National Federation for Biological Recording

BIOLOGICAL RECORDING: THE PRODUCTS

edited by
G. Stansfield and P.T. Harding

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Proceedings of the annual conference of the National Federation for Biological Recording, held at Churchill Hall, Bristol, 22nd-24th April 1987.

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Geoff Stansfield
Chairman, National Federation for Biological Recording

In welcoming the 80 delegates to the Bristol Conference, the Chairman made reference to the first conference at Chelsea which looked at the activity and operation of biological recording and at the users and uses of biological records, and the second conference at Cambridge on the theme 'Biological recording in a changing landscape', which included papers on the roles of various bodies, and workshops which examined some of the issues.

The present conference focussing on 'The Products', with a selection of papers on the practical aspects of biological recording and discussions on how the products can be better tailored to the needs, was seen as a logical progression from the earlier conferences. The intention was to ensure that biological recording did not become a self-indulgent activity, but that it was organized in such a way as to meet defined needs. This was seen to be essential if the community at large was to be persuaded that biological recording is a valuable public service.

The Chairman paid tribute to the executive committee and to the small conference sub-committee which had organized the conference, and in particular to local organizer Charles Copp of Bristol Museum, and his colleagues, and Andrew Roberts and the Museum Documentation Association for handling the bookings.

INTRODUCTION TO THE CONFERENCE

Charles Copp
Conference Organizer

Biological recording is the pursuit of knowledge about the status and distribution of wildlife and an understanding of its habitat requirements. One of its declared aims is to provide the information needed to ensure a secure future for wildlife in a diverse urban and natural landscape. But, however much we may believe that the pursuit of biological recording and its spin-offs in conservation and education are intrinsically worthwhile, sympathy and financial support for our aims will only be generated in relation to our ability to come up with products targetted at specific markets.

The main market areas include education, leisure and tourism, scientific research and planning. The different requirements of these markets are already recognized and understood by some, but there is much room for improvement in co-ordination of activities, in higher and more widely applied standards and in channelling of funding. To achieve this improvement, we should be looking more closely at the definition of the roles of all the organizations involved in biological recording, conservation, planning and countryside education, and especially the roles of local record centres. I believe that the best way to do this is for work to be divided into defined projects with end products achievable in a reasonable time span. These targets can be aided by guided funding and good management.

This conference is intended to bring these threads together and to learn from the experience of those who have mounted successful projects. It is also hoped that we shall receive some guidance from the grant-giving bodies on how grants are administered.

BIOLOGICAL RECORDING IN ITS POLICY MAKING CONTEXT

Adrian Phillips

(Edited account of Mr. Phillips paper prepared by Geoff Stansfield from notes made by Andrew Roberts and Geoff Stansfield)

The Chairman welcomed Mr. Phillips and expressed the delight of NFBR that Mr. Phillips had agreed to present the opening paper at the conference. It was seen as recognition that the end products of biological recording should include a better environment in which to work and live. It was also important to remember that much biological recording in Britain was carried out by amateurs and professionals who derived a great deal of enjoyment and satisfaction from the activity. The Countryside Commission during its relatively short history, and with modest resources, had been a major catalyst in stimulating greater public understanding and enjoyment in both the natural and man-made environment.

Mr. Phillips began his paper by suggesting that biological recording was primarily of importance in the conservation field and he referred to the impact that biological recording had made by facilitating the production of lists of endangered species such as the IUCN Red Data Books. Biological recording was, however, also of relevance to organizations such as the Countryside Commission which had more general responsibilities for the countryside. The Countryside Review Panel, which had reported earlier in the year, had drawn attention to the fact that the countryside in Britain was on the brink of major changes, as dramatic as any since the Enclosures. The context of this change was the increase in agricultural output, the growing agricultural surplus, the fall in agricultural income, and the fall in the price of agricultural land, the combined effects of which necessitated re-consideration of the use of the countryside.

The Commission was in the process of reviewing the options, and these would be the subject of forthcoming reports on Forestry Policy, Recreational Policy, Planning in the Countryside, and New Directions in National Parks. These reports, whilst stressing the statutory role for conservation, would also emphasize the need to take account of public enjoyment. Within agriculture, the Commission saw the need for the promotion of the concept of Environmentally Sensitive Areas (ESA's) and the use of agricultural money to re-adopt traditional farming practices. At present there were 6 ESA's but the aim was to establish between 40 and 50 based upon the list drawn up with the Nature Conservancy Council and embracing public access as well as conservation. The Commission would like to see the ESA principle extended into other areas of the countryside.

Forestry was on the edge of a major development. Forestry was seen as the principle major alternative land use, but a new kind of forestry was needed, with multiple use, which would offer opportunities for timber production, rural employment, landscape enhancement, nature conservation and leisure. Particular attention needed to be given to areas around cities.

The aims for recreation should be both quantitative and qualitative with an increase in the use of, and interest in, the countryside. Setting up National Parks and Country Parks was not enough. There should be emphasis on public rights of way and encouragement to farmers to provide access, perhaps with financial incentives. There was also the need to manage access to common land and here new legislation might be needed. There should be the opportunity for the public to become involved and this would entail a fundamental change of policy.

Planning policy had come back into the forefront of public debate due to political emphasis of the need to reconsider planning arrangements as the agricultural argument was removed. There were opportunities for improved motorway design with separate carriageways (as in the USA), expanded picnic areas, the redirection of military activities away from National Parks, and perhaps out-of-town shopping centres set in large areas of parkland. The Commission considered it important that farmers, landowners, community and voluntary groups should become involved in the debate (perhaps with some Commission support). Overall, more actors were needed in the countryside together with a loosening of attitudes towards the countryside.

Mr. Phillips saw biological recording as relevant in five main areas - information for decision makers; databases for land management; helping people to enjoy the countryside; helping local organizations to become involved in caring for the countryside; and contributing towards improved public education.

For decision makers there was a need at a national and local level. For example, at a national level the Ministry of Agriculture had prepared a draft proposal to create woodland with the declared purpose to encourage conservation. There was a danger that land marginal to agriculture could be most changed, and the conideration of the use of such land should perhaps be given a higher priority. At a local level databases were needed by the local planning authorities to assess the consequences of development. This was seen to be particularly important in a period of change. Databases were also needed by land managers. As surplus land became less intensively used there were opportunities to restore habitats. For example, in the South Downs, priority could be given to the re-creation of downland. With new forests the emphasis should be on creating interesting habitats and

this would need local expertise. As far as enjoyment of the countryside was concerned, there was as a place for the amateur recorder who was often motivated by conservation and/or recreation. It was important to maintain the links between disciplines. As far as local knowledge of the countryside was concerned, there were opportunities for raising the level of interest through the changes which were taking place. There was a need to stimulate local interest and grass roots concern, and to establish a local sense of guardianship and a caring partnership. For education and interpretation there was a need for the democratization of countryside policies. The availability of an information data base was important in creating a better informed public.

Mr. Phillips summed up by restating his view that biological recording was primarily a concern of nature conservation. The Countryside Commission had limited resources, but it could assist with recording at the broader level particularly if it was linked with activities in the countryside and with access and enjoyment.

SURVEY FUNDING BY THE NATURE CONSERVANCY COUNCIL

Dr. K. Charman and Dr R. J. Keymer

The purpose of this talk is to explain NCC structure and funding in relation to research and survey. Although this may appear rather academic as with any organism (or organisation) a knowledge of structure and function is important in understanding how an organism works. An understanding of how NCC as an organisation works will provide a framework in which other organisations can structure their own research and survey effort and lead to increased co-operation and reduced duplication of effort.

NCC's organisation and management is based on a three tier structure.

1. Great Britain Headquarters (GBHQ)'s function is primarily to act in overall policy formulation and administration and to provide the link with central government. In addition to this central co-ordinating function GBHQ provides technical advice from specialist GB sections such as the Chief Scientist Directorate (CSD).

2. Country Headquarters (CHQ)'s are responsible for policy implementation at the country level and the conversion of GB policies into a series of co-ordinated programmes.

3. Regions are responsible for the planning, management and implementation of programmes of work locally and any policy development that this may require.

The whole of NCC's work has been divided into a series of themes and sub-themes outlined in Nature Conservation in Great Britain (1984) and the corporate plan. The science base theme covers the scientific information gathering and analysis which we normally understand as research, survey and monitoring. Within each of these three tiers elements of work on the broad "science base" theme are undertaken.

Within GBHQ the major aspects of the science base work are undertaken by the Chief Scientist's Directorate. This consists of the Chief Scientist (Dr. D. Ratcliffe) and Assistant Chief Scientist (Mr J. Blackwood and Dr. K. Duff) and a group of expert advisors within thematic, habitat or species groups. CSD members are responsible for:

a. providing specialist advice and expertise in their specialist area;

b. commissioning research of relevance to nature conservation in their specialist field. The work funded centrally is usually of a strategic, fundamental or process nature with "wide" relevance of principle to a range of activities in a wide geographic area.

The Science Division of England Headquarters (EHQ) is responsible for providing and co-ordinating advice across a range of scientific disciplines in relation to policy formulation and implementation. In addition to this background advisory function the Division is responsible for developing and implementing a country survey programme which reflects national priorities, local requirements and flexibility. Within the Division, the Field Unit provides a small multi-disciplinary team to undertake or advise on survey and impact assessment.

At Regional level, the work of the science base tends to be of smaller geographical scale and is determined by the need to:

a. respond to local issues and

b. contribute to an overall programme of work of national priority.

The elements of scientific information that NCC is interested in can be summarised as:

1. The distribution and abundance of habitats, species and features.

   For habitats and features, this is usually referred to as Phase I Survey - where are the woods, grasslands, heathlands of interest?

   For species, BRC provides a baseline of information on species distribution (and abundance) and is part funded by the NCC. The Wildfowl Trust and the British Trust for Ornithology etc. provide similar information for birds and are also partly funded by NCC.

2. The quality or significance for nature conservation significance of habitats, features or species on individual sites is usually referred to as Phase 2 survey. It entails the detailed recording of species and their abundance and communities and their abundance (both plant and animal). Work on vegetation has been facilitated by the production of the National Vegetation Classification by Lancaster University on contract to NCC. The information collected should ideally cover all botanical and zoological groups. However, the expertise and time required to gather comparative and comprehensive entomological information is often prohibitive and, in the first instance at least, heavy reliance is placed on botanical survey, although the limitations of this approach are recognised.

Comparisons of information collected from a series of sites (provided they are collected in a consistent and systematic way) can then be made on the basis of the Nature Conservation Review (Ratcliffe, 1977) criteria and qualitative judgements made on the relative merits, significance and importance of different sites.

3. The functional aspects of ecology and the nature of the processes which affect distribution, abundance and therefore quality of habitats species and features.

The identification of important sites does not ensure their survival. The application of fundamental knowledge of processes through management of sites is the essential component here. The success of management and conservation is only as good as the knowledge on which it is based.

The research and survey needs of NCC identified above can be pursued through three "funding routes":

a. Permanent members of staff. This is a limited possibility since there is work in many other areas/themes which also needs to be done. It does however have the advantage that expertise is both maintained and retained.

b. In-house contract appointments to undertake specific items of work under the direct supervision of permanent members of staff.

c. Contracts with outside organisations or individuals, e.g. universities, museums and institutes. These are usually appropriate for routine work or for work that requires specific expertise in a very limited field which it would be uneconomic to develop internally.

Given that each of the three tiers mentioned above undertake science base work in one of three interest areas (Phase 1, 2 or process) using one of three funding routes, it is appropriate to ask who actually does what?

In general, CSD commission process studies and very large survey work either in-house or outside NCC. Their annual budget is in the region of £3.7 million and a very wide range of projects are pursued. Details of the projects are given in the book The Nature Conservancy Council's Research Programme produced annually by CSD.

In terms of major areas the overall balance of effort on CSD programme is 42% on survey, 20% on monitoring, 24% on habitat management and impact studies and 14% on other studies and advice.

CSD members of staff also undertake individual small projects themselves and through acting as nominated advice officer for contracts also retain expertise in the field of interest.

How do Countries and Regions spend their money? We have identified the need to pursue a programme of national priority survey, but also to retain local flexibility. In England, with a budget of £244K this year, three components of work are followed and these consist principally of Phase 2 survey either for site selection, impact assessment or site defence (£65K).

1. Field Unit programme. Usually large scale Phase 2 work across country or regional boundaries or where local expertise is not available or there is a developmental element. Survey work has concentrated on northern hay meadows, chalk grasslands, grazing marshes, ditches, and assessment of the invertebrate interest of sites.

2. National programme of survey implemented in egions. Usually where projects can be divided into discrete geographical units and the methodology is well established. E.g. grassland Phase 2 survey.

3. Regional discretionary allowance £7½K/year to pursue local priority needs.

To summarize, the CSD funds functional and process studies and national habitat surveys at a Phase 2 level. The England Field Unit carries out major Phase 2 surveys at a county or regional level. The Regions fund Phase 2 surveys of limited extent and work on local sites.

Phase 1 survey - the identification of the resource and the encouragement of its wise and sensitive use is an objective of many organisations in addition to NCC. Moreover it is expensive to fund directly.

NCC has therefore adopted the stance that wherever possible we would provide help and guidance to others who could take advantage of the MSC funds available. We have done this in three ways. Firstly by providing technical guidance on methodology and the production of a handbook. Secondly by the provision of a supervisory input (in the form of a post) to organisations who can be pursuaded to undertake the work (through an MSC agency e.g. County Council), but who do not have the resources or expertise to organise the work. Thirdly by the "purchase" of end products (maps and reports) from organisations such as county trusts who have MSC workforces, survey management and supervisory skills as well as the enthusiasm and desire to undertake Phase 1 work for their area.

The division of research and survey work between different divisions of NCC and through different routes (permanent, casual or contract) is not a rigid one and depends on the specific needs, circumstances, resource and manpower requirements of individual cases.

How are NCC's research and survey requirements reviewed? The Head of Science division reviews regional requirements with each of Englands 8 regions in October each year. The discussions - usually with the Deputy Regional Officer - identify elements of work in all three categories, i.e. Phase 1, 2 and process studies. Similar discussions are held in each of the other countries and within Country Headquarters themselves. The requirements identified are then translated into bids for commissioned research, the programme of which is determined by GB priority and funding is made available by the Assistant/Chief Scientist in January each year.

In February the country survey programmes are determined by country Directorates on advice from the Head of the Science Division.

The contracting of survey work to outside organisations offers certain advantages to NCC not least in the fostering of co-operation and partnership between bodies involved in nature conservation. With limited resources available for nature conservation it is important that duplication of effort is avoided, that objectives and methods are clearly defined and that work is aimed primarily at priority tasks. It is clearly important that museums, local county trusts, natural history societies etc. are involved in the process of both reviewing research and survey requirements and in undertaking specific elements as part of the overall need for information on nature conservation across the full range of interests.

It is suggested that the first stage in this should be discussions between regional staff of NCC and other organisations and the feeding in of "needs" as seen by outside organisations into NCC review process. In addition NCC regions should be aware of the capacity of others to undertake work for NCC on a contractual basis and of what work will be done anyway by other organizations..

In most cases contact should first be made with ARO or DRO for locally based organisations but contact with the Head of Science Division or Field Unit leader at England Headquarters in Peterborough would also be welcomed. Only by improved communication can we hope to achieve nature conservation goals efficiently and effectively.

References

Ratcliffe, D. (ed). 1977. Nature Conservation Review. Cambridge: Cambridge University Press.

FUNDING BIOGEOGRAPHICAL RECORDING

Paul T. Harding

Biogeography, the study of the geographical distribution of organisms, has decreased in importance for those concerned with the collation and storage of biological records. Partly this decrease is a reaction against recording purely to produce distribution maps, and partly it is a conscious realization that suitably organized recording can provide data for use in other ways, for example in nature conservation, planning, monitoring, and recreation. However, sound biogeographical knowledge is one of the foundations on which decisions in nature conservation, species and site monitoring and environmental planning are, or should be, based.

Funding for supposedly academic work, such as biogeography, has become increasingly scarce, so that many projects which originated with purely biogeographical objectives have been modified to provide data for these other uses. The Biological Records Centre (BRC) is a prime example of this change. In 1964 BRC was set up to map the distribution of the flora and fauna of the British Isles. It is now a national data base on the occurrence of taxa, capable of providing information on species and sites, with a major contract with NCC to collect, store and provide site-related data. With a staff of 5, it co-ordinates over 60 national recording schemes covering 16,000 taxa. Many local records centres have undergone a similar shift in objectives - from species mapping to acting as multi-purpose data bases. In many cases commercial pressures have influenced this shift because financial support for biogeographical work is difficult to obtain, whereas work orientated towards planning and nature conservation is likely to attract core-funding, contracts and grants. Commercial sponsorship is also a source of funds, but seems thus far to have been used either for publications, for example Mendel and Piotrowski (1986), or for comparatively simple projects with strong public appeal, for example Way (1987). A notable exception is the sponsorship for butterfly surveys described by Warren (1987).

In 1987 the national Biological Records Centre was placed on a more certain footing, with its work being incorporated as part of one of the 13 Research Programmes of the Terrestrial and Freshwater Directorate of the Natural Environment Research Council. The Nature Conservancy Council also agreed to continue to support BRC, with a contract for 5 years providing approximately 25% of the full economic costs of BRC. New computer hardware is now available to BRC; a MicroVAX II at Monks Wood and a VAX 8600 at the British Geological Survey at Keyworth near Nottingham, and data are now assembled at Keyworth under the ORACLE database management system. Access to the BRC data base at Keyworth will be possible via the Joint Academic Network (JANET).

Other recent developments include the partial re-modelling and extension of the accommodation for BRC at Monks Wood and the acquisition of fire-proof storage for the archive of original record cards which are the source of data in the BRC database.

Many of those concerned with managing records centres find themselves confronted with problems resulting from limited finance. However, the most fundamental problem in biogeography is the absence of an adequate infrastructure for the surveillance of the flora and fauna of the British Isles, a problem which has been addressed at previous meetings (Anon. 1985, Copp & Harding 1985, Harding & Roberts 1986) and has been covered by other speakers at the present meeting.

Most of those concerned with the collation of data for biogeographical purposes are well aware that they are obtaining data from only a selection of the potential sources (Figure 1). A similar enforced selectivity afflicts all other databases, whatever their objectives, because of the absence of a national policy on biological surveillance. At a national level this is a particular problem with popular groups such as vascular plants, mammals, amphibia and butterflies, where local records centres may often hold many more, and frequently more up-to-date, data (for their area) than is held at BRC. Conversely, BRC has access to, or already holds, high quality data for less popular groups (such as bryophytes, dragonflies and many other invertebrate groups) which are not, or are only poorly, represented in local databanks. The relationship between BRC, local centres and other major sources of data desparately needs to be resolved before we all drown in a stormy sea of data.

Awareness of the need for a national policy has been heightened by earlier meetings, by the Federation and through its involvement with working groups organized by the Linnean Society and Wildlife Link. The Council of Europe, through its Committee for the Conservation and Management of the Environment and Natural Resources, has also addressed the problem, as it occurs at local, national and international levels, to the Council of Ministers of the Council of Europe.

However, in our efforts to try to obtain a national strategy for biological recording, let us not lose sight of the importance of biogeography. At the moment biogeography is in grave danger of being neglected at the expense of site recording, habitat surveys, popular appeal surveys and many other more commerical or scientifically fashionable exercises. In particular, I am concerned that the causative aspects of biogeography are being neglected. Attempts to explain why species X has its particular distribution are, in the absence of autecological research, very infrequent.

Volunteer biologists (amateur naturalists) seem less inclined to study the biology of species, favouring instead recording for species mapping (in ever decreasing geographical units) or for site protection. Even simple attempts to relate habitat distribution to geographical distribution, such as was done for woodlice (Harding & Sutton 1985) have helped explain why species are distributed differently.

To finish on an encouraging note, I want briefly to mention a few developments in monitoring which have a great deal to do with biogeography:

1. The Botanical Socociety of the British Isles (BSBI) Monitoring Scheme (see Ellis 1986) has been launched under the direction of Dr. T.C.G. Rich. Tim Rich is based at BRC, but the whole project is being funded directly by NCC.

2. The British Trust for Ornithology (BTO) Birds Survey is entering its first pilot year. The project is organized by Dr. David Gibbons and is receiving financial support from Nature Conservancy Council (NCC), World Wildlife Fund (WWF) and Central Electricity Generating Board (CEGB).

3. The national Butterfly Monitoring Scheme organized by Institute of Terrestial Ecology (ITE) uses only a small number of sites, but has revealed some fascinating and valuable data (Pollard et al. 1986). Even though Ernie Pollard has now retired, the scheme will continue at ITE, with partial funding from NCC.

4. Plans are being made for monitoring the breeding of dragonflies at a range of important sites throughout the country.

All these schemes have drawn, or will draw, upon basic biogeographical information gathered and stored locally and nationally.

Figure I

Sources of data in biological surveillance