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# Recorder News

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## FROM THE CHAIR

Our annual conference took place as advertised in Inverness Museum on 17 March and turned out to be a most memorable day. The heavy fall of snow overnight happily did not deter people and we had a full house. “Biodiversity data: collection and use” was the theme and three interesting and varied presentations in the morning addressed aspects of this, namely the importance of verification (Keith Bland kindly stood in at very short notice for Stephen Moran, who is on long term leave), access to data through the NBN (Oliver Grafton), and community involvement in data collection (Ian Evans). After a delicious lunch provided by the canteen, a panel,

expertly chaired by Michael Scott, discussed the topic of ‘Biodiversity data: the economics of collection and use’, in reply to questions submitted in written form as well from the floor. The was followed by tea and a lot more discussion, albeit informally among participants, and the day finished with two more excellent talks, Bob Reid on his unit’s research on stranded cetaceans in Scotland, and Murdo Macdonald on recording bumblebees in North Scotland. Those of you who did not make it to Inverness missed a most exciting and valuable day. Summaries of the talks can be found elsewhere in this newsletter, as well as a brief resume of the panel discussion.

Conferences also provides the occasion for our AGMs. The annual report was presented (all members should have had a copy included with the January mailing), as well as the financial report. Further copies of both can be had from me. A number of changes to the committee were announced and approved: Lesley Brown has taken on the task of Membership Secretary, Mark Simmons has agreed to stay on as treasurer, though not to attend all committee meetings, and Andy Wakelin will continue to manage the webiste. Alison Hannah, Stephen Hunt, Paul Kirkland, Bob Saville, and myself as chair will stay on, while Alan Cameron will stay on for the time being. Ross Andrew, Bob Bryson, and Malcolm Muir are standing down. David Mellor and Roger Riddington had already left, and the chair expressed our grateful thanks to departing committee members for all they have done for BRISC during their time on the committee. Jeanette Hall will join the committee to represent SNH.

Members present were invited to join the committee, but there were no offers. It was agreed that BRISC should recruit new members to the committee as seen fit, and I am very pleased to announce that Dr Brian Boag, Scottish Crop Research Institute, Invergowrie, has agreed to serve.

The Strategic Document outlining activities 2001-4, which was mailed out last January for members’ comments, was then discussed. The comments submitted had been incorporated and the amended version presented. In

general, the document was approved, although some misgivings were expressed as to the shortage of manpower in relation to the wide scope of the document. However, as the committee pointed out, if BRISC is to grow and develop, the forming of groups, encouraging more involvement by individual members, would be the only way forward.

A questionnaire has been included with this mailing to establish members interests and whether members are willing to have their names and contact details published in a future newsletter. I know it is not anyone's favourite pastime to fill in questionnaires, but we have kept it very short. **Please do take a few minutes to fill this in and send it to me by 5 May 2001**, so we can ascertain what members want.

A date has already been fixed for the launch of the LRC Group. It has been decided - at least initially - to restrict this group to LRC managers and staff. The date is 17<sup>th</sup> May 2001 at Fife House. If you fall into that group and have not already received an invitation, please get in touch with me or with William Penrice at Fife Nature, Fife House, Glenrothes.

No dates have so far been fixed for the launch of either the Computer Skills Group or the Recording Group, but for a starter, BRISC is inviting all members to take part in a Scottish Bumblebee survey. Survey material is currently being collated and will include a coloured crib sheet and identification key as well as other information. To obtain a survey pack, please send £2.50 to BRISC, c/o Chesterhill, Shore Road, Anstruther KY10 3DZ, though of course this is only an aid and anyone can record bumblebees without having a survey pack. All records should initially be submitted to your Local Records Centre and only direct to BRISC or to Murdo Macdonald, Scottish bumblebee recorder, where there is no active LRC. Murdoch is also prepared to help where difficulties arise regarding identification. His address is

Dr Murdoch Macdonald, 'Tigh nam Beith',  
Strathpeffer, Ross & Cromarty, IV14 9ET

Details on groups and their activities and much more can be found on our website at [www.brisec.org.uk](http://www.brisec.org.uk)  
Please do visit it and tell us what you think and how we can improve it.

Anne-Marie Smout

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## IS THE NETTLE BECOMING OUR COMMONEST WILD PLANT?

In 2000, Plantlife (in partnership with Royal Society for the Protection of Birds, the Joint Nature Conservation Committee and the Centre for Ecology and Hydrology) piloted a new approach to survey common wild flowers using volunteer members of the public. 58 easy-to-identify plant species, indicative of the state of different habitats, were chosen for the survey. The list includes plants such as traveller's joy from woodland edges, red dead nettle and common poppies from arable fields, heather from moorland, buck's horn plantain and thrift

from the coast, and yellow flag and marsh marigold from wetlands.

168 volunteers surveyed 178 1km squares and the results help to paint a picture of our countryside. The weedy species were the most frequently recorded species with nettle coming out top – it was recorded in 93% of the survey squares. The top ten most frequently recorded species are shown below.

**Table 1 Top 10 species records ordered by frequency**

Species	No. of locations	% of locations
Nettle, Common <i>Urtica dioica</i>	166	93
Hawthorn <i>Crataegus monogyna</i>	153	86
Cleavers <i>Galium aparine</i>	145	81
Plantain, Ribwort <i>Plantago lanceolata</i>	143	80
Plantain, Greater <i>Plantago major</i>	136	76
Parsley, Cow <i>Anthriscus sylvestris</i>	130	73
Clover, Red <i>Trifolium pratense</i>	126	71
Herb-Robert <i>Geranium robertianum</i>	115	65
Yarrow <i>Achillea millefolium</i>	115	65
Chickweed, Common <i>Stellaria media</i>	106	60

The results appear consistent with the findings of the Government's Countryside Survey 2000 (CS2000) and recent Plantlife report *Where have all the flowers gone?* (Marren, 2000). CS2000 noted a change in habitat condition with plant diversity declining in most habitat

types because of increased fertility (see Box 1). Enrichment by nutrients, particularly nitrogen and phosphorus, is called eutrophication and this is leading to a change in the chemistry of our soils and waterways. Our vegetation appears to have become increasingly dominated by fewer,

widely occurring species, such as hawthorn, cleavers or sterile brome (in hedges), stinging nettle (by streamsides), rye-grass (in grassland), and bracken or mat-grass (on moors and heaths). Marren states that:

“...in essence, it means that very common plants become yet more common, rare ones get rarer, diversity is reduced and the vegetation becomes more homogeneous and less interesting. Sites of high natural biodiversity, like verges, streamsides and field boundaries, become overgrown by coarse shade plants. Competition, for most wild flowers, has got a lot tougher.” (Marren, 2000).

The marked increase in nitrogen and potash from agricultural fertilisers, and also from motor vehicles (which overtook power stations as the largest source of nitrogen emission in 1982) are considered the key drivers of eutrophication.

**Box 1 Recorded changes in plant diversity between 1990 and 1998 taken from *Accounting for Nature: assessing habitats in the UK countryside* (Haines-Young et al., 2000)**

- Plant diversity continued to decline in the least agriculturally improved grasslands in Great Britain. Plant diversity in some meadows fell by 8%, including losses of meadow species important for butterflies.
- Road verges showed evidence of increasing nutrient levels and losses in plant diversity. Plant diversity fell by 9% in some road verges in England and Wales.
- There was evidence of increasing nutrient levels or eutrophication in dwarf shrub heath and bog, suggested by an increase of plant species more typical of lowland grasslands.
- Streamside vegetation became more overgrown, and plant diversity decreased by 11% in England and Wales.

Martin Harper, who manages the survey for Plantlife said, “the results obtained from the 2000 survey do tell us something about the state of the countryside, but the real benefit of the project will only be realised once many years of data have been returned.

“We were pleased with the number of sites surveyed in the first year but many of the English and Welsh upland landscapes are under-represented in the data. Scotland in particular is poorly represented with no sites in the Highlands and Islands. We are therefore keen to encourage as many people as possible to take part in the survey in 2001. So if you are committed to plant conservation, can identify the 58 species listed or are willing to learn why not join Plantlife’s Common Plants Survey 2001.”

To obtain all the (free) information you need to take part, please ring 020 7808 0118 or visit Plantlife’s website [www.plantlife.org.uk](http://www.plantlife.org.uk)

If you would like to receive a copy of the summary results of the Common Plants Survey 2000 please call 020 7808 0100

## References

- ◆ Haines-Young, R.H., Barr, C.J. Black, H.I.J., Briggs, D.J., Bunce, R.G.H., Clarke, R.T., Cooper, A., Dawson, F.H., Firbank, L.G., Fuller, R.M., Furse, M.T., Gillespie, M.K., Hill, R., Hornung, M., Howard, D.C., McCann, T., Morecroft, M.D., Petit, S., Sier, A.R.J., Smart, S.M., Smith, G.M., Stott, A.P., Stuart, R.C. and Watkins, J.W. (2000). *Accounting for Nature: assessing habitats in the UK countryside*. DETR, London.
- ◆ Marren, P. (2000). *Where have all the flowers gone? A study of local extinctions as recorded in the county floras*. Plantlife report.

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## SUMMARY OF TALK ON CETACEAN STRANDINGS GIVEN TO BRISC CONFERENCE

by Bob Reid, Wildlife Unit, SAC, Inverness

The biodiversity data that are collected from cetacean stranding incidents vary depending on where and what is found stranded and to some extent the speed of reporting. Scottish Agricultural College (SAC) Veterinary Science Division is contracted by the Department of Environment, Transport and the Regions (DETR) as the Scottish part of the UK Marine Mammal Strandings Project. Their partners in this contract are the Natural History Museum and the Institute of Zoology, both of London and National Museums of Scotland, Edinburgh.

Strandings anywhere in Scotland should be reported to SAC and reports come in from H.M. Coastguard, Police Forces, Local Authorities, Scottish Natural Heritage, Scottish Wildlife Trust and many other sources including direct from members of the public.

The action taken depends upon the freshness, location and size of the carcass. In incidents involving cetaceans up to small whale size they are generally collected and taken to one of SAC’s eight veterinary centres which are scattered around Scotland and necropsy examinations are carried out there. Large whales are generally examined either on the strandings site or at a disposal site identified by the council if the stranding site is not remote enough for a carcass to be left to decompose naturally.

Postmortem examinations are carried out according to a standardised protocol, which was developed by veterinary pathologists and other scientists throughout Europe. This protocol ensures that results can be compared between countries and also that the correct samples are collected for the various research projects which have been developed with other research institutes. Certain morphometric measurements are recorded for use in developing growth curves for the various species of cetacean which are found around the UK coast. During the examination, all organs are examined and sampled to establish whether disease is present. Also samples are collected for toxicological, dietary and reproductive study. Teeth are collected and the growth

layer groups are counted to estimate the age of the animal. Samples are also subjected to bacteriological and serological testing.

The data collected is of two levels; the first is that of a stranding report where the carcass is not the subject of a post mortem examination and only location, date, length and possibly species are recorded. Wherever possible voucher material is collected for definitive identification of species but in some cases this is not possible so these carcasses may be recorded as odontocete or dolphin or whale etc.

In the cases where a full examination of the carcass takes place there are data on disease status, cause of death, age,

sex, diet, pollutant levels and genetics to add to the above basic data.

These data are recorded in a database in the Inverness centre which links with a UK database held at the Institute of Zoology. A unique number is allocated to each incident and duplicate samples are labeled and stored under controlled conditions for analyses and archiving. The movement of specimens is recorded and all results fed back to the UK database.

Skulls from all animals examined and in some cases complete skeletons are donated to the research collection at National Museums of Scotland to be used as reference specimens and also for research.

### Summary of Marine Mammal Strandings (Scotland) 1 Jan 1995 - 31 Dec 1999

We received reports of 703 stranded cetaceans during the above period and the breakdown of species is listed below.

#### CETACEANS

Species	No. of animals	No. necropsied
◆ Harbour porpoise	302	169
◆ Atlantic white-sided dolphin	53	17
◆ Minke whale	50	10
◆ Long-finned pilot whale	38	8
◆ Common dolphin	37	12
◆ Risso's dolphin	34	5
◆ Striped dolphin	33	16
◆ Sperm whale	31	8
◆ White-beaked dolphin	30	15
◆ Bottlenose dolphin	18	12
◆ Killer whale	4	1
◆ Sowerby's beaked whale	4	2
◆ Northern bottlenose whale	3	1
◆ Pygmy sperm whale	2	2
◆ Cuvier's beaked whale	1	0
◆ Fraser's dolphin	1	0
◆ CETACEAN (sp. undetermined)	15	0
◆ COMMON/STRIPED DOLPHIN	9	0
◆ DOLPHIN (sp. undetermined)	13	0
◆ LAGENORHYNCHUS SPP.	2	0
◆ MYSTICETE	2	0
◆ ODONTOCETE	9	0
◆ WHALE (sp. undetermined)	12	0

The information collected from a (relatively) long-term programme such as this one can be used to gain a better understanding of these animals and their use of the resources available in the seas.

Many conservation and area management schemes rely on the use of accurate data on habitat use by cetaceans and one example is the proposed Special Area of Conservation in the Moray Firth with regard to the bottlenose dolphins that use the area. The strandings project was able to supply the management team with important information on the diet of a number of such stranded dolphins that had been examined and stomach contents analysed.

Improved data on the onset and decline of sexual maturity is imperative when designing management plans and recovery programs and again this is an area where this project has assisted.

The study of dead stranded cetaceans has helped those organisations involved in the rescue of live-stranded animals as we learn more about the changes that happen to a cetacean when it becomes beached. Part of the strandings project is also the examination and recording of similar data on marine turtle strandings. Species recorded in recent years in Scotland are the leatherback turtle which is a regular visitor

to the West of Scotland and the loggerhead which is much rarer and thought to be lost if seen off our coast.

The first records of the striped dolphin in Scotland and the Fraser's dolphin in the UK have been published in the scientific literature, and the first record of the pygmy sperm whale in Scotland has been recorded.

We are very grateful to all individuals and organisations that have contributed reports of strandings and ask that all strandings in Scotland should be reported to:

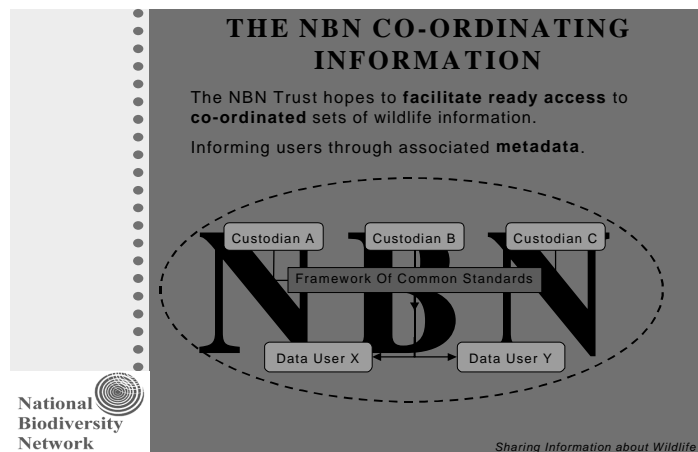
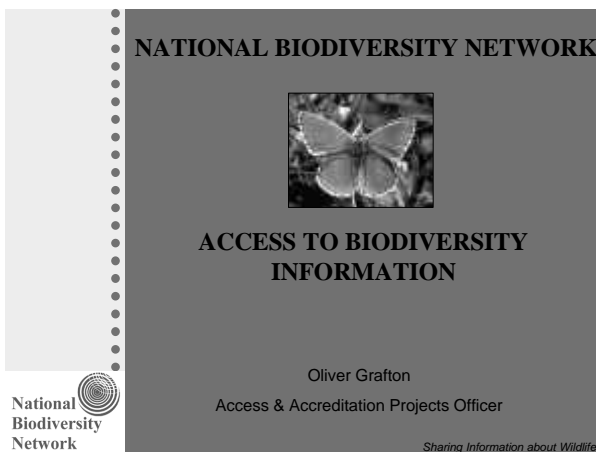
SAC Veterinary Science Division  
"Drummondhill", Stratherrick Road  
Inverness, IV2 4JZ  
Tel 01463 243030 (office hours)  
Tel 0797 9245893 (other times)

We would also ask that anyone finding a dead stranded cetacean either ensure that it is above the high water mark or secures it to avoid removal by the tide prior to telephoning.

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## ACCESS TO BIODIVERSITY DATA THROUGH THE NBN

by Oliver Grafton, National Biodiversity Network Trust (NBNT) Project Officer for Accreditation and Access



### BACKGROUND TO THE NBN

The development of the NBN is being sponsored and driven by the NBN Trust, a partnership of organisations that recognise the value of ready access to wildlife information and that are in a position to support development through the contribution of resource (funding or expertise).

The NBN Trust recognises the importance of biodiversity in the UK. The overriding principle of the NBN is the notion that society should take responsibility for its activities and their impacts upon the environment and biodiversity within it. The NBN aims to support work that increases our understanding of wildlife in the UK.

The NBN Trust believes that wildlife information should be made widely available. Ready access to this information will allow conservation

organisations to develop more informed plans and targets to maximise the effectiveness of their work. The NBN Trust believes that this same information should be made available to decision-makers within all organisations, at all levels and in all sectors of the UK. This will enable them to make informed decisions about their activities, and facilitate work to minimise negative impacts upon wildlife.

Although there is a wealth of wildlife information in the UK, much of this is dispersed and uncoordinated. Ready access to relevant, accurate and up-to-date information on biodiversity in the UK is not available. The location, ownership, origin or quality of datasets is often unknown. Where wildlife information is used the potential for its misuse or inappropriate use is high due to a lack of understanding of its compilation.

### NBN THE SOLUTION

The NBN hopes to provide a solution to this:

The NBN Trust hopes to facilitate ready access to coordinated sets of data, informing users of their location, origin, ownership, and providing enough associated information (metadata) to enable users to assess their quality.

The NBN Trust proposes to co-ordinate wildlife information by linking data holders and data users in partnership, forming a network of data nodes, the NBN

However...

Wildlife information is collected and used by a diverse range of organisations in the UK. Real and perceived differences between these potential data nodes have prevented the sharing and exchange of the information they hold. Any sharing and exchange of data that does occur tends to be between small groups of organisations, and is often founded upon trust between the individuals involved, not between the organisations.

#### COMMON STANDARDS THROUGH WHICH TO EXCHANGE INFORMATION

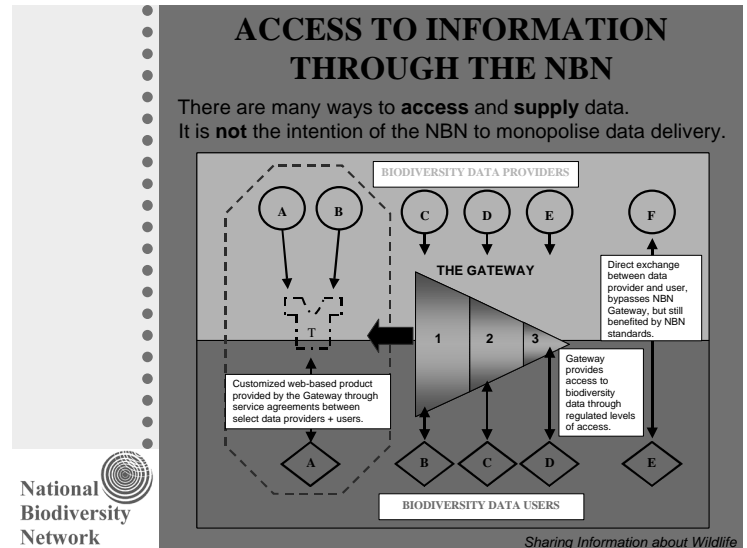
There is a need to bring these organisations closer together both technically (how they record and store data) and operationally (how they transfer, exchange and put data to use). The NBN Trust has put significant time and resource into developing a framework of common standards through which potential data nodes could exchange biodiversity information. These common standards are an attempt at identifying methods of best practice in the collection, storage and exchange of biodiversity information. The common standards are essentially the NBN Data Model (of which R2K is one manifestation) facilitating compatibility, comparability and standardisation of datasets, and the NBN Access Terms (or principles of data exchange) facilitating, formalising, and standardising the exchange of biodiversity data within the NBN.

All data nodes partaking in the NBN will be asked to sign up to the data model and access terms. The NBN Trust are sponsoring the development of an accreditation system that will be used to monitor, check and certify whether or not individual organisations within the NBN are meeting the minimum standards specified by the Data Model and Access Terms.

#### ACCESS TO BIODIVERSITY INFORMATION THROUGH THE NBN

A variety of options to access biodiversity information are currently available. It is not the intention of the NBN

Trust to undermine or prevent any existing method of access to biodiversity information. Many potential data nodes may wish to maintain their current data exchange arrangements.



Users of biodiversity information may wish to access biodiversity information directly from the custodian, and this is welcomed by the NBN Trust. Here suppliers and users will experience benefit from the common standards of the NBN, facilitating compatibility and comparability with other datasets, and enabling users to assess the quality of data and its suitability for intended use.

Each data node supplying data through the NBN will retain their individual identity as an organisation and a data custodian. The custodian will retain ultimate control over their data. Individuals will not be forced to release their data, rather they will be encouraged to do so within a controlled environment. The **NBN Internet Gateway** is the proposed manifestation of this controlled environment.

#### THE GATEWAY

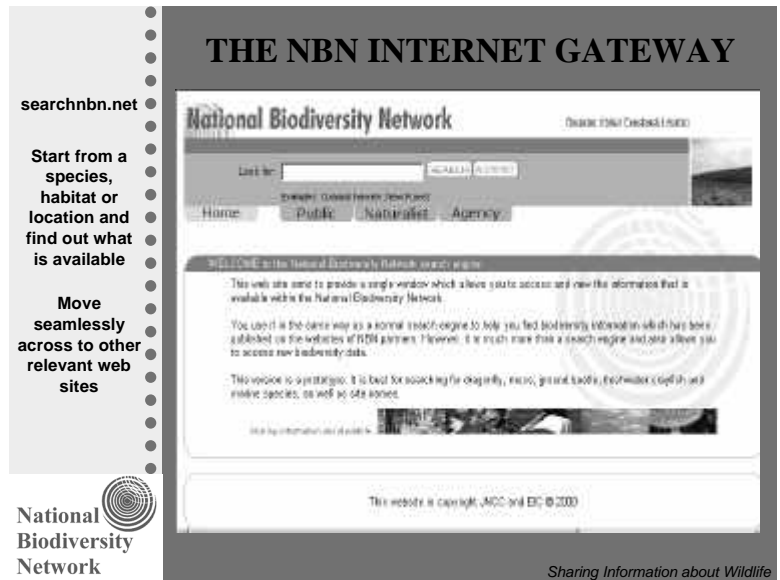
The NBN Internet Gateway provides the opportunity to centralise access to biodiversity information whilst maximising potential access via the World Wide Web. However, access to this information will be controlled.

The vision of the Gateway is to provide individual organisations with other peoples data enabling them to compare and put into context their own data.

A prototype of the Gateway has been developed on behalf of the NBN Trust. The Gateway can be accessed online at [www.searchnbn.net](http://www.searchnbn.net). The prototype provides a simple illustration of the kind of services that could be provided by the final product. The NBN Trust would like potential users to trial the system and provide informed feedback.

The prototype Gateway has been developed with two levels of access (virtually all or nothing at the moment). The current plan is to extend this to three levels of access in the final product. Access to restricted information or datasets is accessed through the use of an authorised username and password.

The proposal is to provide a variety of access levels to which data suppliers can choose to subscribe.



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## COMMUNITY WILDLIFE AUDITS: A FRESH LOOK AT HIGHLAND BIODIVERSITY

### Ian Evans (Highland Biological Recording Group)

[Edited version of a paper read to the BRISC. annual conference at Inverness Museum on 17 March 2001. The theme of the conference was 'Biodiversity data: collection and use'.]

1. Origins. On 7th December 2000 a Workshop was held at Inverness to discuss some of the ideas contained in a substantial document entitled 'A Draft Framework for Biodiversity in Highland' prepared by officers of the Highland Council, SNH, SWT and RSPB.

A section at the end of this document, headed 'The Connecting Threads', raises the question of how communities can be better involved in the management of Highland's biodiversity. The Workshop did not include a session on community involvement as such, but the subject came up in several other sessions.

Several members of the HBRG attended the Workshop 'wearing other hats'. As a consequence, a first draft of this paper was circulated round the Group's Committee and then e-mailed to other participants in the Workshop. Its purpose was to promote further discussion of community involvement, particularly in the remoter and more sparsely-populated parts of Highland (which is most of it!). This expanded version of the draft addresses some broader aspects of the topic, and then suggests possible forms that community participation might take.

Before doing so, a comment on the title 'Community Wildlife Audits'. It was chosen to encapsulate the thinking contained in the paper, but does not have a popular ring to it. Caroline Eccles, the Highland Council Biodiversity Development Officer, has suggested the much more friendly 'Knowing your Patch'.

2. The topic provokes three questions: *Why, Who, and How?*

3. Firstly, *Why? Why should we concern ourselves with biodiversity at the local level?*

It is widely agreed that Highland Scotland has some of the most striking and precious wildlife habitats and species in the UK. They have been celebrated in a succession of beautifully illustrated books, TV programmes etc., but these are often rather general in character and tend to focus on a relatively small number of prime areas and species.

However, any field naturalist knows that local variations, in topography, rocks and soils, weather, vegetational history and land use, mean that every part of Highland (as elsewhere) has a unique and exciting story waiting to be discovered and told. This fact is not so generally appreciated.

Despite the manifest richness and individuality, 'hard' information about species and habitats in Highland, especially at the local level, is often lacking or inaccessible. [This was one of themes of a recently published report by Lorraine Mann and myself to SNH, entitled 'Biological Recording in the Highlands and Islands: strategy and proposals'.]

Lack of information often makes it difficult for those attempting to communicate or interpret the biodiversity of the Highland area to deal in anything but broad generalities. This can result in a disappointing blandness and sameness; think of all the interpretative panels you have seen bearing variants of the same mix of golden eagles, red deer and salmon!

It is equally difficult for those living in particular areas to appreciate either the uniqueness of their own patch or how it fits into the overall biodiversity of the Highland landscape. And this is really important, since 'them as don't know won't care'!

4. The second question is *Who? Who do we mean when we use the term community?*

There are two useful, if overlapping, meanings in the context of Highland biodiversity.

5. Firstly, there is a Highland-wide community of interest and expertise, of individual naturalists, both professional and amateur (using those terms purely in the sense of paid and unpaid).

The professionals are employed by a variety of organisations with a declared commitment to maintaining and enhancing biodiversity, such as conservation bodies, local authorities, statutory undertakers and land managers.

The amateurs may belong to organisations at a variety of levels, for example national biological societies (sometimes with networks of local recorders such as the BSBI or BTO), the HBRG, or local field and bird clubs. Or they may not! They are for the most part resident, but an important component of this amateur community is that of visitors with specialised interests.

The role of the amateur naturalist seems to us, in HBRG, to have been largely overlooked in recent discussions. They are referred to, rather patronisingly, as 'hobby naturalists' in the Highland Biodiversity discussion document. It is worth pointing out that, in the UK as a whole, 70% of biological records are generated by amateurs; in Highland the proportion is almost certainly higher.

HBRG was set up in 1986 to cater especially for the amateur members of this widely-dispersed community. It now has a membership of 150, and its annual Newsletter attracts authoritative contributions on Highland wildlife. It is self-supporting in all but two important respects.

Firstly, its publications have been grant-aided by a variety of organisations. Secondly, all the records gathered in its surveys are fed back to the Inverness Museum Records Centre for entry into the *Recorder* database by volunteers managed by Museum's naturalist, Stephen Moran. He is the 'anchor man' of the Group's recording effort, and in his professional capacity often also the first point of contact for individuals new to the area or with specialised queries. In our view the work that he does in this field is both under-appreciated and seriously under-resourced.

6. The second category of community is the local one, the potential role of whose members has been even more neglected. 'Local' can of course only be meaningfully

defined by those who live in the locality concerned. It may be a parish, a strath, or, in many parts of the Highlands, where parishes can be huge, a large 'village' or a group of crofting townships.

Who are the potentially interested parties in such local communities?

Some are individuals with a professional interest in biodiversity, such as the Highland Council Rangers, whose interest often spills over into their spare time.

Another group includes those involved in land management, farmers, crofters, stalkers and ghillies, whose daily work gives them specialised knowledge of the local environment and its wildlife.

Many other local people take more than a passing interest in wildlife, even if they 'only', as they might put it, feed the birds in their gardens. Although they are often unnecessarily apologetic about their lack of so-called 'expertise', they can be a great source of information.

Finally there are visitors, one-off or regular, for whom the wildlife is one of several attractions of the area concerned.

In a few parts of the Highlands there are clubs and societies which can act as a focus for local interest in and knowledge of wildlife. But it is in the areas where they do not exist that an initiative is needed.

7. Which leads on to the third and final question: *How? How may we best encourage communities to get to 'know their patch', and, in so doing, to enhance their appreciation of what they have?*

Highland Biological Recording Group would like to suggest the funding of a small number of pilot Community Wildlife Audits. Their purpose would be to encourage and enable local communities:

- a. to carry out a preliminary assessment of their local wildlife habitats and species, i.e. *What do we have?*
- b. to explore and document the unique features of their locality, i.e. *What's special about this place and why?*
- c. to interpret and communicate this uniqueness, i.e. *See what we have!*

8. And here we get down to practicalities. However willing and interested members of a community might be, the more sparsely-populated parts of Highland will not always have local people with both the relevant experience and spare (i.e. unpaid) time to get such a project up and running.

It will be necessary to employ someone to do so. They could be part-time, and should, if at all possible, be from the local community. Some modest funding will also be required for the purchase or lease of equipment and

materials, and for the initial costs, at least, of communicating or networking the results.

We see such a project as an exercise in partnership. Local partners will include schools, community councils, relevant interest groups, grazings committees, and, of course, any individuals with specialised expertise. Highland-wide partners might include any or all of the relevant agencies, but, and this is most important, in a supporting role, to ensure that the exercise remains community-centred.

To be worthwhile, the minimum time needed for such a project, given thorough preparation, is a calendar year. Whether it continued afterwards, in any form, would depend on the enthusiasm and resources of the local community. However, much that was tangible and of permanent value, in the form of, for example, a publication (whether conventional or on the Web), could be achieved in that space of time.

9. Many of the activities that might form part of such a project have already been tried out in parts of the Highland area. With this experience in mind, and to give something of the flavour of such an exercise, we suggest that a plan of action for a Community Wildlife Audit might include some or all of the following steps:

- a. choose and define the boundaries of an area which is meaningful to that community
- b. ask schoolchildren and others to record/illustrate a calendar of local events in the natural world
- c. ask interested householders to record their monthly observations of garden birds (and other wildlife)
- d. draw up a map of the major wildlife habitats in the area and persuade small groups to make their own record of each of these (not forgetting the built environment and other intensively managed areas);

photographs and other illustrations would be an integral part of such a record.

- e. draft in a small number of 'experts' to work with local children/enthusiasts on projects particularly relevant to the locality, e.g. marine life
- f. recruit a group to co-ordinate the interpretation/communication of the results of the surveys, in any appropriate medium, whether publication, exhibition or event
- g. have a launch and winding-up party!

10. One final thought. The results of such an exercise might look like the 'small change' of biological recording. Why bother, when there are much more 'important' issues in biodiversity? There are two reasons. Firstly, it's good fun, otherwise people will not take part (and our experience is that they do). Secondly, it is a vital contribution to the 'battle for hearts and minds', those of the wider community, who after all pick up the bill for most of what we do to maintain Highland biodiversity.

[The paper was illustrated with examples of projects undertaken by the Assynt Field Club in which community participation was and is a vital component. The Club serves a parish covering 183 sq. miles, but has only about 1000 inhabitants in some 650 households. It has a mailing list of about 120 locally (+ 30 regular visitors). The local news sheet, which also carries the Club's appeals for information, reaches about half the households.

The projects were: Amphibian Survey (1993, local response to survey initiated by HBRG, started in schools); Nature Calendar (1995, 1996, some continuing); Garden Bird Survey (1997, some continuing); 'Birds of Assynt: an annotated checklist' (1998, revised and reprinted 2000); Assynt Mammal Atlas (work continuing).

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## BUMBLEBEE WORK IN THE HIGHLANDS AND ISLANDS

**Murdo Macdonald**  
**Highland Biological Recording Group**

[The presentation was given as power point slides, but has been turned into the text below, except for the maps – ed]

### ◆ What are Bumblebees:

They belong to the order Hymenoptera (bees, ants and sawflies), and to the genera *Bombus* (normal social bees) and *Psithyrus* (cuckoo bees). There are 239 species worldwide. They have a global distribution except for Africa South of the Atlas mountains, the Arabian peninsula, India (south of the Himalayas), Australasia, Oceania (but introduced to New Zealand).

### ◆ Bumblebee biology:

The queens emerge in spring, when they feed on nectar and provision a nest (often a mouse nest) with pollen and nectar. *Fertilised* eggs develop into workers (females), which then forage for the nest. Some females develop into queens. Males are produced from *unfertilised* eggs in late summer. Males fertilise queens - when they are not occupied in drinking nectar. The old queens and all males and workers die off in the autumn, while fertilised queens with stored fat hibernate underground.

(Note Honeybees are perennial.)

### ◆ Cuckoo bees:

Females find established bumblebee nests in spring. The host queen is killed by the cuckoo female; the cuckoo

female then lays eggs in the nest and host workers forage for the developing cuckoos. Cuckoo bees have no workers. Species of cuckoo bees are more or less specific to one host, but are usually less widely distributed than the host. They are sometimes put in the genus *Psithyrus*.

◆ Bumblebees in the community:

Bumblebees are pollinators and different species have different forage preferences. A high bumblebee diversity requires diverse and appropriate flora, while some flora need bumblebees for efficient seed setting. Bumblebees act as hosts for a variety of specific parasites (e.g. conopid flies, mites, nematodes). Their nests (often themselves old mammal nests) provide habitat for commonsals (e.g. bee moth, hoverfly *Volucella bombylans*), many casual predators (spiders, mammals, birds), and they are models for mimicry of several hoverflies and other fly species.

◆ Economic importance:

Bumblebees are important pollinators of some crop plants (e.g. red clover, beans, alfalfa, cotton, and fruit trees). Commercial sales take place of bumblebee colonies in some parts of the world for crop pollination, and some companies do this in the UK with possible threats to native stocks. It is found that increasing bumblebee density increases the seed set in clove crops .

◆ Habitat requirements

Gardens are important for early and late forage, and for a diversity of flowers. Hedgerows and woodland/forest edge with *Rubus* spp. are used by most lowland species; moorland is the usual habitat of just three species; machair and flower-rich meadows hold five species, two of which are rare; while coastal meadows and *Sonchus* stands are important for two newcomers. Habitat must have nest sites as well as forage, so the structure is as important as the composition. Forage plants must provide food throughout the season leaving no 'hungry gaps'.

◆ UK distribution of bumblebees?

22 species (+3 recently extinct) in England

17 species + some island races in Scotland

14 species + some island races in North Scotland

A taxonomic debate surrounds the status of three forms.

◆ Notable species in Northern Scotland:

*B. magnus* is mainly in North and West Scotland and the islands. Is it a species or a race?

*B. jonellus* has its UK headquarters on Scottish moorlands (a *Calluna* specialist) and machair. There are also two subspecies on Shetland and Western Isles

*B. monticola* may be declining on mountain and moorland. Why?

Two species have recently colonised the Highlands along the Moray coast? Why?

*B. muscorum* has distinctive races whose world distribution is Shetland, Western Isles, Coll, Tiree, Aran, Scilly and Channel islands

*B. distinguendus* is virtually confined in the British Isles to Orkney, Mainland North coast, Western Isles, Coll, Tiree. It is a UK BAP priority species. Its habitat is mostly flower-rich meadows, but this is in seriously decline in the UK. The north of Scotland must be regarded as one of the key areas for bumblebee diversity in UK following declines in South England

◆ The HBRG Bumblebee Atlas

This scheme was started in 2000, intended to run until 2004-05 and will provide a comparison with Alford's 1980 atlas which covered 1960-75. Currently there are ca 1800 records in the database 1988-2000. Separate schemes are running in Orkney and Shetland under the LRCs there.

◆ Essentials for mapping:

Training, relevant simple keys, fieldtrips; an ID service for specimens and quality control (i.e. field records of difficult, rare or improbable species must be questioned; and traceability – each dot on the map must be backed up by a known record). Adequate geographical cover also requires funding – at least for travel and sustenance. Volunteers cannot be expected to fund projects. Costs for publication must also be found; and repetition will be required at intervals - ranges are not static, while more frequent monitoring may be limited to key squares.

◆ Why is mapping important?

BAPs require basic information:

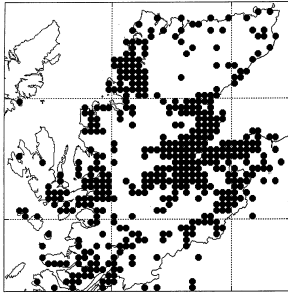
- what species do we have and where?
- what is their status;
- what is their ecology?

Mapping is essential for the first two points and may produce information on the last two. It can involve amateur recorders through LBAPs and CWAs, as well as HBRG, and it provides a vehicle for raising awareness and involving the public in practical natural history.

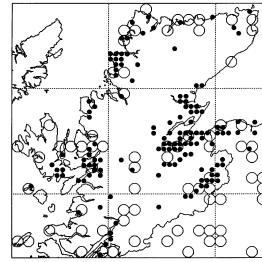
◆ Some *Bombus* work undertaken by the author:

A foraging study of common *Bombus* species showed the importance of garden plants as forage; an analysis of records of *B. jonellus* described the ecology of the *Calluna*-linked bee in Scotland; an analysis of records of *B. soroensis* added to the knowledge of this little-known bee in the UK. The author is willing to provide assistance with taxonomic problems.

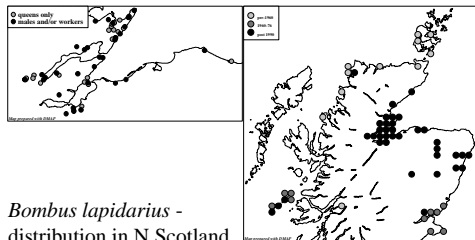
Maps relating to the bumblebee in N. Scotland



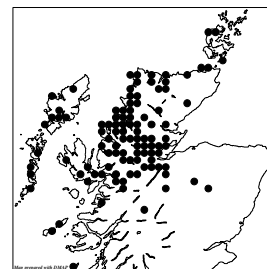
Coverage map (5 km squares) for the Provisional Atlas of Highland Butterflies (HBRG 1998) showing gaps in coverage.



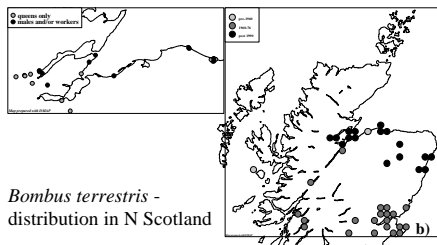
Map from the Provisional Atlas. Distribution of Red Admiral - or distribution of active recorders?



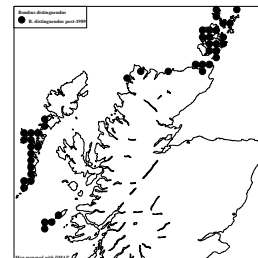
*Bombus lapidarius* - distribution in N Scotland



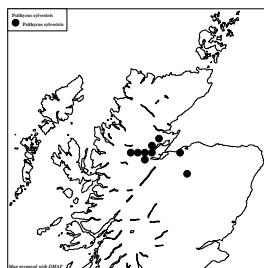
A common upland bee, *B. jonellus*.



*Bombus terrestris* - distribution in N Scotland



*B. distinguendus* - distribution in Scotland since 1990. In Scotland this bee is associated with winter-grazed cattle meadows and the later stages of succession on the machair, and other meadow systems with similar characteristics.



*Psithyrus sylvestris*, a cuckoo bee which parasitises *B. pratorum* and *B. jonellus*. It is scarce, with an average 1 record/year. It is almost certainly widespread.

**HBRG Bumblebee Atlas Statistics and progress**

At date:	1 Jan 2000	%	1 Mar 2001	%
<i>hortorum</i>	64	18.2	119	33.9
<i>lucorum</i>	72	20.5	106	30.2
<i>pascuorum</i>	64	18.2	105	29.9
<i>jonellus</i>	52	14.8	89	25.4
<i>magnus</i>	39	11.1	57	16.2
<i>pratorum</i>	35	10.0	48	13.7
<i>bohemicus</i>	30	8.5	40	11.4
<i>soroensis</i>	14	4.0	38	10.8
<i>monticola</i>	23	6.6	25	7.1
<i>lapidarius</i>	18	5.1	20	5.7
<i>muscorum</i>	12	3.4	20	5.7
<i>sylvestris</i>	6	1.7	9	2.6
<i>terrestris</i>	7	2.0	7	2.0
<i>distinguendus</i>	5	1.4	6	1.7
<i>campestris</i>	2	0.6	2	0.6
<i>ruderarius</i>	0	0.0	0	0.0
Zeroes	219	62.4 % of 351 squares.	162	46.2 % of 351 squares.
Records	443	1.3 recs./square 3.4 recs./recorded square	691	2.0 recs./square 3.7 recs./recorded square
>=5 spp.	35	10.0 % of 351 squares.	64	18.2 % of 351 squares.
>=6 spp.	30	8.5 % of 351 squares.	43	12.3 % of 351 squares.

## **PANEL DISCUSSION ON BIODIVERSITY DATA: COLLECTION AND USE.**

This question and answer session took place as part of the conference, with a panel consisting of Ross Andrew (Orkney Biological Records Centre), Duncan Bryden (Scottish Wildlife Trust), Andy Dorin (Highland Council), Hugh Morison (Scotch Whisky Association and Scottish Biodiversity Group), and Jeff Watson (Scottish Natural Heritage). The session was expertly chaired by Michael Scott (Plantlife). BRISC members had been invited to submit written questions and, time permitting, further questions could be asked from the floor. It is not possible to detail all the comments, so only some of the panel's views and of the observations from the floor are summarised here.

Q.1. (sent in by Kenneth Watt, 'Kob-Web Record Centre', Aberdeen) "The amateur recorder over many years spends a considerable amount of time, energy and expenses in gathering and recording data on his/her favourite group or organisms. Whilst he/she gets a lot of pleasure out of such an activity, I am concerned that the professional sector of the biodiversity industry, whether it be external industries or the professionals running the Local Biological Records Centre, expect to acquire access to a very considerable source of records from these amateurs, with little regard for the time, effort and expenses of the amateur recorder".

RA was first to respond and indicated that LRCs, when dealing with other people's data, ensured that their data were always acknowledged. Data also 'come back' to the providers through the information service that LRCs provide. DB thought that many people are volunteering time and effort, and SWT needed to think about contributing towards expenses and how to channel voluntary efforts. AD had experienced difficulty in accessing some data, even for publications: e.g. BTO's data are not freely available because these were seen to have commercial value. In dialogue with the floor it was agreed that recorders generate raw data but that analysis, such as that carried out by LRCs added value to the data and that could be charged for. JW thought that most volunteer recorders were happy to contribute to conservation, because this was something they believed in. The National Biodiversity Network could offer real benefits to providers of data in the long term, but it was important not to abuse the goodwill of recorders.

Kenn Watt felt ownership of data was very important, especially if a publication was planned. In his academic environment data are not usually released before publication. HM thought it can be a struggle to get all decision makers to use available data and could be impossible if they had to pay as well. However, it was in everybody's interest that biodiversity information should be in the public domain. Recording is a contribution to

society and it would therefore be very worrying to have to pay for this, though the conversion to real products is a legitimate service, which should be paid for. From the floor Mark Simmons (Perth BRC) agreed on the importance of data being made available for use, and observed that computers have contributed greatly here. Also, through the Biodiversity Action Plan process, records are now driving policy and the Scottish Executive is very dependent on data collected by volunteers. Data must be used effectively.

JW indicated that over the last 12 months he had become increasingly convinced of the usefulness of data, but these same data needed to be cohesive, adhere to standards, be of known quality and have a wider accessibility. This was all in the national interest. He would like to see BTO's data made freely available. From the floor AMS commented that some of these organisations rely on data for their income, and LRCs for instance need such income to exist and to play their part in facilitating better data flow. Mark Simmons also pointed out the BSBI Atlas 2000 data cannot be released now, because an income is expected to be generated through the publication.

It was generally agreed that the principle of open access to data is the right one, that processing data into real information products should be charged for, that the government needs this information and that all data users have a duty to support recorders and to use data responsibly to protect the environment.

Q.2. "Should biodiversity data services be provided free to all users, or is it reasonable to expect the commercial sector, who use biodiversity data for profit, to pay something back in return?"

AD acknowledged that the strength of LRCs in adding context to data, which requires specialist knowledge. RA said that LRCs are already being asked for data, but they cannot charge for the data, because it is not theirs to charge for. They can charge for the services, such as analysis, adding context to the data, and this provides a small but significant source of income for LRCs. HM thought charging for services entirely reasonable, and agreed that charging for raw data (especially if these were in the public domain) would create problems. The question is, how can biodiversity data generate profit? Is there perhaps a parallel with industry, where pure (blue-sky) research must be subsidised by government unlike near-market developments in which industry makes a direct investment in expectation of profitable returns?

Ian Evans (HBRG) from the floor commented that there is a need for written agreements between LRCs and data owners.

Q.3. "When will national government put its money where its mouth is for the building blocks of biodiversity data by providing sustainable partnership funding to establish full

coverage of LRCs throughout Scotland, instead of leaving it to hard-pressed and/or reluctant local authorities?"

JW observed that full coverage required sustainable funding. Local authorities needed to be less reluctant to support LRCs. SNH had made substantial contributions to LRCs over the years although decisions are needed on how to provide support in the long term. He pointed out that once the infrastructure is in place then it will be easier to get wider funding for LRCs. He wondered if there was need for public funding? This suggestion of government funding was widely applauded from the floor although JW indicated that receiving public funding also had drawbacks, because that carried with it a number of prescriptions and restrictions. SNH was very supportive of pump priming and of encouraging others. There was also a need to coalesce geographical units and SNH has a view on this. 'Could the islands ever support an LRC?' RA felt that Orkney was unused to funding the biodiversity process. In most instances it was local authorities that were leading and funding initiatives - was this fair?

Thomas Huxley from the floor observed that pump priming is a fiction: biodiversity would never be a moneymaker. He did not understand why organisations would put money in for just three years, when experience indicated that so many failed when funding stopped. NB Orkney. SNH should face up to this fact. Ten years would be more realistic. JW thought no LRC, which had received pump priming from SNH, had died. Also, it was very difficult for public bodies to provide long term funding. This was easier for Local Authorities. LRCs were also very much a local resource, and mechanisms were needed to ensure that SNH was not left with the bill for everything. DB agreed that LRCs are unlikely to be truly commercially viable, but that biodiversity data is a "tool", which local authorities and SNH need. He raised the question 'Where does the demand for information come from?' Sustainable development could drive the demand. HM commented that demand was generated by central government to meet international agreements. Government had a duty and interest to provide information and that it is unnecessary to legislate or regulate further to drive demand.

It was suggested from the floor that SNH might become a recording agency. JW disagreed, as this would risk duplicating records. Ian Evans from the floor asked 'When are people going to start funding the LRC in Highland?' AD felt that the NBN was now seen to demonstrate best value. JW responded that he was not aware that any request for resources for the Highland Biodiversity Recording Group had been turned down. Ro Scott (HBRG) from the floor argued that there was a need for the local authority to be more proactive and there is an urgent need to upgrade the LRC. It was obvious that the LRC has a great value in providing a public service -

surely the local authority could see this? From the floor, James Fenton (NTS) asked if it were desirable for people to spend time and effort on their own data systems? There was an absolute need for a permanent system. JW commented that perhaps pump priming was the wrong expression. SNH needed to look at "pilots" to investigate issues. Maybe they had not got it right yet.

Thomas Huxley from the floor expressed the need to understand why some LRCs had worked well and others were struggling. Perhaps a charismatic advocate was needed and a clear identity - something to be proud of. A lot of work had to go into feedback to the recorders - recorders have always had difficulties. Why not look at why some LRCs have done well and some struggled? Support for LRCs could be incorporated within the LBAP. AMS added that the success of some LRCs was also due to having someone within the local authority prepared to champion the interest of the LRC. Mark Simmons stressed the necessity for having an LRC to make an LBAP work. This was a lesson well learned while editing the local BAP report. He agreed that Government has a responsibility regarding biodiversity but that this responsibility could be channeled through local authorities. It amounted to a democratic deficit to starve local authorities of cash.

General discussion acknowledged that an LRC is a valuable local resource and as such needs the support of key partners. A good business plan for the LRC would be a prerequisite. Towards this end, it was important for all interested parties, including the recording community, to come together and discuss possibilities. Alan Cameron from the floor suggested here was a challenge for AD to take up and encourage Highland Council to support the LRC at Inverness.

Many other comments and views were expressed. The discussion finished on a very positive and constructive note, so hopefully something concrete will result from the day, in particular for the LRC at Inverness but also elsewhere. Our grateful thanks to everyone who contributed to make the day such a success and to Inverness Museum for hosting us.

Alan Cameron & Anne-Marie Smout

#### **DATES FOR THE DIARY**

**21-22 April** *Natural History in the North of Scotland: A celebration of the bicentenary of Dr George Gordon of Birnie 1801-1893.* A conference arranged by Elgin Museum. Booking £22. Offer of 2 outing: £5 to Cairngorms; £3 to Macduff Marine Aquarium. Elgin Museum, 1 High St. Elgin, Moray IV30 1EQ or Tel/fax 01343 543675. Conference convenor Susan Bennett

**25 May** – *The Biodiversity and management of Aspen woodlands* – a seminar at the Duke of Gordon Hotel, Kingussie. Booking £20 per person payable to RSPB. Contact Tom Prescott, RSPB, Insh marshes Reserve, Ivy Cottage, Insh Kingussie PH21 1NT or tel/fax 01540 661518

**15-16 June** *Allien species – friends of foes?* Glasgow Natural History Society 150 Anniversary conference. Boyd Orr Building, University of Glasgow. For programme and booking see enclosed leaflet

## BOOK REVIEW

Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G. and Jeffcoate, S. (2001). *The Millennium Atlas of Butterflies in Britain and Ireland*. Oxford University Press. pp xx + 433. £30.

How incredible it is to compare the first published atlas, on the British flora (Perring & Walters, 1962), with this millennium atlas of the British and Irish butterflies. In the 40 or so years we have moved from a rather static picture of how a species is distributed geographically throughout Great Britain and Ireland to a much more dynamic knowledge of how the species distribution has changed. That is in no way a criticism of what was achieved by a host of plant recorders in the late 1950s. They blazed a trail, published an incredibly useful atlas, and opened the way for all sorts of developments that we see in this new atlas. Their use of the tetrad (grid squares of 2km × 2km) grouped into the familiar 10km grid squares of the 'dot maps', has stood the test of time. Of course butterflies have been mapped before, with the latest atlas being published by Heath *et al.* (1984).

Words to describe this millennium atlas of butterflies have to be superlative – incredible, fantastic, and the like. There is a mass of information and, in writing this review, I have as yet only skimmed the surface of that information. I am convinced that I shall frequently go back to this book to find out something else, or to check 'this or that'. But what does it contain? There is an account for each species of British butterfly, arranged in the usual taxonomic order. There is a set of basic information that includes a picture of the butterfly, the 'dot map' for the whole of Britain and Ireland and notes on food plants, habitat, life cycle and colony structure, distribution and trends, European trends, and a section headed 'Interpretation and outlook'. Often occupying about three pages, these various sections of notes on each of the species provide the wealth of information and, being similar from species to species, allows the reader to compare one species with another. This basic information is, however, not all that is given.

The 'dot maps' broadly recognise three time periods, namely pre-1970, 1970-1982, and the millennium survey period of 1995-1999. For the latter time period the size and colour of the dots indicate how many sightings have been recorded. Thus, the 'dot maps' focus on two particular facets of each species, namely how the distribution has shrunk, and a measure of abundance of the butterfly. However, for most species more than one 'dot map' is given. As examples, for the chequered skipper, now confined to Argyll and west Inverness, there is also a 'dot map' at a 2km grid square resolution. For the large skipper, there is a 'dot map' showing squares where the species was recorded in 1995-1999, but not in the 1970-1982 period; this clearly shows how the species has spread north through north-east England and into the

Scottish Borders, and how the few populations in Dumfries & Galloway have now spread throughout the area and into Ayrshire. Where there is a close relationship with a food plant, as with the brimstone, a combined distribution map of the buckthorn and alder buckthorn is also given. This will clearly limit the geographical distribution that the brimstone can attain.

For the commoner species, population trends, either over a number of years or throughout a year, are also illustrated. Again, as examples, there is essentially no trend in the brown argus between 1976 and 1999, though there are massive year-to-year variations (and perhaps some suggestion of a 5-6 year cycle). The bimodality of the annual distribution of the green-veined white is clearly shown, with the peak flight time of the northern populations being about two weeks later than that of the southern populations. The holly blue has had a real population explosion. The maps show a limited distribution in 1995, spreading out like a circle on a still loch after a rock has been dropped in, until 1998, and then starting to collapse in 1999. I immediately wanted to know what had happened in 2000; did the collapse continue, and will it continue in 2001?

Before and after the species accounts, which occupy 274 of the pages, there is a mass of useful background information. Of particular fascination are the 'butterfly phenograms' in Appendix 8, which give a pictorial description of time of year, northerliness and the numbers seen. Scotland, as we might expect with these sun-loving insects, scores badly (although not exact, anything above line 6 on a phenogram is Scottish, and anything below that line is unlikely to be Scottish). Fascinatingly, not everything in Scotland flies later in the year than in the south of England; look, for example, at the phenogram of the grayling.

I have found few mistakes in the book. Do not be beguiled into thinking that Spurn Head is in Lincolnshire (p.318), and be careful with the photographs of the skipper butterflies. Apart from these few minor blemishes, the book is exceptionally well produced, superbly illustrated and an absolutely essential reference book. Even if you are not really interested in butterflies, you must look at this atlas to see what can be done by a band of volunteer recorders. It is most impressive.

### References

- Heath, J., Pollard, E. & Thomas, J.A. (1984). *Atlas of Butterflies in Britain and Ireland*. Viking, Harmondsworth.
- Perring, F.H. & Walters, S.M. (1982). *Atlas of the British Flora*. Nelson, London.

Michael B Usher

### Interested in PHENOLOGY?

Get a copy of the colourful and helpful recording leaflet from the Woodland Trust, Glenruthven Mill, Abbey Rd, Auchterarder PH3 1DP, Tel 01764 662554 or check out the phenology website [www.phenology.org.uk](http://www.phenology.org.uk)