



NATIONAL FEDERATION FOR BIOLOGICAL RECORDING



Sharing Information about Wildlife

***Natural partners:
biodiversity observations
and collections***

Report of a conference
held at the National Museum & Gallery of Wales, Cardiff
2nd – 3rd July 2004

Contents

Background to the Conference	2.
Day 1: presentations.	
<i>Keynote Address:</i> (Ray Woods, Countryside Council for Wales)	3.
<i>The functions of museums and records centres and how they have changed</i> (Chris Palmer, Hampshire Museums and Archives Service)	4.
<i>The form and function of archival collections</i> (Neil Thomson, Natural History Museum)	6.
<i>The use of technology in providing access to information about biodiversity</i> (Charles Copp, Environmental Information Management)	8.
<i>Local and regional biodiversity networks and local records centres: recent developments</i> (Adam Rowe, South-east Wales Biodiversity Records Centre)	11.
<i>Your data going global: what is in store now that we can connect biodiversity data locally, nationally and internationally</i> (Lawrence Way, Joint Nature Conservation Committee).....	14.
<i>Developing networks of data suppliers</i> (Adrian Spalding, Spalding Associates (Environmental) Ltd.)	16.
<i>Engaging the public: outreach, training and education</i> (Steve Tilling, Field Studies Council)	18.
Day 2: workshops and plenary session	
Key points from the workshops	20.
The Conference resolutions and recommendations	21.
List of delegates	23.

Background to the Conference

The National Federation for Biological Recording's Annual Conference in 2004 was held jointly with the National Biodiversity Network Trust, and was expanded to a two-day event in order to examine an increasingly important topic in more detail.

The objectives of the Conference were:

- To examine the apparent divergence between field observations, collections and natural science archives, especially the role of museums in biodiversity documentation.
- To consider issues of data quality, validation, networking, inter-operability, and access to biodiversity resources (such as information, records, specimens and natural science archives).
- To examine progress in integrating the collation, management and provision of access to these biodiversity resources.
- To consider what future action might be needed in these areas and to make recommendations.

The NFBR has long had an interest in this subject, as it was established as an organisation largely by professional museum biologists in the mid-1980's, who were involved in the fledgling business of biological recording as part of their work. In turn, the National Biodiversity Network Trust was born from initiatives largely originally promoted by the NFBR. Both these organisations, therefore, recognise the seamless relationship which ought to exist between biological collections, natural science archives biodiversity data and engaging the public in the subject. The fact that these areas appear to have drifted apart is or should therefore be of fundamental concern to all those involved.

Cardiff Museum very kindly supported the Conference by making their facilities available at a substantially reduced rate, which is gratefully acknowledged by the Conference organisers. Their staff also took an active part in the Conference, and have a great interest in its outcome.

This report was compiled by Trevor James, NFBR Council member/NBN Development Officer for National Societies & Recording Schemes, October 2004.

Day 1: Presentations

Morning Session.

Chairman: Bill Butcher, Chairman of NFBR, Trustee of the NBN Trust and Director of Somerset Environmental Records Centre

Participants in the Conference were welcomed by the Chairman for the morning, Bill Butcher, who outlined the historic link between biological recording and the collection of natural science specimens. He also highlighted the premise of the Conference: that there is an increasing divide between the two. The aim of the Conference was therefore to seek ways to bring these two sides of the same coin together again, and to formulate recommendations to that end. The National Biodiversity Network, as a focus for the use of biodiversity data, is an appropriate mechanism to help with this.

Keynote address: Ray Woods, Science Advisor to the Countryside Council for Wales.

Ray opened the Conference with a thought-provoking consideration of how “records”, “specimens” and conservation are indivisibly linked, by firstly demonstrating how up-to-date and accurate data underpin sensible conservation policy. He reflected on some early problems with sites in Wales and elsewhere which were identified on the basis of old data, but which were subsequently found to have been destroyed. In these sorts of cases, the old records formed the only proof that such species had existed, and gave an insight into the drastic effects of landscape change. These kinds of problems, and the data which gave the evidence, were the spurs to making effective conservation policy in the UK.

Historic records are also especially important as a support for conservation action, because they give a basis against which modern information can be judged, and can sometimes lead to new insights. In their turn, specimens form a vital back-up of these historic records. Ray gave an example provided by the local lichen *Usnea articulata* which has a current distribution in the south-west, with mostly very old records from further north, such as at Burnley, where its occurrence might be doubted but for the existence of good specimens. Another example from Wales comes with the survival of specialist species of ancient woodland, such as species of *Lobaria*, in sites which were once historic wood-pasture parklands, and where the species has subsequently been found in modern landscapes, like the grounds of Hafod in central Wales. Such finds allow us to understand the nature of ecological continuity, and have led to increased protection for ancient trees and the landscapes they inhabit. Without the survival of historic specimens this kind of protection might never have been possible.

The functions of museums and records centres and how they have changed:

Chris Palmer, Senior Keeper of Natural Sciences,
Hampshire Museums & Archives Service

There is no telling what value collections of biological material might have in the future. A classic example might be the re-evaluation of the Dodo's appearance and biology which historic specimens have provided.

The Museums, Libraries & Archives Council have stated that

“Museums...stimulate, fascinate and educate. They satisfy our curiosity about the world and enlarge our understanding of the past and present”

Another example of the unforeseen use of collections is that of the use of historic collections of multiple specimens of butterflies for DNA analysis of populations. However, much historic material in local museums has limited data attached to it, and this can make it of limited use. Nevertheless some specimens also provide the only real confirmation of the existence of species in the past, such as the specimen of the robber fly *Choerades gilvus* in the collections of Hampshire Museums – confirming the last record from Britain.

Historic collections also play an important role in linking with the expert local natural history community, who frequently take an active role in working with the collections. The collections then also become an important training and teaching resource in their own right, encouraging the next generation's interest in the environment. However, the recent rise in interest in the natural environment presents museums with a challenge. While some places, like the Wakes at Selborne, home of Gilbert White, attract much attention, getting support for the core work of museums in maintaining important reference and research collections becomes increasingly difficult. Many new developments are carried out purely in order to maintain profile. In the meantime, mainstream natural science activities in museums tend to be side-lined, and are prone to cuts. Natural science collections, therefore, tend to be the least well supported area of museum collections. This problem is exacerbated by museums not being a statutory function. There is always a pressure on staff to justify their existence. The cost of maintaining voucher specimens, with specialised storage facilities, climate controls and visitor provision, is often quite high, while interest by governing bodies in the subject, as compared with the arts, is often low.

Museums have in the past used their collections as “props” to explain the subject of ecology, but with an increasing concern about the collection of specimens, there has been recently a tendency to move away from their use at all. This is a great mistake, because the use of specimens in teaching and awareness-raising is ultimately the only way to interact with the real thing.

The saviour of many collections over the last 30 years has been their link with biological recording. However, there is always a danger that the collections then get seen merely as subservient to data. An important role of museum collections is to support the activities of amateur naturalists, and the reward for the museum in the longer term is the acquisition of more and better, up-to-date collections. Many museums also have become

involved with the development of local records centres, although more often than not these were developed on shoe-string budgets. The idea of the “local records centre” has also developed since 1991, and has culminated recently in the issue of the NBN position statement on local records centres.

However, this has also led concurrently to some problems:

- A reduced role in local records centres for partnership with museums. The NBN position statement is, actually, to some extent a lost opportunity to re-emphasise the role of museum collections.
- A lack of recognition of the role of voucher specimens in recording. Again, the NBN position statement makes no mention of the need for vouchers.
- The advent of “mass recording” is resulting in related problems, particularly the tendency to overlook the need to support data on difficult groups with specimen collections.
- The lack of a nationally-focused system for maintaining voucher specimens.

A museum now seems to need to be part of a local records centre partnership merely to survive. The NBN itself could be seen as a threat if it were to undermine this local partnership.

The conclusion is that museums need to be much more proactive in engaging with the voluntary sector. However, museums cannot do this alone – they need to work in partnership with others, and notably with local records centres and the users of their information.

*

Questions and answers:

Q. Is there any guidance available on what vouchers are needed?

A. It depends on what the source of the data might be. This can only be judged according to individual taxonomic groups. Individual recording schemes or groups need to define what is needed.

Q. Is there a need for museum biological collections to go down a similar route to archaeology in terms of funding support?

A. Yes. There needs to be formal support for biological collections which are made in the process of carrying out surveys for development proposals, and for their deposit in museums.

The form and function of archival collections

Neil Thomson, Head of Data & Digital Systems,
The Natural History Museum

Libraries and archives tend to be two sides of a coin:

Libraries

Published documents
Multiple copies
May be borrowed
Maintained to the MARC*
standard
“Ego”

Archives

Unpublished material
Unique copies
For reference only
Maintained to ISAD(G)* standard
“Id”

*MARC: MACHine-Readable Cataloguing

*ISAD(G): (General) International Standard for
Archival Description

Only some 15% of official records held by a body are really useful as archives. However, this does not apply to informal (i.e. not official) “archives”.

There are a number of discrete functions in operating an archival system. Firstly, there will be a formal process of acquisition and selection. Archives are defined by their structure, and by their provenance. There is a standard approach to their description and their conservation and preservation for the future needs to be considered. Finally, provision of facilities to access the archives is needed.

In acquiring archives, an initial decision needs to be made as to what is kept, and who is to keep it. There is a legal framework for this kind of decision. This needs to take into account the provisions of the Freedom of Information Act 2000 – which requires a public authority to produce an “information access scheme”. We also need to take into account the Data Protection Act, 1998; and the Environmental Information Regulations, 2003. Under the “Modernising Government” White Paper, issued in 1999, all public authorities have a target date of 2005 to make information and records available to the public. This presents those maintaining natural science archives with something of a challenge.

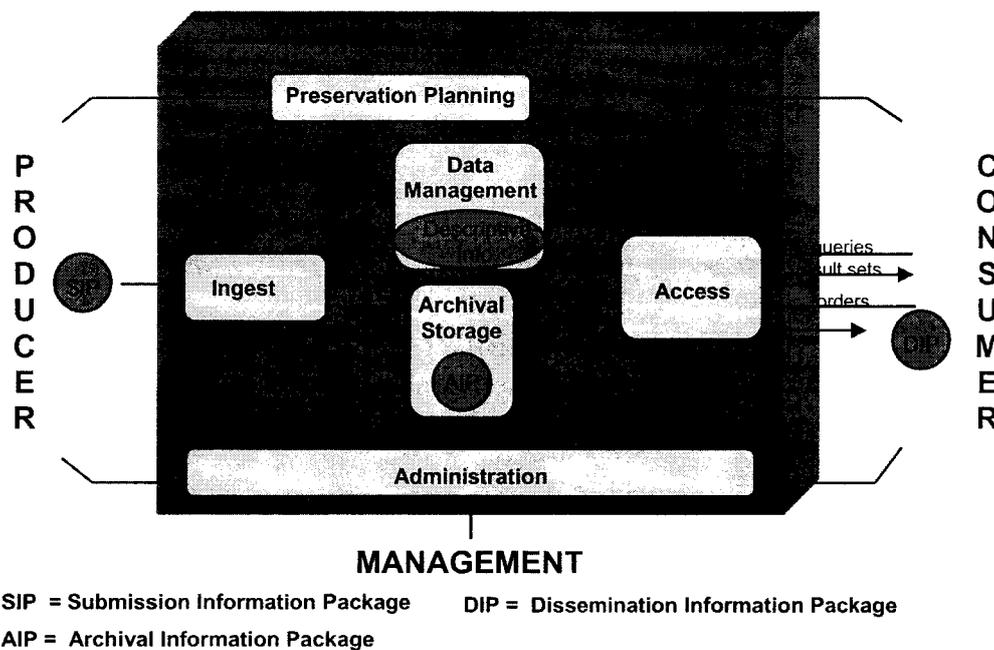
Digital records present us with more of a challenge. They include both the original records and “preserved” copies. Documentation of digital data is more difficult. An extra layer of technology on top of the records is needed. This takes the form of “metadata”. For this, standard formats need to be defined. Metadata also needs to allow us to have fore-warning of potential access problems, such as the incremental loss of accuracy through the transfer of data. So, “digital sustainability” might include the following considerations:

- The nature of the electronic documents and records
- Understanding the difference between “preservation digitisation” and “digital preservation”
- The physical formats and electronic data formats that the records are in

- What is involved with data migration, emulation and refreshment
- The combination of the unique content of particular data and generic problems, which jointly give us the respective possibilities for collaboration with any one set of records

The central point is that digital data curation is not being effectively recognised as a need. “Benign neglect” is no longer an option. Effective digital curation and sustainability for the future need to be emphasised. We are, in fact, in danger of entering a “digital Dark Age”.

No one organisation can tackle the issue on its own. A standard approach has therefore been developed: the Open Archival Information System:



More details can be found in “British archives: a guide to archive resources in the United Kingdom” by Janet Foster and Julia Sheppard, Palgrave, 2002 (4th ed.). There is also a Linnaean Society guide to the deposit of natural science archives. Most local records centres are not in a position to store either natural science archives or specimen collections. A collaborative approach is therefore needed to avoid a loss of the links between data and vouchers etc. Use of “interoperable” data systems, such as the National Biodiversity Network, can help with this.

The use of standard approaches to the description of collections can help re-unite dispersed collections. Work on this has been progressing slowly for many years. The BioCASE Project¹ is the most recent and continuing development, looking at a distributed search service and collections description processes.

¹ Biological Collection Access Service for Europe (www.biocase.org/)

Some relevant Web resources are:

The National Archives (TNA) <http://www.nationalarchives.gov.uk/>

National Digital Archive of Datasets (NDAD) <http://ndad.ulcc.ac.uk/>

Digital Preservation Coalition (DPC) <http://www.dpconline.org/>

Biological Records Centre (BRC) <http://www.brc.ac.uk/>

OAIS (The Open Archival Information System Reference Model)
http://www.dpconline.org/docs/lavoie_OAIS.pdf

The danger is that we are entering a time when data not on the Web do not “exist” from the public’s point of view.

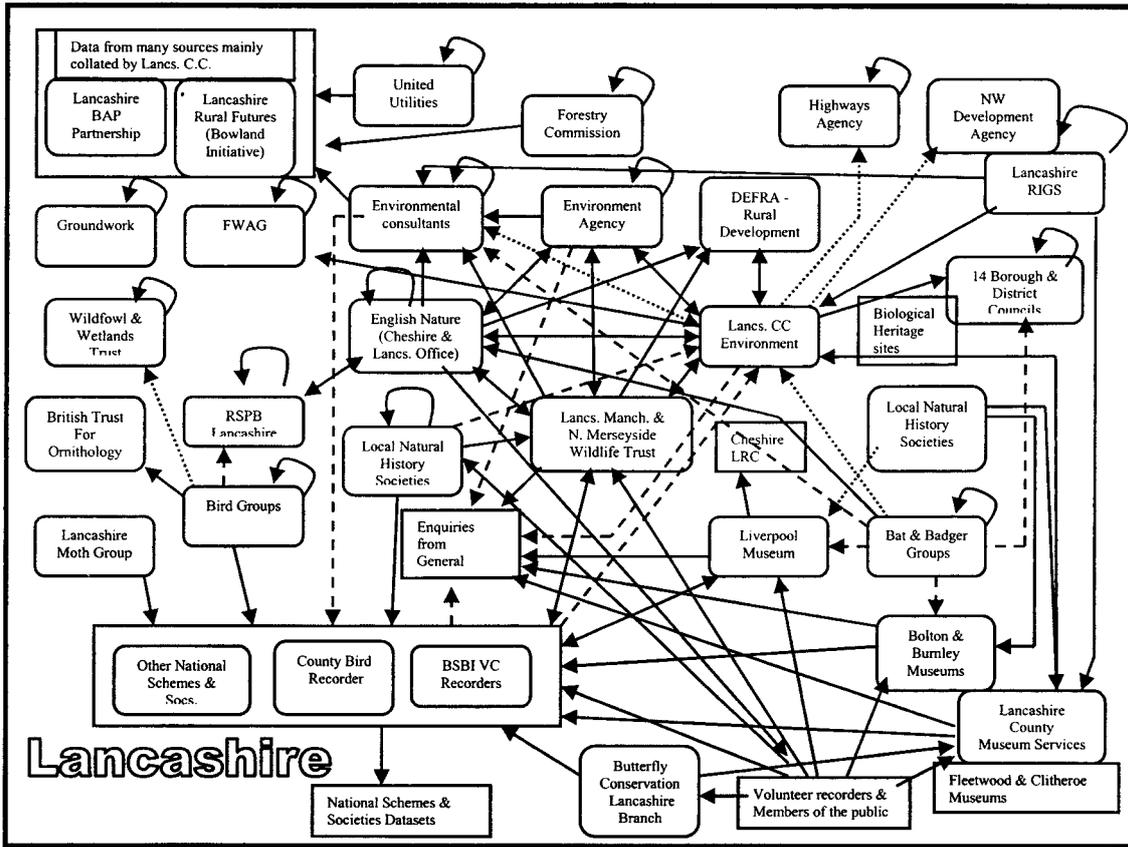
The use of technology in providing access to information about biodiversity

Charles Copp
Environmental Information Management/
The Natural History Museum

There are some Big Questions underlying this topic, such as:

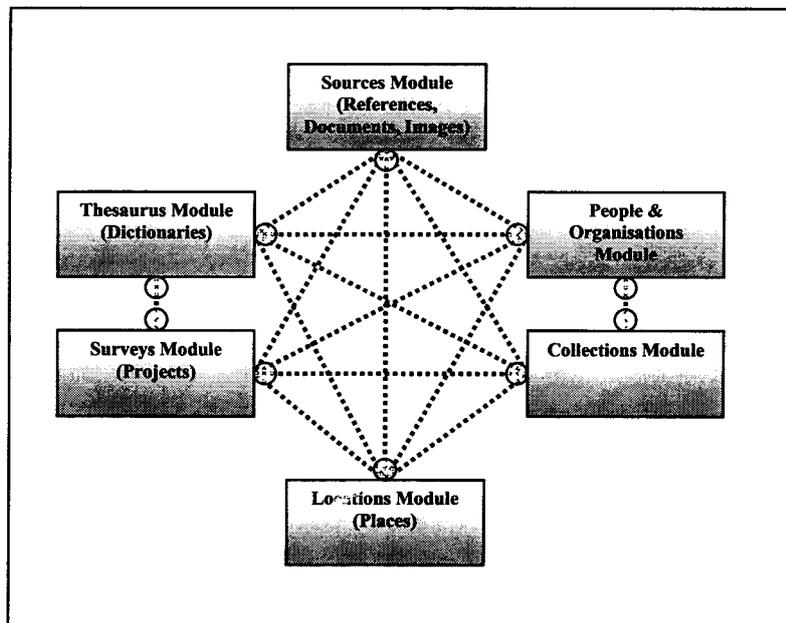
- ***Who has the information - how do we find out?***
- ***Who needs the information - are we really addressing the needs of all users?***
- ***How is the information structured - is it important?***
- ***How is it stored - can we get at it?***
- ***How do we know where to look for the information we want?***
- ***How do you get the information back, once it’s been found?***
- ***How can data be used - what tools are available to make sense of it?***
- ***How do we know who is getting their hands on the data?***
- ***How can you mix free and charged-for data or services?***
- ***How stable are the networks we are creating - could they collapse?***
- ***Where will it all end?***
- ***Why are we doing it anyway?***

There is in fact rather a flood of information on wildlife. How do we find what we want? How do we make use of it? Who pays? Technology does not replace people and specimens in this web, but the complexity of information flows can be quite daunting, as this data flow diagram for a proposed local records centre illustrates:



Initiatives like the NBN and the BioCASE Project are helping to simplify the system, but ultimately do not replace the need at the local level for agreements between people about the use of information. The problem is actually defining what the “market” is for biodiversity information. What is “the public”? In the event, those interested in wildlife information comprise a web of overlapping communities of interest.

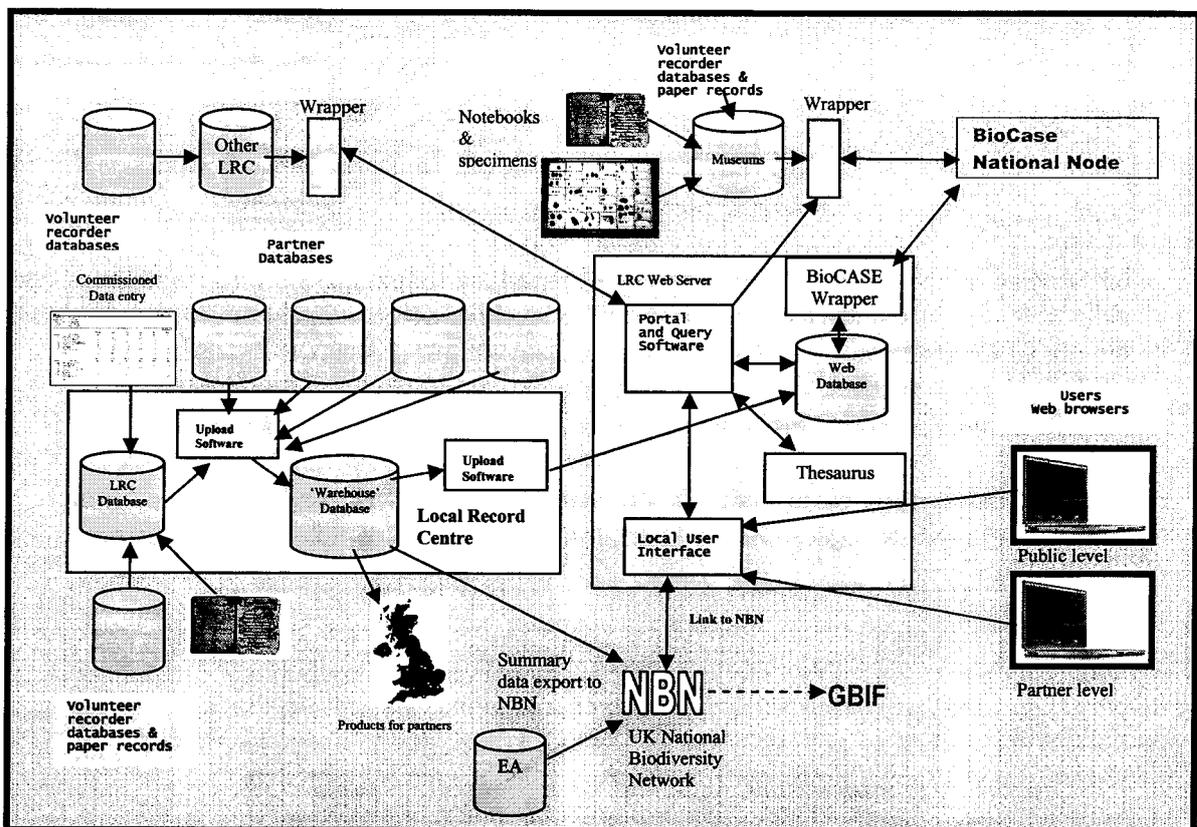
Standards concerning biodiversity data management are developing fast. The NBN Data Model is an example, which is complex, but modular, as this diagram illustrates:



The new Recorder 6 database is being developed to accommodate collections information, based on this model, which will enable integrated specimen, collection and field records management.

But how do we find information? We could use our Web browsers, but the results can be problematic. The NBN Gateway in its new version is good, but is designed for a specialist audience, and needs more work for it to enable people to find information effectively. At the other end of the scale, there is the GBIF² portal to worldwide data on biodiversity – but maybe more of a portcullis?

We need to really consider the accessibility of information. The way forward is not with monolithic portals, but the development of an interlinked system. This will involve the development of distributed networks and diversification of sources and outputs for specific user needs, such as links between local records centres and their partners, or interfaces with Web links between outside databases and museum collection databases etc., as in this diagram:



New developments to enable this to happen are coming on stream now, including things like semantic webs, logical systems, ontological relationships, thesaurus building and intelligent response systems, while digital signatures will allow tracking of requests. However, we must not forget that the goal is to defend our knowledge of the natural world.

² Global Biodiversity Information Facility

Local and regional biodiversity networks and local records centres: recent developments

Adam Rowe, South-east Wales Biodiversity Records Centre

This is an opportunity to look at recent developments in the ways that local records centres are and have been working together at the regional level, and to relate these to the overall themes of the conference. In particular, we can look at the outcome of the NBN South-west Pilot Project, and also the establishment of the Welsh local records centre network. The principal questions might be:

- How can we assure the quality of data held by local records centres, building on existing systems and partnerships?
- What is the role of collections and archives in supporting the work of local records centres and local recording networks?
- How can the existing system be improved?

The NBN South-west Pilot Project

The aims of the Project were to demonstrate the benefits of a fully-functioning network at the regional scale by:

- Promoting and supporting the sustainable, long-term collection of wildlife data.
- Developing and trialling policies on data access and accreditation standards.
- Increasing the quantity and value of wildlife data accessible through the NBN Gateway, especially GIS-based inventories of UK BAP³ habitats.
- Trialling the NBN Gateway as a means of delivering information to users.
- Demonstrating the benefits of the NBN by providing data on wildlife to decision-makers in government and elsewhere.

The role of regional government in the UK is likely to increase, with more decisions made at the regional level, which will need data to be aggregated and made use of at that level. In the past, local records centres have, rightly, concentrated on serving the needs of their local data suppliers and users. However, if they are to survive, increased co-operation may be required at the regional level. But this is not a green light to merge local records centres into regional bodies, because the “L” in “local records centre” cannot be over-stressed – reflecting the essential trust that is needed in working relationships with local recorders and local users of information.

The findings of the South-west Pilot were:

- A successful demonstration of how independent records centres can work together to common standards and produce valued regional products.
- Showing that such a network of records centres is needed in all regions, although regional levels of funding present problems.

³ UK Biodiversity Action Plan

- Demonstrating that the whole system is dependent on establishing and maintaining trust between records centres and voluntary recorders.
- Showing that the NBN is not just a technical solution, but also a partnership between different organisations with different expectations.

The final report will be published as an English Nature Research report, available through the NBN website.

The Welsh Local Records Centre Network

As the Conference was in Wales, this was an excellent opportunity to update delegates on the exciting recent developments relating to local records centres in Wales. The Welsh Assembly is one of the first governments in the world to refer to “sustainability” in its constitution. In addition, there has been strong political support for these developments, which could be a model for other devolved regions in the UK. The result is that Wales is midway to establishing an entire network of records centres for the country. In 2001, there were no records centres in Wales, but by 2007 the network should be complete.

Recommendation no. 7 of the Review of Local Biodiversity Action (February 2003) was:

“The Welsh Assembly Government [should] take steps to establish the development of a national Local Records Centre network, building on the Powys pilot project.”

The reason for this is that such a network was seen as a cost-effective way to manage data and to combine it with other partners’ data, “the whole being much greater than the sum of the parts”, to quote the Chairman of the Countryside Council for Wales. As a result of this recommendation, the level of support from Countryside Council for Wales for local records centres is far greater than that provided by either Scottish Natural Heritage or English Nature.

Two other quotations from Carwyn Jones (Welsh Assembly Minister for Environment, Planning and the Countryside) focus on the two related aspects of this Conference:

“Many of the records that local records centres need in order to work effectively will come from the unsung heroes of biodiversity – the voluntary recorders... but more needs to be done in Welsh local records centres to support this network [of recorders] and ensure that they feel valued for the important contribution they make to biodiversity conservation”.

“The [National] Museum [of Wales] will be a key contributor of records – it houses a vast quantity of specimens in its collections, as well as paper records”.

In fact, when the South-east Wales Biodiversity Records Centre was launched, the National Museum of Wales was identified as a key partner, source of data and a repository for voucher specimens.

Although much effort is being expended to make information available to decision-makers, the key questions posed at the beginning need to be openly discussed:

How can we assure the quality of data held by local records centres?

Data quality is the key to the “natural partnership” we are talking about. The key issues here include:

- The level of knowledge of local recorders.
- Access to reference collections.
- The availability of training in identification and recording skills.

The whole biodiversity community has a role to play in these areas, although museums perhaps have the most important role, which then begs the questions:

- Are museums sufficiently resourced to play a key role in this area?
- Are museum collections accessible enough?

Interestingly, the availability of training is being taken seriously in Wales, where another recommendation of the Environment, Planning and Transportation Committee report related to the need to increase opportunity for training, which is being taken up by the Wales Biodiversity Partnership, which is planning an audit of biodiversity training needs in Wales. Regarding museum collections, however, access to the National Museum of Wales is difficult for those working in the north or west of the country.

So, what is the role of local records centres in this? Local records centres are at the front line of incoming data. They have a specific role to work in partnership with recorders to link in to existing systems of record validation, and also to support the establishment of these procedures where they do not already exist. But there are some questions for further discussion:

- Should local records centres be doing more to improve the quality of the data they hold?
- Many records centres cover themselves by issuing caveats on the quality of the data they provide, but in doing so, are they to some extent hiding behind these caveats?

So, we need to consider how we can more effectively work together. Is the “apparent divergence between field observations, collections and archives” real or imagined? Is a new initiative required to improve the situation (e.g. providing better access to collections), or do other projects already cover this area? Finally, can action points be identified to improve the way we work together?
