errors during the process?

Meanwhile, Andy seems close to joining that select group of recorders who have all available data on computer and are scouring old publications and herbaria for anything extra that they can find. The overwhelming majority of reports this year are from people bogged down in a seemingly endless task of data inputting, but rest assured that it does actually come to an end after a while, and then you can do many really interesting things with



The number of species recorded in Banffshire each year since the 1950s. Once all the historical data is on computer – as here – it becomes possible to quantify the level of recording across time, which is useful in assessing the changes in abundance and distribution of species. About ten counties now have essentially complete historical data sets.

hawkweeds and *Alchemilla*. He records rarities to precise grid references using GPS, but says he is conforming to the Perthshire standard of 5km squares most of the time. To judge from the comments that other recorders have made, we can only advise you that you will regret it! Nevertheless, he has put 38,000 records on computer and seems to be making excellent progress.

In Kincardineshire and North Aberdeenshire David Welch was involved in the route of a proposed bypass around Aberdeen and the battle against the closure of CEH Banchory. Andy Amphlett (**Banffshire**) raised a question about the formatting of records destined for Watsonia, which is so different to the standard biological record. It is an interesting point. Do we actually have to say why a record appears in Watsonia (1st v.c. record, etc.) or would it work just as well if it was just a simple list of records that had been

the data. Andy has a graph showing the number of records in the v.c. each year since 1950, confirming the suspicion that most botanical recording occurs in short bursts of activity: the peaks for v.c. 94 were in 1957, 1983 and 2005.

Ian Green is thinking about doing a Flora of Lossie Forest - one of the most significant sites in **Moray**, and the place where he refound *Carex maritima* recently. For an interesting Site Flora you need a fairly large site that has seen quite a lot of change, so there is something to report upon, and it is ideal to do it at about the time when the site's owners or managers might be receptive to new ideas. Like a Rare Plant Register, a Site Flora is largely a conservation report, and it needs to be interesting and topical.

The Inverness Botany Group celebrated its 50th anniversary last year (2006), and

Margaret Barron reports on a good level of activity, leading 8-10 field meetings each year in **Easternness**. But Alison Rutherford says she wants to resign from the recordership of **Dumbartonshire**, as she doesn't get about much now and has had enough. Apparently it is not a part of the country where wildlife is taken very seriously.

Angus Hannah (**Clyde Islands**) is one of an expanding group of recorders who have adopted much more precise scales of recording, at least in Bute and Cumbrae, although Arran is further away for him and more difficult to cover. He uses 10m x 10m plots and is working towards an Ecological Flora of Bute. There were two excellent Ecological Floras published in the 1980s – Shropshire and Durham – but nothing since then; it would be great to see this tradition revived.

Lynne Farrell (**Mid Ebudes**) reports that she records tetrads on Mull, and expressed some consternation about some recorders not sending their records to her. This is a fair point, but computer skills are now absolutely essential if you want to be involved, because there is so much data being generated that it is not realistic to transfer records manually.

Our last report from Catriona Murray for the **North Ebudes** was a helpful note about the only record of *Pilularia globulifera* from Skye, which was an error. She has now handed over the recordership to Stephen Bungard, who is working hard to get all existing data computerised. He has thoroughly recorded Raasay by 1km square, and will now be recording by tetrad on Skye, which was previously only done by 10km square. Echoing Lynne's comments, Stephen asks what mechanism there is for us to make sure all records reach county recorders. Well, the answer is, please ask. Many recorders don't want to be bothered with other peoples' data, so we don't force it on you, but if anyone asks what data we have we will happily send it.

In **Easter Ross** the admirably dynamic recorders, Brian and Barbara Ballinger, record by 1km square, and have had much success finding rare species such as *Ajuga genevensis* and *Carex maritima* at new sites. There are plans to recreate a more natural ecosystem in remote parts of the county by reintroducing wolves, which would certainly add a little

excitement to botanical surveys. In America, the reintroduction of wolves to Yellowstone Park has been, by all accounts, a great success in reducing overgrazing by elk.

Paul Smith and Richard Pankhurst commented that they had computerised all known records for the **Outer Hebrides**, and doubted that there would be any substantial data sets that were unknown to them. We responded by sending an extract from the National Vegetation Classification database, which turned out to contain 7,000 new records, which Richard seemed very pleased about. Paul grumbled that single species surveys such as the *Carex maritima* project tend not to produce anything new; but when they held a field meeting on South Harris and Taransay this year they discovered some of the largest populations ever seen. It's a dangerous job trying to make any predictions in botany; but discoveries like that are well worth being wrong about.

Elaine Bullard asked what scale she should be recording at in **Orkney**, and says the local records centre is not interested in her data if she uses grid squares larger than tetrads. The introduction of GPS and the widespread use of Mapmate have all put pressure on recorders to produce 'conservation quality' data – records that other people might want to use for managing nature reserves or monitoring populations. The same theme is broached by Walter Scott, who says it is time to start preparing for a tetrad Flora of **Shetland**. Again, the records centre manager, Paul Harvey, doesn't really want data unless it is at tetrad level or finer. Happily, a lot of the specimens collected by Richard Palmer and Walter for the 1989 Fl. Shetland are now being databased in full detail by Alex Draper at the South London Botanical Institute (see below) and they almost invariably have precise locational details.

Channel Isles
Roger Veall, the recorder for **Sark**, is not computerised but is very diligent in sending records in for Watsonia and now records by 1km square or better. Each year he sends detailed information on rarities for the Threatened Plants Database. Brian Bonnard, on **Alderney**, is equally efficient and fully computerised. In the hope of finding

something new for the island, we sent him a data set from the Nottingham Museum of Natural History, but not only was there nothing there that he didn't know about, but he also sent back a list of corrections...

Ireland

Sylvia Reynolds (Co. Limerick) pointed out that most Irish recorders publish their interesting finds in the Irish Naturalists' Journal instead of *Watsonia*. A lot of interesting information is also published in *Irish Botanical News*, which is now available on line on the BSBI web site.

Sylvia had a tip for recorders using the referee system: if you provide good quality specimens with detailed notes, you are more likely to get good information back. She was also one of several recorders to point out that the stats we produced from the Maps Scheme (aka Atlas Updating Project) for Ireland were not very accurate and – given that most of the re-recording figures were close to zero – not very helpful either. In response, we can only apologise for the missing data, and report that Quentin has re-worked the entire data set to come up with much better figures. As for the zeros, it would surely have been worse to leave Ireland out altogether.

Margaret Norton (**Co. Meath**) was one of many recorders who have asked for the data we hold on their county. We can and will do this immediately – but you need to be able to receive it, and that means having email and a database. Caroline MacDaeid has kindly been acting as an intermediary and accepting data sets for people who don't have computers.

Don Cotton received the VPDB records for **Sligo** and **Leitrim** and was less than impressed with both their quality and the problems it creates to merge data sets. Duplications are just something we have to cope with; but 10km square records are really frustrating to anyone, most of all the poor county recorder who has to go out and find these plants again, so everyone would be wise to collect data to the highest level of accuracy possible. Robert Northridge (**Fermanagh**) says he sends all his records to Belfast Museum for incorporating into their database. Ian McNeill reports that he is virtually on his own, recording in **Tyrone**. He asks how he can best contribute to the Maps Scheme. The

answer is that it is very easy; you can either send us a list of taxa in each 10km square since 2000, or simply send us a copy of any data set you have and we will extract it for you. If you are computerised, it is a job that takes less than 5 minutes a year, so if you find you are spending longer than that on it, please ask for advice.

Referees

A request form for an 'Annual Report' was sent round with the March 2006 issue of BSBI Recorder. Many thanks to those who replied (and we would be very glad to hear in due course from those who didn't).

The replies were complimentary about BSBI Recorder, which they were pleased to receive ('it is of great interest and value'). Many were happy with the current set up, and on the whole they found enquirers gave them sufficient location details for their specimens, though one said that enquirers were loath – inexcusably – to give collecting details.

About passing determinations on to the BSBI: many referees assume that the enquirers will send in their records to the Society (and, if necessary, their voucher specimens to an appropriate local or national herbarium). This would obviously be the case where the enquirers are themselves county recorders. However there may be other cases where the referee might suggest that the record should be sent, or even send it themselves.

Some referees took the opportunity to make comments on records and dots appearing in the Atlas. If anyone spots a mistake, they should send a note to Alex Lockton for inclusion in the Errors Database.

Altogether it was an illuminating and useful exercise which we will hope to repeat on future occasions. Here are some of the individual responses.

Pat Acock (*Equisetum*) looks at about 30 specimens a year, and assumes that the more experienced recorders, who are the ones that tend to find the hybrids, will submit the records to the BSBI.

The matter of herbaria is taken up by David Allen, who says that when he was a county recorder he would routinely collect specimens of any first county record and deposit it in the

regional museum (in this case Manx Museum). He wonders how many people do this now, and points out that relatively few of the records published in *Watsonia* seem to be supported by vouchers. One thing David mentions is the need for suppliers of drying paper, which may have become rather old-fashioned now. Many people now use an air-dried herbarium, which is much faster and often seems to make better specimens. It would be interesting to know how many people use this system and whether, as David suggests, we should offer training. It would be easy to have a demonstration at the Recorders' Conference. Please let us know if that would be useful.

Margaret Bradshaw reports that she gets a dozen specimens of *Alchemilla* each year and deals with them all promptly.

John Burnett wrote to ask for some of the records of the 'unpronounceable' *Veronica^x lackschewitzii* from the New Atlas, which turned out to be errors. This is one of the most useful things referees can do – validate the existing records and make sure we have a good data set. If anyone would like us to set them up with a database, please ask.

Eric Clement receives about 500 specimens a year, most of which are from outside Britain. He says that everyone now uses A4 sheets for herbaria, rather than the traditional A3-ish sheets. He also laments the demise of BSBI Abstracts, which Database Committee has been unable to maintain since Douglas Kent died. We have tried, but we have not yet found anyone willing to do the work. One alternative is to promote electronic publishing. Admittedly only a small proportion of journals are published electronically at the moment, but the proportion will rise quickly, and with moves from academic journals towards open access publishing, the amount of information available to researchers is going to increase fantastically over the next decade or so. Unfortunately, Eric says 'the world wide web still frightens me no end.'

Hugh Dawson is currently the general aquatics referee, but he says he gets very few specimens – about ten a year. He wonders if it is worth bothering. There is, of course, a need for general referees, for the benefit of younger and less experienced members. But maybe inexperienced people would rather send

material to someone they know, and that means tutors studied with on a course or active members who they have come across at meetings. It is quite a lot of work to nurture beginners in botany; as much as in any other subject area. This year, of course, we have created a 'beginners' referee' post, and it will be interesting to see how that works out.

Brenda Harold (*Potentilla*) gets 10-20 specimens a year, but says she has never received any instructions about what referees are supposed to do. Perhaps we should draw up some recommendations, but it varies so much from taxon to taxon that it would be difficult to apply guidelines across the board. In 2002 Brenda received several specimens of *Duchesnea indica*, and wondered if this was a new species invasion, but has had none since. The AUP shows quite a lot of post-Atlas dots, actually, so it must be spreading quite rapidly. Perhaps it is becoming common enough that recorders are happy to identify it themselves.

Nigel Holmes (*Potamogeton*) reports that he receives some 500 specimens a year, most of which are adequately labelled.

Geoffrey Kitchener gets huge numbers of hybrids in the genus *Epilobium*, so we have set up a database on Excel that allows the records to be sorted by the various columns. It turns out to be very interesting to see that many plants are clustered in particular sites. The gardens of several vicarages figure prominently in the 19th and 20th century records, and we will need to decide whether we should map hybrids that have arisen spontaneously in places where clearly many species had been cultivated. As hybrids generally need to be backed by specimens and confirmed by experts, it would be good to set up more highly detailed databases like this.

Roger Maskew (*Rosa*) sent piles of pink cards for databasing for the hybrids project. In the feedback from county recorders there was quite a bit of grumbling about the responses (or lack of) that they get from some referees, but Roger is certainly not one of the guilty parties. He keeps immaculate records, is efficient in dealing with specimens, and even comes to the Recorders Conference each year to run a workshop and identify plants.

Clare O'Reilly (*Symphytum*) had four specimens in her first year, and suggested that

the instructions in the Yearbook need to be more explicit about the information people should provide with their vouchers. This section has been expanded in the latest Yearbook, and we would appreciate any feedback about the changes. Clare is one of the few referees to use Mapmate to database anything she is sent. Although we are happy to provide it and support referees who want to do likewise, it is not always appropriate, because it is very hard work to maintain a database for such a large geographical area and such relatively small numbers of records. Please contact us and we will advise on the most appropriate system to use.

Prof. Donald Pigott (*Tilia*, *Thymus*) also gets 10-20 specimens a year. He keeps an extensive herbarium of *Tilia* specimens from around the world, but does not contribute records to the BSBI, leaving that to the people who send him material. Unfortunately, he says, the maps in the New Atlas show *T. cordata* as native in Ireland and Scotland, which he considers wrong.

We must do more to get referees involved in the management of our data, because of course it looks bad for both the society and the national expert if the maps are wrong and their views are not seen to be followed.

Mike Proctor (*Ulex* and *Helianthemum*) says he only gets a few specimens a year, and that it might be good for someone younger to take over. He has some interesting thoughts to offer about change in the British flora, and how we tend to assume that what we grew up with is both natural and best, when in many ways it clearly isn't. He points out that a lot of our rare and protected species are simply relicts of old farming methods, and that in the Bronze Age temperatures in Europe were rather warmer than they are now. Such observations do put in perspective the worry that some introduced Breckland rarity might be declining in one of its three sites this year. Would it be worth having a conference on long-term changes in the British & Irish flora, as an antidote to short term conservation priorities?

Jeremy Roberts is the referee for *Juncus alpinoarticulatus*, which is a rather specialised post. He gets maybe one specimen a year and says he wishes he could contribute more, but

there isn't really the opportunity, unless he can prove that hybrids exist.

By contrast, Nick Stewart must be one of the busiest referees, with all the charophytes to deal with. He gets some 500 specimens a year, and says that some consultants offer to pay for identification, which is good news. Last year Nick sent his database to us for incorporation into the Maps Scheme web site, and you can now view the distribution of all taxa there. Nick says he has detailed information on all the rarer species, and would be happy to help with Rare Plant Registers or County Floras, as he has done recently for the Floras of Dorset, Isle of Wight, Berkshire and the Lothians.

Roy Vickery is referee for folklore and popular plant names, and says he receives very few enquiries. He would welcome queries such as 'Do you have anything on *Sempervivum* in v.c. 27?' but, as his records are arranged taxonomically, he would find it difficult to provide everything for a county.

Jeffrey Wood is an orchid expert at Kew, but he writes to say he now mostly works on tropical species, and would like to resign as referee. Please note this, as it arrived too late for the change to go into the Yearbook.

Herbarium Curators

Stephen Jury says that the BSBI could make more use of the **University of Reading** Herbarium, which has finished incorporating 45,000 specimens from Ted Wallace & Ted Lousley's collections. He reports that they have a project, funded by the Arts & Humanities Research Council, to database 6,000 specimens and put the details on their web site. At the moment it seems only to have foreign material there, so it is of limited use to county recorders.

The former curator of the **University of Birmingham** herbarium, Richard Lester, died last year, leaving that role to Sarah Whild who, for BSBI purposes, has effectively been curator for the last few years. The collection is currently in storage in a building that is undergoing renovation, so it is not very accessible. However, there has been a lot of work by experts recently reviewing the material (e.g. *Sorbus* and *Hieracium*), and there is a satellite collection in Shrewsbury

where new material and specimens in use can be stored.

Leander Wolstenholme has, as many readers will know, with Tom Humphrey created the fabulous Herbaria@Home web site to digitise the **Manchester Museum** collection.

Although it started out that way, the idea is so promising and innovative that it deserves to be expanded to cover all British museums.

The main unknown element was whether enough members of the public would log on to database the material, but any worries are now dispelled, as the level of usage has been so high that they can barely keep up with it at Manchester. There is a need for more museums to contribute; but, even more pressing is the need to fund the project now it has proven to be so successful. The BSBI and the Botanical Collection Managers' Group of the Linnean Society are backing a Lottery bid to launch the project formally.

Tim Rich reports that **Swansea University Herbarium** is being integrated into **National Museum of Wales**. The vascular plants, lichens and seaweeds are coming to Cardiff, while the bryophytes are staying at Swansea for the time being. The university no longer had suitable storage space for the collection, parts of which had been badly damaged by beetles and have had to be disposed of. The herbarium contains many specimens collected by A.J.E. Smith, Q.O.N. Kay and C.R Hipkin, as well as many others. Most of the collections are from Britain and Europe, with a small set of material from elsewhere (e.g. a nice collection of marine angiosperms from Kenya).

They estimate there are about 4,000-5,000 specimens, not the 10,000 quoted in Kent & Allen's British and Irish Herbaria (1984). The collection is being remounted on acid-free card for long-term conservation, and will be documented before incorporation into NMW. The work should be completed by December 2007.

The herbarium of **Shrewsbury Museum** has now been completely databased and should be on the

Small British Herbarium Project web site by the time this newsletter is printed. It turned out to contain some 3,632 specimens of vascular plants, mostly from Shropshire but also from other parts of Britain, especially Wales. At a cost of £600, this was just 15p a record, which is exceptional value for a herbarium digitization project, thanks largely to the voluntary work of Mark Duffell.

The **South London Botanical Institute**, under the chairmanship of Roy Vickery, is also digitizing, thanks to the work of Alex Draper. They are working on Shetland material collected by the late Richard Palmer, and started with a spreadsheet of the records already in the Threatened Plants Database, to produce a gazetteer of sites and dictionaries of recorders and species to make the work easier. The work seems to be progressing well.

Mark Spencer, at the **Natural History Museum**, writes:

'I would like to provide an update to recorders and referees on activities in the British



Herbaria@Home

The idea behind Herbaria@Home is that photographs of herbarium sheets are displayed on the web site, and visitors are invited to input the details onto a spreadsheet. Once databased, other visitors can look up all the specimens relating to a county, taxon or collector, and edit the details further if necessary. Thus it becomes a virtual herbarium, with people able to offer information relating to their own area of expertise, whether taxonomic, geographical or biographical. The data may start off pretty basic, but over time it will become better than any herbarium could be with just a few museum experts working on it.

<http://herbariaunited.org/atHome/>

Herbarium (BM). The most important development has been that there are now, for the first time in many years, two staff members in the herbarium; Christopher Davis joined us in November 2006, his presence will greatly enhance our ability to support the work of the BSBI, particularly that of recorders and referees. Christopher has expertise in Malvaceae and he would be more than happy to determine material sent in from BSBI members. The collection of native and non-native plants of the British and Channel Islands housed at the NHM is due to undergo a major change over the next decade. The collection is to be moved from its current location to a new facility concentrating on British natural history within a new building, the Darwin Centre (phase two). The NHM aims to ensure that the move will safeguard the future of the collection and improve accessibility for users.

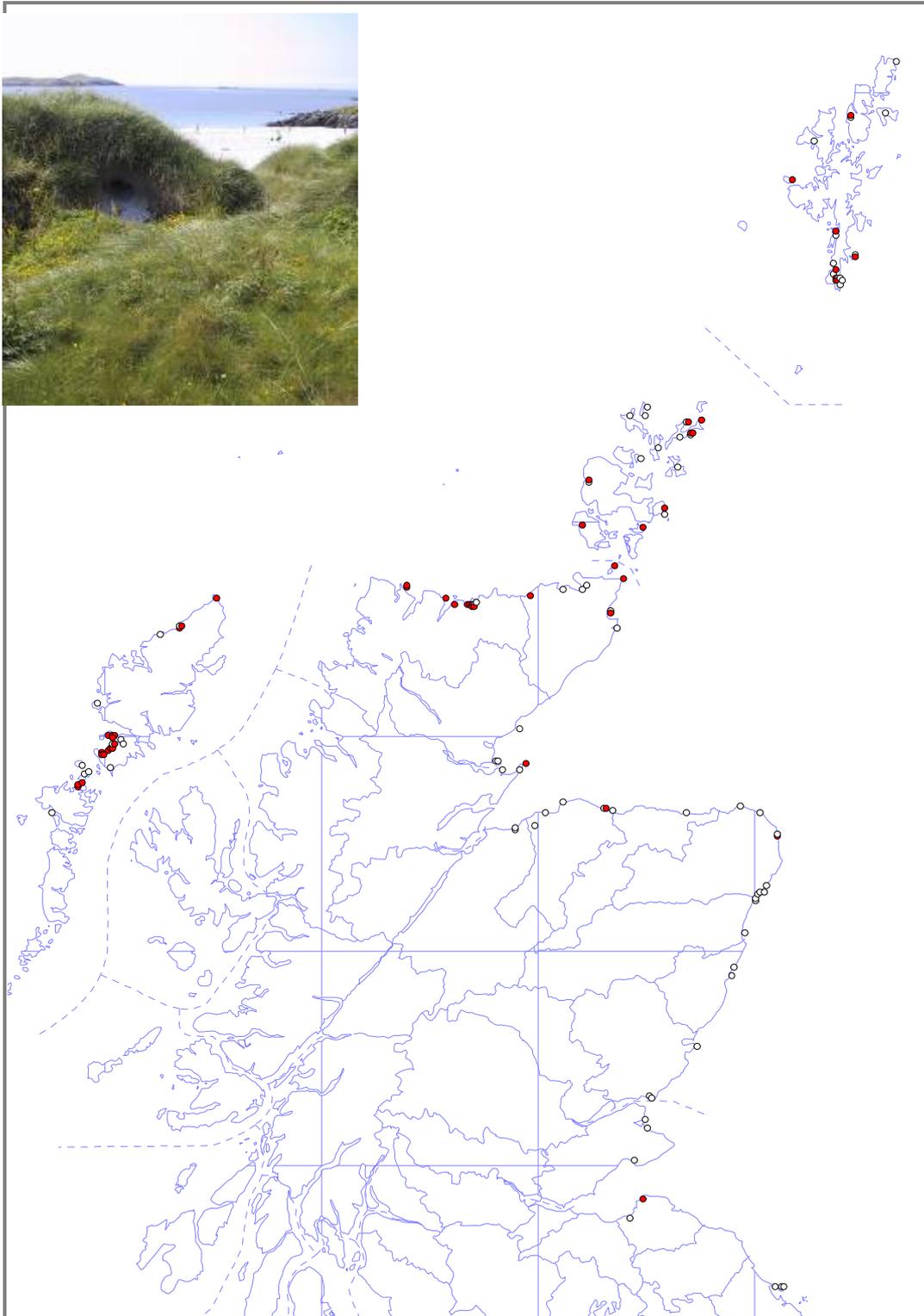
‘Prior to the move, we are starting to reorganise the herbarium around the arrangement of the BSBI checklist, although we may consider reorganising the collection according to the classification of the Angiosperm Phylogeny Group (APG II 2003). Much work needs to be done on this as sections of the herbarium are still organised by Dandy’s 1953 list. Particular projects we are undertaking are the reorganisation of *Senecio* s.l., *Scirpus* s.l. & *Viola*. We are also starting a detailed curatorial appraisal of the Asteraceae and have located large quantities of unincorporated material (many of which are probably unreported v.c. records). Additionally, conservation and curation of the important *Potamogeton* collection, fire damaged during WWII, is now proceeding and the whole collection will soon be accessible for the first time in over sixty years. We are hoping to expand the current project databasing the Museum’s v.c. 21 (Middlesex) specimens (these are now available to BSBI members); starting this year

we hope to include v.cc.16 (West Kent) and 18 (South Essex). Additionally, we are continuing to database our collections of UK Red list species and have recently databased significant material that furthers our understanding of the history and extinction of *Trichophorum alpinum* and *Tephroses palustris*. Other investigations within the herbarium have also located previously overlooked *Sorbus* type specimens, historically important material of *Senecio squalidus* and A.J. Wilmott’s manuscripts and notes relating to *Sorbus*, *Hieracium*, *Viola* and *Rhinanthus*. Finally, we have contributed significant quantities of data to the BSBI hybrids project, particularly for *Epilobium*, *Euphrasia*, *Salix*, *Spiraea* and *Mimulus*.

‘These projects largely depend upon the contribution of voluntary work and we need the support of BSBI members to continue these activities. The NHM will provide volunteers with the opportunity to develop skills in herbarium curation and database management. If you would like to comment on the proposed projects or volunteer at the Museum please contact me via e-mail, m.spencer@nhm.ac.uk, or tel. 020 7942 5787. Not only is this an opportunity to contribute to the maintenance of the cultural and scientific history of the British Isles it is an opportunity to fill gaps in on your v.c. records. We also welcome referees and recorders who wish to visit the collections without volunteering or to use our comprehensive library of British botany books, particularly Floras.’

Paul Hackney, from **Ulster Museum**, emailed with details of the new web pages on natural history that he edits (the url is very long – try the link from the Ireland page on the BSBI web site) and he kindly did a lot of work on the Hybrids Project, tracking down details of specimens at the museum.

Curved Sedge *Carex maritima* in Britain



A novel view of the distribution of the species, intended to show more clearly just how rare *Carex maritima* really is: dots are shown as 3km in diameter centred on the 1km square where the plant is found, thus there are some overlapping ones. Red dots indicate records since 2000.