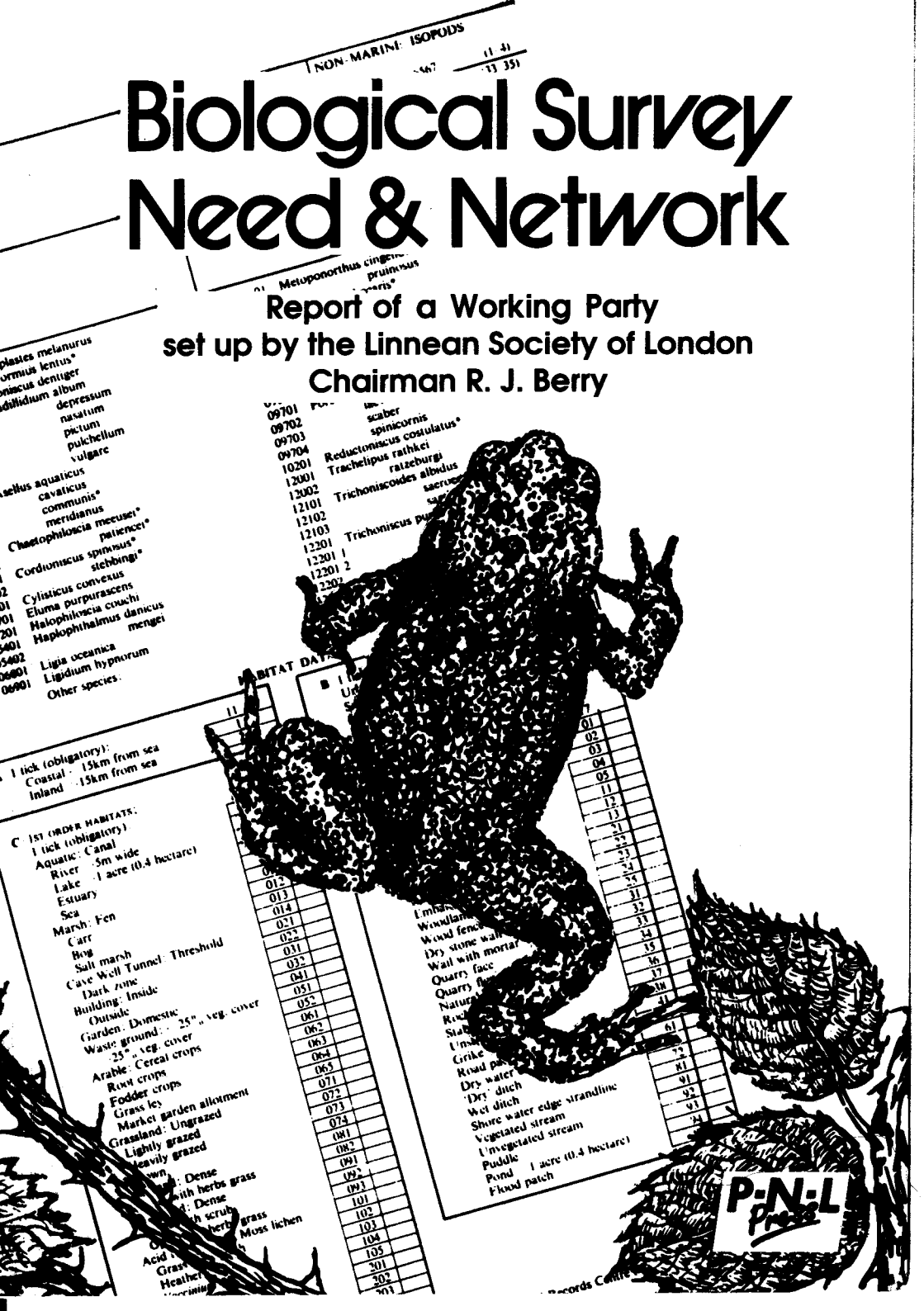
Biological Survey Need & Network

Report of a Working Party set up by the Linnean Society of London

Chairman R. J. Berry



P·N·L Press

Biological Survey: Need & Network

Report of a Working Party
set up by the Linnean Society of London

Chairman R.J. Berry

PNL Press
1988

Biological Survey: Need & Network
The Linnean Society of London
First published in 1988 by
PNL Press
The Polytechnic of North London
Holloway Road, London N7 8DB

ISBN 1 85377 006 X

This report has been grant-aided by
the British Ecological Society, Nature Conservancy Council,
World Wildlife Fund and the Department of the Environment

Table of Contents

Introduction

THIS DOCUMENT is the result of concern about the state and lack of co-ordination of biological recording in the British Isles, expressed at two open meetings (at Leicester, 13-14 September 1984, organized by the Biological Curators' Group, and a follow-up in London, 7-18 April 1985) which led to the formation of a National Federation for Biological Recording and a request to the Linnean Society for a comprehensive review of biological recording (Appendix I). The Linnean Society set up a Working Party (see Appendix II) to inquire into the subject and make recommendations to the Council of the Society. The Working Party met on eight occasions, and its Report is attached herewith.

R.J. BERRY
Chairman

1. Nature and Aims of Biological Survey

1.1 BIOLOGICAL SURVEYS OF MANY TYPES are carried out in the UK. Most are undertaken for specific purposes, for example:

i. *Strategic:* i.e. use by others than the recorders, for conservation management or surveillance (including work by the conservation trusts and local natural history societies, by the Nature Conservancy Council in pursuit of its statutory responsibilities such as the identification of sites of special scientific interest), for planning (including land-use and environmental impact assessments), for water quality monitoring and for assessment of pest status.

ii. *Scientific (or fundamental):* identification of trends (including extinctions), fluctuations and successions in both individual species and communities. In addition to work in universities, research establishments and so on, this includes national censuses organized by scientific societies, mostly coordinated by the national Biological Records Centre (BRC) at Monks Wood (the most important exception being the ornithological data collected under the auspices of the British Trust for Ornithology). Also local surveys organized by conservation trusts or local natural history societies: some of these data may be sent to the BRC, but most are held in local or regional records centres (Appendix III).

iii. *'Aesthetic' reasons*, that is recording for its own sake. This is a motive (and potential resource) which should not be ignored. The strength of its influence is demonstrated by the hundreds of 'twitchers' who will travel long distances to record a rare bird, or the large numbers of members that natural history societies often attract to field meetings (Berry, 1988).

iv. *Education:* where a species or community is to be found when it is wanted for project work, class observation, etc.

1.2 Biological surveys result in the production of records. A biological record should incorporate four elements: a *species* or *habitat* identified by a person at a *location* at some point in *time*. The value of a record is likely to be enhanced by the inclusion of additional detail, such as age or density, or environmental (eg. climatic or edaphic) or historical information. Notwithstanding, historical species records lacking some of the basic information (for example, date and/or site) may still be useful.

i. All four elements require validation. The commonest source of error is probable in taxonomic identification. The recorder may not be a competent taxonomist, and his/her identification may require confirmation by an expert or by comparison with a voucher specimen. The responsibility for accepting the validity of a record must lie with the person who stores the primary data (or an agent appointed by that person).

ii. There is no distinction in principle between 'species' and 'site' recording; any apparent differences arise through the way(s) in which the basic records are used. However, in practice, data tend to be stored and retrieved in such a way as to produce a separation between 'species' and 'site' information.

1.3 The usefulness of biological records is not confined to the collectors of the data, nor to the purpose for which they were originally collected. To maximize the availability of data to all who might want them a number of 'biological record centres' act as clearing houses for data, each centre covering a particular county or region.The centres collect, collate and store biological records together with any preserved, printed or manuscript materials supporting them, from whatever source. They must be responsible for controlling the quality of the data collected, and they may also have the function of co-ordinating those making the observations in time, space and methodology so that the data collected are scientifically meaningful. In particular, they have a vital role to play in implementing, wherever practical, standard methodologies designed either for data-gathering, storage or dissemination, and which have been approved by an appropriate authority (e.g. the national Biological Records Centre or one of the learned societies). In carrying this out they will be contributing very significantly to the evolution of an integrated biological recording scheme.

1.4 Data collated in this way can be used for:

i. Preparation of local and national floras and faunas as guides to the biological diversity of an area or county including, wherever possible, the habitats in which the species occur, and associated species.
ii. Preparation of local and national distribution maps and their publication as atlases as a basis for biogeographical analysis.
iii. Identification and assessment of sites containing habitats of interest, for integration into strategic planning, for SSSI or other designation, or for purchase and/or management as protected areas.
iv. The identification and assessment of the status of rare or threatened taxa as the basis for determining conservation priorities locally, nationally and internationally. This information can be disseminated, with accompanying proposals, to those individuals, organizations and government departments in a position to make best use of it.
v. Monitoring changes in the distribution or population sizes of taxa or degradation of habitat to give early warning: (a) of threats to particular taxa or groups of taxa; (b) of threats to particular habitats.
vi. Plotting migration of mobile taxa such as birds and insects.
vii. Supporting taxonomic expertise.
viii. Providing information on the exact location of material exhibiting taxonomic diversity as a basis for chemical, genetic or autecological research.
ix. Providing information for historical and other research.
x. Formulating advice to Government on taxa to be included in the Schedules to the Wildlife and Countryside Act 1981, the Berne Convention and other legislation.

2. History of Biological Recording

2.1 A BRIEF LOOK AT THE HISTORICAL DEVELOPMENT of biological recording in Britain helps to understand the organizations and activities that exist today. The importance of a biological inventory has been recognised at least since the time of John Ray who wrote in 1660: "I design to put forward a compleat Phytologia Britannica". Since then amateur natural historians have contributed greatly to the knowledge of our flora and fauna (Allen, 1976).

2.2 However the first significant attempt at coordinating recording was the formation ot a Central Committee for the Study of British Vegetation in 1904; this led directly to the establishment of the British Ecological Society in 1913. The Vegetation Committee was proposed by Tansley (1902) on the grounds that :

> *"Co-operation is necessary if any considerable results are to be obtained. It is much to be desired that the surveying part of the work should be taken up by active members of local natural history societies."*

He emphasised the potential:

> *"Scattered up and down the country are scores of men whose hobby is botany and whose acquaintance with their local floras is absolutely unequalled. Too often they carry with them to their graves knowledge which would be of the greatest value in helping to build up a picture of the vegetation of the country as a whole. Convince them of the interest of ecological survey work, and you would secure their co-operation in working out and mapping local floras from that point of view, which with the requisite general knowledge of methods and a certain amount of help and direction, they would do a hundred times better than a visiting botanist, with no knowledge of the locality." (Tansley, 1904).*

This remark is highly pertinent at the present time, because the under-utilization of the expertise of amateurs (largely due to the professionalisation of biology: Berry, 1983), has resulted in much survey work being done by Manpower Service Scheme teams and others on short-term contracts, with very variable results.

2.3 In 1947 the British Association Conference of Delegates of Corresponding Societies considered a proposal to produce "basic maps for the plotting, classification and correlation of natural history records". No action was taken because "maps of this type were being constructed for certain areas by the Council for the Promotion of Field Studies, and it was thought that the time was hardly appropriate for the Conference to take action until more evidence of the kind of map required was available."
In 1950 the Botanical Society of the British Isles set up a committee to map the

British flora which led to the launching of the Distribution Maps Scheme in 1954, with funding from the Nature Conservancy, and the publication of the *Atlas of the British Flora* in 1962 (see Allen, 1986: 153-58).
Despite this initiative, the indecision of the BA Conference has been repeated on many occasions. In the Foreword to the BTO *Atlas of Breeding Birds in Britain and Ireland* (1976), Ferguson-Lees recorded that

> *"For over two years, the possibility of an* Atlas of Breeding Birds *was discussed regularly .... There was a seemingly irreconcileable division of opinion between the optimists and enthusiasts on the one hand, and the pessimists and diffidents on the other, the latter believing that such a project was doomed to failure through inadequate coverage. Even the optimists said that, because of the uneven spread of observers, and their scarcity or absence in remoter areas, the best coverage that could be expected was 90% in England, 50% in Wales and a mere 25% in Scotland .... How wrong we all were."*

Some ornithologists also considered that the whole concept lacked sufficient scientific merit to justify it being undertaken at all, but in this direction the majority were agreed in regarding it as a potentially invaluable tool for conservation and of considerable importance as a permanent record, for future comparison of bird distributions at a time of great environmental change.

2.4 In 1964 the data and mapping machinery used in the preparation of the *Botanical Atlas* were transferred to Monks Wood in Huntingdonshire and formed the nucleus of the Biological Records Centre (BRC).[1] Its objectives were to set up and operate a computerised data bank of information on the occurrence of plants and animals in the British Isles; to maintain an archive of the original records from which the data bank was compiled; and to make these data available in a variety of forms, for research, monitoring, nature conservation, education and general information.

The main emphasis in the work of the BRC has been the co-ordination of over 60 national Biological Recording Schemes organised by national societies, formal study groups and individuals, to make surveys of particular groups of plants and animals. BRC's role has been to help establish the recording schemes, to provide record cards, to process and check the records and store them in the BRC data bank and archive, and to assist with the publication of the results. Mapping is carried out on a ten kilometre square basis. A series of atlases has been published, often in co-operation with national societies (Harding, 1985).

2.5 There have been many attempts to establish biological recording on a firmer footing (Greenwood, 1971). In the 1970s the then director of BRC, Dr Frank Perring encouraged the setting up of local record centres and attempted to establish a network of local centres which would be co-ordinated by BRC. In 1973

1 At that time part of the Nature Conservancy but now under the Institute of Terrestrial Ecology of NERC, with financial support by contract from the NCC.

BRC and the Department of Museum Studies of the University of Leicester organised the Leicester Conference on Environmental Record Centres which provided the opportunity for museums and other organisations to review progress in environmental recording, to exchange experience and to learn more about the requirements of the user community, particularly planners and conservationists. In arranging the conference on the eve of the reorganisation of Local Government, it was hoped that it might be possible to persuade the new local authorities to accept responsibility for biological recording during reorganization. To this end the conference passed a resolution that

> *"Environmental Record Centres should be set up and paid for by Local Authorities to cover areas based upon the existing Vice County system. They should have the same status as County Record Offices and they should be associated with them."*

Although two new centres were set up, only one (West Yorkshire) succeeded in obtaining additional finance and resources for this purpose (Lavin and Wilmore, 1977).n 1977 a meeting of record centre organisers took place at Monks Wood and in 1978 a *Handbook for Local Biological Record Centres* (Flood and Perring, 1978) was published. Overall, therefore, the conference failed in its objective.

There were parallel moves in Scotland. A conference in Dundee in 1975 led to the ongoing Biological Recording in Scotland Committee, which produces newsletters and co-ordinates recording schemes in Scotland (Somerville, 1977).
I

2.6 Subsequently, many local Nature Conservation Trusts with the support of the Nature Conservancy Council, World Wildlife Fund, and BP, acquired computers and began to computerise data relating to their reserves and sites of natural history interest. Many national societies embarked on new and expanded recording schemes and co-ordination between the various schemes soon became a major problem. Much of the initiative as far as local biological record centres were concerned was taken by museums and in particular by the Biology Curators' Group (BCG) in co-operation with the BRC. In 1980 BCG and BRC carried out a survey of local record centres (Harding and Greenwood, 1981; Greenwood and Harding, 1982). A new initiative in 1984 followed the recognition of the tremendous growth in resources being devoted to biological recording, due mainly to the availability of labour under the Government sponsored Manpower Services Commission.

2.7 The 1984 BCG Seminar *Biological Recording and the Use of Site Based Biological Information* (1985) confirmed the widely held view that "the present situation both nationally and locally for biological recording, storage and retrieval of data was unsatisfactory" and it drew attention to the problems arising from lack of finance, of central co-ordination and of standards. The seminar led directly to the setting up of an *ad hoc* group,initiated by BRC and drawn from the Biology Curators' Group and other interested organisations, to find means of improving the situation. The group organized a *Biological Recording Forum* at Chelsea

Table 1a: Longterm Freshwater Records

(modified from NERC, 1976a)

Organisation responsible	**Surveillance Scheme**	**Dates & Frequency of observations**
University of Aston, Applied Hydrobiology	Benthic invertebrates of the River Cole	Annually since 1950
New College, London, Botany Dept	Planktonic and other algae and zooplankton in Virginia Water	Weekly since 1958
University College of Wales, Cardiff, Botany Dept	Algae, bryophytes, macrophytes of certain rivers in South Wales, particularly the Usk	Since 1958, at varying intervals of time
Severn Trent Water Authority	Species lists for the Bristol Avon River Authority Area and Biological Assessment of Pollution	Irregular survey 1935-71, 1950-75
South West Water Authority	Salmon in various Devon rivers	Since 1962, several censuses
Thames Water Authority	Plankton in Rivers Thames and Lee	Weekly or fortnightly since 1935
Welsh Water Authority	Salmon & Sea Trout and some other fish in South West Wales	Annually since 1952
Severn Trent Water Authority	Macro-invertebrates of the Trent	Bi-annually at *c.*600 sites since 1956
Severn Trent Water Authority	Freshwater fish in the Trent area	Irregularly since 1955
Wye River Authority (now Welsh National Development Water Authority)	Salmon counts on river Wye	Annually since 1903
Central Electricity Research Laboratory, Nottingham	Invertebrate communities in Lincolnshire	Species lists and numbers for 10 years (1960-69)
Field Studies Council	Brown trout and perch in Malham Tarn. Other taxa irregularly.	Angling returns for 25 years since 1947.
Freshwater Biological Association River Laboratory	Fish in River Frome, East Stoke	Since 1964
FBA Windermere	Physical, chemical and biological data on the Cumbrian lakes	Since 1930 or earlier
Ministry of Agriculture, Fisheries and Food	Salmon and Sea-trout. Continuing census of ascending and descending fish on the River Axe, Devon	Since 1960
Department of Agriculture and Fisheries for Scotland	Salmon 1) sample counts on all ascending and descending fish and population estimates of young fish in Girnock Burn, Aberdeenshire	Since 1966
	2) sample counts of all ascending and descending fish in North Esk, Angus	Since 1962
	3) sample counts of ascending and descending fish in River Meig, Ross-shire	Since 1957

College in London in April 1985 (Copp and Harding, 1985) attended by more than 100 people drawn from all sections of the biological recording community. At the Forum it was agreed to set up a formally constituted National Federation for Biological Recording which came into being at Cambridge in April 1986 at a seminar *Biological Recording in a Changing Landscape* (Harding and Roberts, 1986).

2.8 Recently, several attempts have been made to record habitat change through remote sensing. Of these the joint DoE/CC commissioned study by Huntings, 'Monitoring Landscape Change', the NCC 'National Countryside Monitoring Scheme' (jointly funded by CC Scotland in Scotland) and the ITE study 'Landscape Changes in Britain' are probably the most significant. Each of these schemes has the aim of recording the extent and direction of landscape and habitat change but the methods employed differ. The principal sources of information in these studies have been aerial reconnaissance photography coupled with ground surveys. All three systems have relied on sampling, the NCMS based on samples of about 10%, DoE/CC on about 5%, while ITE use detailed surveys of 1 km x 1 km representative squares. The time scale of the two aerial photography studies was over several decades (1940s to 1970s/80s) but the ITE study covered a shorter time interval (1978-1984).
At the present level of sophistication of these remote sensing surveys it is not possible to identify the ecological quality of habitats (for example, the species-richness of meadows). Such work does, however, provide evidence of the habitats which are under threat and hence the sorts of communities or populations which are likely to be at risk. Future developments in the precision of remote sensing may increase the value for species or site monitoring. Ground surveys are able to provide better information on species-richness but demand considerable resources. As a consequence, such surveys have to be sample-based. Notwithstanding they can provide estimates of status and of change; representative sample squares provide evidence of general trends although the data are not amenable to statistical analysis unless the squares are located randomly.

A large number of habitats have been surveyed and recorded, albeit with different degrees of detail. For example, comprehensive inventories have been assembled of ancient woodlands, limestone pavements and heathlands while grasslands, peatlands, saltmarsh, shingle and coastlines have received less attention. Complete land surveys have been attempted by NCC but even at the lowest level which identifies only the broadest categories of habitat, the extent of coverage is uneven and very incomplete. It does, however, enable sites of potential interest to be identified and acts as a coarse net. The resources required for this sort of study are enormous and increase considerably as greater detail is required to determine the actual status of a site.

2.9 A NERC Working Party on 'Biological Surveillance' (1976a) identified a series of long-term schemes with value for detecting biological changes (Table 1). We have not attempted to revise this list, and there are many 'hidden' sets of data

Table 1b: Longterm Terrestrial Records & National Surveys

(modified from NERC, 1976a)

Organisation Responsible	Scheme or Survey	Dates, frequency and nature of observations
Botanical Society of the British Isles	Atlas of the British Flora	Baseline Survey 1954-60. Rare species surveyed every 5 years, common species every 50 years.
British Lichen Society	Lichen mapping scheme	Mapping on 10km basis. Started in 1965
British Bryological Society	Mapping scheme for mosses and liverworts	Mapping on 10km basis. Started in 1965. 200 species maps completed
Forestry Commission	Censuses of forest and woodland	1924; 1947/9; 1965/67
	Censuses of hedgerow and park trees	1953
	Permanent forest plots	Started in 1913 (now number 1200). Recording growth and other data
Forestry Commission and MAFF Pest Infestation Control Laboratory	National surveys of red and grey squirrel distribution	Eight censuses between 1930 and 1971
NatureConservancy Council (contract with University of Lancaster)	National vegetation classification	Longterm programme started 1975 to catalogue vegetation types in Great Britain
British Trust for Ornithology and Irish Wild Bird Conservancy	Atlas of Breeding Birds	Species distribution mapping over 5 years. Atlas to be published in 1976. Resurvey planned in about 20 years.
British Trust for Ornithology	Common birds census	Annual census of 50 common species since 1965
	Nest records scheme; Bird ringing scheme	Started in 1959
	Census of individual species - heron, fulmar, great crested grebe, peregrine and black-headed gull	Carried out and repeated at various times since 1929
		Garden birds feeding survey
BTO in co-operation with Wildfowl Trust and RSPB	Birds of estuaries surveys	Monthly counts of waterfowl on major estuaries 1970-75
Royal Society for the Protection of Birds	Censuses - osprey, golden eagle,	Annually, osprey since 1954, golden eagle since 1971
	Red-throated diver, black-throated diver,	Since 1971
	Slavonian grebe	Since 1971
RSPB and Seabird Group	National seabird census (Operation Seafarer)	1969-70
	Beached birds survey	Since 1968, monthly records during winter months September - March. Occasional summer records
Wildfowl Trust	Wildfowl censuses:	
	1) Duck counts	Since 1949 monthly counts September - March at 500 sites in Great Britain. Monthly counts of waterfowl on major estuaries 1970-75
	2) Goose census	Annually for several species
	International waterfowl census	Annually since 1971
	Wildfowl ringing	Started in 1950s
Institute of Terrestrial Ecology (NCC contract)	Organochlorine and PCB residues in birds and mammals	Started in 1964 for sparrowhawk but earlier eggshell samples have been obtained. Sample sites throughout Britain
Rothamsted Experimental Station	Rothamsted Insect Survey	Daily sampling of moths since 1960, at 174 sites. aphids since 1964, at 20 sites
Royal Meteorological Society	Phenological Survey	Reports cover period 1875-1948

which could give important information on change of stability'. For example, Rose and Hawksworth (1981) used published records of lichen occurrence in the London area from the early seventeenth century onwards to compare with a survey they carried out in the 1970s on the effect of the Clear Air Act. However, we call attention to the need for a register of long-term data sets and an assessment of the effort needed to maintain them.

2.10 The accumulation of data with geographical links led the Department of the Environment to set up in 1985 a Committee of Enquiry into the handling of geographic information (Chorley, 1987). This committee recommended a much more rapid digitisation of Ordnance Survey maps so that environmental (and biological) data could be more easily and conveniently related geographically, and that a Centre for Geographic Information be established "to provide a focus and forum for common interest groups in the geographical information area, undertake promotional activities and review progress and submit proposals for developing national policy".

2.11 International Perspective. Because the history of biological recording outside the UK has, in general, been comparatively recent, the complex situation in this country, as described above, tends to be rather specific to the UK. The sheer number of amateur naturalists involved in biological recording in the UK has perhaps been one of the main reasons why the need for a more co-ordinated biological recording system has emerged. This does not mean, however, that no other countries are yet experiencing the same difficulties as ourselves. In the USA, for example, Morse and Henifin (1981) report that:

> *"Although there is currently considerable ad hoc and informal information exchange in plant systematics and plant conservation, the lack of a well-defined and well-organized plant information network of national scope has contributed to the increase in several problem areas in current floristics and plant conservation work... Without centralized review and co-ordination, it is difficult to set priorities for information needs... National co-ordination could increase continuity and decrease duplication between ongoing state and national programs."*

Similar problems are now occuring in many other countries. The IUCN's Conservation Monitoring Centre maintains a database on the world's threatened fauna and flora, and is increasingly approached for advice on biological database design and methodologies to facilitate data exchange not just to meet local needs but to meet international needs as well. This has stimulated the IUCN to explore ways forward, often with other organizations such as the Taxonomic Databases Working Group (a consortium representing the world's major herbaria; SCOPE; UNESCO; the Centre for Plant Conservation (based at the Arnold Arboretum, USA); CORINE (part of the EEC Environmental Programme) and the Council of Europe's Division on the Environment and Natural Resources). There is a recommendation prepared for the Committee of Ministers of the Council for Europe to extend these activities (Appendix IV).

There is tremendous scope for much closer liaison to be established between UK organisations and relevant international bodies, to tackle the difficulties of creating a co-ordinated system for national biological recording. The UK must be prepared to look beyond its own frontiers for additional advice and experience in this field.

2.12 One fruitful development has been a recognition of the importance of various International Transfer Formats[1] (ITF), and a number of organizations are collaborating in identifying and defining these.
Rather than attempt to design one all-purpose ITF to serve the data exchange needs of all biological databases, and which would probably be impossible to design because of its complexity, a set of International Transfer Formats have begun to be prepared to help meet the needs of selected biological databases which share common objectives. The work, so far, has concentrated largely upon botanical databases and, in the case of IUCN, those associated with conservation and botanic gardens.

1 Mackinder and Synge (1986) give the rationale for this: "It is absurd to try to standardize hardware - the market is far too volatile for that. It is also a mistake to try to standardize software as this limits the choice of hardware. In most cases, we do not believe it is wise to standardize internal data formats, the way the information is stored by the computer, as this in turn depends closely on the software. We are convinced that the point of standardization should be data transfer formats. This is the format used in which one organization transfers data to another on tape or diskette or down the telephone line. Internal codes would be expanded into their full form, thus removing the need for standard sets of codes on items like genera, plant families and so on. This then removes the need for international agreement on codes for these items, agreement that in the past has proved impractical to achieve."

3. Users of Biological Records

3.1 BIOLOGICAL RECORDS ARE CONSULTED by a very wide range of groups. Several of these require biological information in order to carry out their functions. For example:

i. The Nature Conservancy Council needs data on sites and species to carry out its responsibilities for nature conservation in Great Britain.

ii. Local planning authorities need site and species data in sufficient detail to cover all sites of significant, actual or potential nature conservation value within their area, so that appropriate policies can be included in Local Plans and so that environmental needs can be taken into account in planning decisions. These require for each site: area, habitat(s) present and their state, dominant and rare species. Knowledge of the abundance and distribution of species is also needed.

iii. International agencies such is the IUCN Conservation Monitoring Centre (based in the UK) also need at intervals quite detailed data on the status of individual taxa at national level in order to meet one of its obligations: to provide an overview on the status of fauna and flora worldwide. Since it is not realistic for the IUCN-CMC to gather this raw data itself, its dependence upon national records is very considerable indeed. Without such data, IUCN would be unable to ensure that the international priorities it recognizes are sufficiently accurate, and this in turn, would affect the effectiveness of the long-term conservation strategies it has an obligation to design and implement.

iv. Voluntary bodies need data on which to base their strategies. For example, local conservation trusts need to choose sites which they will seek to protect, either by purchase or lease, or by other means. They can only do this if they have access to sufficient data to allow sites to be compared.

v. Utilities (e.g. CEGB) and commercial concerns need data to assess, and minimise, the impact of their activities on the natural environment. For example, BP used detailed environmental data when proposing and planning oil extraction activities in the New Forest.

vi. Water authorities need data to carry out their statutory responsibility to 'further conservation', and also, when damage is caused by consented discharges, data are required on the status of flora and fauna immediately prior to the discharges. The Control of Pollution Act, 1974 requires water authorities to restore the biota to this state.

vii. The Forestry Commission require data to 'further conservation' under their statutory obligations.

The need for data is likely to increase with the increasing demand for environmental impact statements, and with increasing public awareness of environmental and conservation issues.

3.2 The obligations of Local Authorities are made explicit in the Department of Environment Circular 108/77, which requires that they "take full account of natural resource conservation in formulating structure and local plans, in considering individual planning applications, in managing their own estates, and in devising schemes for their own developments."
Briefly, the duties (excluding education) of Local Authorities (LAs) in the UK which imply a need for biological data are:

Strategic planning: preparation of plans covering areas of a few km^2 to a few hundred km^2. Such plans, which are revised periodically (every 5 or 10 years) establish the context for future planning decisions and guide development by identifying what development will be permitted in each area;

Development control: granting (or refusing) permission to change the use of land, such as undertaking building development, mineral extraction, etc.;

Direct land management: Local Authorities have considerable land holdings with actual or potential nature conservation value;

Power to designate Local Nature Reserves.

LAs have a very considerable influence on use and management of land through these powers. Although LAs can only rarely influence farming practices, they are a primary influence on other major land uses and changes thereof, such as building, transport, quarrying, etc. Through their preparation of local plans they have the opportunity to safeguard sites from changes in land use by recognizing sites of wildlife value and stating that there will be a presumption in favour of protecting such sites. Policy statements on nature conservation and lists and maps of sites are now frequent components of local plans.

3.3 In order to plan effectively for nature conservation, LAs need to be able to answer the following questions:

What is the total available 'resource' : how much of each habitat type exists within their area, which species are to be found in the area and how common and widespread is each?

Which are the important sites for nature conservation in local, regional and national contexts?

How important is Site X in relation to others (locally, regionally, nationally)? Which features of Site X are of particular importance?

Are there areas where there is little wildlife habitat and so where habitat creation is needed?

To answer these questions at least the following information is needed:

Maps showing location and extent of wildlife habitat, with quantitative estimates of area covered by each habitat;

Sufficient data about sites to enable them to be compared. This requires knowledge of what habitats occur on each site and their quality, and at least some species information (dominants, rare species, etc.);

Distribution and abundance of species, to allow comparison of sites and protection of rare species.

3.4 A number of local authorities have appointed ecologists, usually as members of the planning department, and collect their own data. The most ambitious of these developments was the Ecology Unit of the Greater London Council; after the abolition of the GLC, this became the Greater London Ecology Unit, supported by 23 of the 33 individual London boroughs. Duties of the Unit include provision of strategic and site-specific advice on matters relating to ecology and nature conservation (Greater London Council, 1984)

3.5 The Nature Conservancy Council recognize a need within their own organisation for three major elements of information:

the distribution, abundance and quality of habitats and the status of species;

the functional aspects of ecology and the nature of the processes which affect the distribution, abundance and quality of habitats, features and species;
and
the significance of site management procedures for maintenance enhancement of the quality of sites.