



NATIONAL FEDERATION FOR BIOLOGICAL RECORDING



NFBR NEWSLETTER 8: DECEMBER 1989

National Federation for Biological Recording

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NFBR Annual Conference and AGM

The 1989 Annual Conference and AGM took place at the Central Electricity Generating Board's headquarters in London on May 11th.

Eight papers were presented on the theme National Perspectives in Biological Recording.

Paul Harding's introductory paper, "Biological Survey: Need and Network" provided a timely historical overview of the attempts to co-ordinate biological recording, from early meetings in the 1970's to the present day, when we hope that we are on the brink of realising a nationally supported and truly integrated national and regional scheme.

Bill Butcher, from the Somerset Trust, described the development of biological recording within the County Trust movement and RSNC, where resources have never been adequate.

Marcia Taylor and Mandy Lane, from the Rural Areas Database of the Economic and Social Research Council Data Archive at the University of Essex, gave an account of the way the Unit operates. The facilities for receiving and handling material in many different formats, for data conversion, data validation, and long-term protection, provide an excellent model for biological recording, and, indeed, RAD already houses a significant amount of biological data and would welcome more such data sets.

Ian Baugh, of the Information Technology Branch of the Nature Conservancy Council, described the development and implementation of the Conservation Resources Database (COREDATA). This project is concerned with promoting the development of compatible coding and classification systems to facilitate and encourage the exchange of data between conservation organisations.

Barry Wyatt, Head of the new Environmental Information Centre located at Monks Wood, described the new Centre, which aims to co-ordinate the environmental recording activities of the Institute of Terrestrial Ecology.

Mike Pienkowski described survey and monitoring work relating to birds and the cooperation between NCC, the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Wildfowl and Wetlands Trust. His descriptions of regional conservation strategies, and the move towards increasingly automated and rapid analyses in order to signal potential problems, are particularly appropriate for birds, but might also provide a model for other groups.

Terry Crawford described the first stage of the DoE-sponsored project on Key Indicators of British Wildlife, which provides a much-needed assessment of the scope of biological recording in the UK, with pointers to suggest where future effort might be most effectively directed.

Richard Tapper of the CEEB appropriately ended the day with a paper entitled "The CEEB - a user's viewpoint", showing how the Board makes use of biological data when planning new power stations.

By the time this newsletter reaches you, it is hoped that the conference proceedings will be well on their way to publication.

NFBR would like to record its thanks to the CEEB for providing a venue for the meeting and for financial assistance towards the publication of the conference proceedings.

Geoff Stansfield
Chairman, NFBR

Biological recording of changes in British wildlife

A conference and conversazione to celebrate the 25th Anniversaries of the national Biological Records Centre and the Natural Environment Research Council will be held on Monday 13 March 1990 at the rooms of the Linnean Society, Burlington House, Piccadilly, London.

The conference topics and speakers are:

Session I:

Organised recording - the conception of a method
Dr FH Perring

The BRC - 25 years in NERC
Dr J Sheail & Mr PT Harding

Resources for documenting changes in species and habitats
Dr BK Wyatt

Session II: The effects of environmental changes on wildlife - 4 case studies

1: Land use on wetlands, the example of water beetles
Dr GN Foster

2: Atmospheric pollution on bryophytes
Mr CD Preston

3: Introductions and their effects on other wildlife
Mr BC Eversham

4: Climate on butterflies
Dr E Pollard

Session III:

Managing the Changes - the effects on Nature Conservation
Dr P Bridgewater

Rethinking the future
Mr T Burke

For further information and a booking form please contact Mr P.T.Harding, Environmental Information Centre, The Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, PE17 2LS tel (04873) 381.

Phase 1 Survey: update for Yorkshire

Stephen Warburton of the Yorkshire Wildlife Trust and the Nature Conservancy Council in Wakefield have supplied the following information:

West Yorkshire has full Phase 1 surveys for the districts of Leeds and Wakefield; the survey for Kirklees is ongoing. Calderdale and Bradford districts are not fully surveyed but there is some early information dating back to before 1977. The data for West Yorkshire are held on the biological data bank at Cliffe Castle, Keighley; enquiries should be addressed there.

South Yorkshire was surveyed by the then South Yorkshire County Council, but the survey was not carried out under the full NCC phase 1 scheme. Full survey has now been completed for Barnsley District, but not for Rotherham or Doncaster Districts. The City of Sheffield has also been surveyed.

North Yorkshire has full phase 1 surveys for Scarborough District and for Richmondshire and Craven Districts within the Yorkshire Dales National Park. Ryedale District Survey is ongoing. The Yorkshire Wildlife Trust has completed Selby District and is putting the data onto computer at Selby District Council. Harrogate and Hambleton Districts and the City of York have no Phase 1 surveys. The North York Moors National Park survey is in progress and due for completion in 1990.

Contacts. Mr J.C.Lavin, Biological Data Bank, Cliffe Castle, Keighley, West Yorkshire, BD20 6GL

Yorkshire Wildlife Trust, 10 Toft Green, York, YO1 1JT

North Yorkshire Moors National Park, The Old Vicarage, Bondgate, Helmsley, York, YO6 5BP.

All change at Aylesbury

Buckinghamshire Environmental Records Centre, based at Bucks. County Museum, has recently appointed a full-time officer. Until recently the Centre was run as part of the duties of the Keeper of Biology and Geology, Kate Rowland. She now has as her assistant Julian Scott, who previously worked for the NCC on Phase 1 survey of Avon. Julian has been involved with biological recording in the Bristol area for over five years, particularly with the Avon Flora Project and the Bristol Regional Environmental Records Centre.

Much of the activity of the Buckinghamshire Centre has in the past been directed towards responding to planning issues, but Kate and Julian hope to be able to expand their activities to cover a wider spectrum. A computer and software are already up and running and plans for preliminary atlases and newsletters are underway. A temporary break in activity is anticipated in the new year, as the museum is changing premises, in order to effect structural repairs to their Aylesbury buildings. But after the move it will be business as usual!

**Julian Scott, Bucks County Museum,
Church Street, Aylesbury, Bucks HP20
2QP
tel (0296) 88849/82158**

Biological recording in Wiltshire

The Wiltshire Biological Records Centre was reactivated this summer after a short interlude following a change of recorder.

In order to maximise the effectiveness of the Centre, much use is made of computers for storage and output of biological data. In this way, a great deal of data can be stored and cross-referenced to enhance its value.

A current project is the Wiltshire Flora Mapping Project, which has been recording since 1984 and aims to publish early in the next decade. The Centre is involved in entering the records onto a database using dBase III+ software, which allows fast and detailed analysis of the data.

AutoCAD, a computer mapping and drawing package, is used to store complex site data in an easily accessible form. Computer-generated maps are made up of "layers", each representing a different type of feature or land designation, such as SSSI or AONB. Once a map is created, it can be edited to emphasise interrelated features before plotting in up to eight colours. Species data can also be mapped at any scale.

The Centre intends to develop a formal structure to receive records from the County Recorders, who are already collecting data, and to acquire records for previously ignored taxa, either from Recorders or by surveys. Data entry is likely, as far as possible, to be by Recorders who have or intend to get their own computers. The Centre will then receive disks containing the data in a compatible form for direct input. By using the appropriate format for data files, most machines will be compatible with the Centre's system. These data will form the basic species archive of the Centre and the data, with the Recorder's permission, may be incorporated into a site file. At intervals, data may be sent to Monks Wood on behalf of the Recorder. This should be a solution to the problems of acquiring, validating and entering species data in the absence of the number of staff that could be required for this.

**Sally Scott-White, Biological Recorder,
Wiltshire Biological Records Centre, Wiltshire
Archaeological and Natural History
Society, 41 Long Street, Devizes, SN10
1NS tel (0380) 77369**

Environmental Recording in Cornwall Automated: ERICA

The ERICA project was formerly inaugurated by Christopher Beazley MP on May 12 1989, with about 100 representatives of various local government and other organisations attending. There followed a short lived flurry of publicity including all of 15 seconds on the local TV news. (See Newsletter 7 for background to ERICA, which is Cornwall Biological Records Centre's (CBRU) computing project.)

Since that date we have been quietly beavering away building up the hardware, staffing and adding data.

Hardware

CBRU now has 8 PC terminals connected via a dedicated telephone line to our PRIME mini computer situated in Exeter, 100 miles away in England. Two dial-up modems are also connected, which will allow users such as local schools and the National Rivers Authority to access the database directly. The system is also accessible through the university network JANET.

Staffing

Our staffing levels have now reached 1 permanent member, 3 part-timers, 2 YTS and 5 ET trainees, plus varying numbers of volunteers

Records

We have concentrated on computerising the necessary taxonomic information, (Phyla, Order, etc.) about all species known to exist or have existed in Cornwall. 16,000 species are now on computer and we expect the remaining 5,000 to be computerised by the time you read this article.

86,000 biological records are now on computer, as are the details of 1,400 collectors, 700 references and 185 sites. We are now

able to sustain a rate of entering 3,000 biological records a week and aim to reach a total of 6,000/week next year.

Management Planning

A project recording system has been written and is operational with the National Trust's head warden for West Cornwall. It is being developed to meet his requirements (ie. deal with all NT properties of the Lizard together and individually) as well as the National Trust and NCC. To this end it broadly follows NCC guidelines to Site Management Planning.

ERICA is now installed at the Cornwall Trust for Nature Conservation and the National Trust on the Lizard.

YTS and ET

The YTS and ET training schemes have been an important and beneficial component of the ERICA project. We receive our YTS trainees from Cornwall ITEC, 4 ET trainees from the Cornwall County Council agency and the fifth from the CRS agency.

We do not pay anything for the trainees (we do not have the funds to do so) and the trainees know that there is little or no possibility of being employed by us at the end of their training period. However, we endeavour to strike a balance with the trainees such that in return for their entering the biological records (which is of little value to them in terms of training) we provide them with an environment where they can attain the skills which will help them to secure future employment.

This places a sizable overhead burden on the CBRU, which must provide sufficient hardware and software to meet their needs whether they are training to become computer programmers, office secretaries, or simply become computer literate with business software such as spreadsheets and databases. It also necessitates there being sufficient expertise in CBRU to supervise and teach these business-oriented skills.

Striking the balance between providing training and getting the biological records placed on computer is not an easy task and varies ac-

cording to the aspirations and abilities of the individual trainee. It has taken the unit considerable time to adjust to this new working/training environment and we have not yet reached a state of equilibrium; for this is not a traditional role of a Local Records Centre. However, I feel that we can justifiably claim that our management of the YTS and ET is worthwhile to all concerned and after all we are now motoring!

**For further information: Dr Colin French,
Cornish Biological Records Unit, Trevi-
thick Building, Trevenon Road, Pool,
Redruth Cornwall TR15 3PL
tel. (0209) 710424**

Rotherham BRC and its new member of staff

The prime function of the biological records centre at Rotherham is to collect information about the wildlife of our area. This information is stored so that it can be retrieved in a variety of ways, depending on questions which are asked of it. We can then extract the appropriate information for each inquiry, interpret the results and provide comments, reports and advice as necessary. Although records of the presence of animals and plants make up the major part of this information, the BRC also collects information on the physical nature of each site, the habitats present within it, the management and use of the site and the people associated with it.

The very large amount of information concerning the wildlife of Rotherham which has been gathered together over the last decade and a half is in itself a problem, as it required the major part of the time of both members of Rotherham Museum's Natural Sciences Section to deal with it. We have not been able to undertake much fieldwork over the years (at least, not official field work in the Borough Council's time), and many such requests from staff of other departments have had to be turned down. We are asked to undertake site visits for a number of reasons, depending on the needs of the staff of the other departments

for more detailed or more up-to-date information.

Each site visit would normally require both BRC staff (one botanist and one zoologist) to spend half a day on site, followed by one or two days in the laboratory identifying the collected material, and one day in the office entering the information and preparing a report if necessary. This means that one site visit would take one person-week of work. In practice, as we are prepared to undertake most of the identification work at home in the evenings, these site visits will be less time-consuming, but extra time so generated will allow us to perform more tasks.

The staff of the BRC are asked to undertake site visits for a number of reasons:

- * There may be no information in the Record Centre's files for a site which is subject to a planning application, because that site has never been visited by an amateur naturalist
- * The information which is available on a site may be several years old and more up-to-date data are required
- * The quantity or quality of records in the files may not be adequate for a useful report to be compiled
- * Greater detail about the distribution of habitats and species within a site is now needed for making decisions about the future use and management of a site. These details were rarely recorded in the past because they could not be retrieved consistently and because amateur naturalists rarely record them
- * It is often necessary to discuss schemes and proposals for a site with relevant officers
- * BRC staff provide support to the programme of guided walks organised by the Amenities and Recreation Department

The Borough Council is currently preparing a Unitary Development Plan (UDP) in accordance with government's instructions, particularly the Secretary of State for the Environment's draft Strategic Guidance for

South Yorkshire. This guidance indicates that UDPs should include policies aimed at safeguarding the environment while providing for development which will contribute to the strategic objectives of economic growth and urban regeneration. In particular, UDPs should safeguard and enhance areas of ecological and wildlife value, should protect and upgrade architectural, archaeological and historic heritage, and should encourage new uses for old buildings which contribute to the urban and rural scene.

Adequate survey is essential if the wildlife interest on a site is to be safeguarded and improved, and we are ideally qualified, by reason of our experience and expertise, to undertake such survey work. It was, therefore, proposed that an additional staff member be appointed to the BRC to allow site visits to be undertaken. The entire staff of the BRC would be involved in these visits on a rotational basis and the additional member would relieve the present staff of some of the priority work of entering, extracting and using information. The additional member would need to be able to operate independently and would therefore need to be an experienced naturalist.

This proposal was put to our department in 1986, at a time of the abolition of South Yorkshire County Council, and was finally accepted late in 1988. The new post was created for the 1989-1990 financial year and is a permanent one fully financed by Rotherham MBC. Attempts to attract grant aid from the Countyside Commission, on the grounds that much of the demand comes from staff whose posts are partly funded by the Commission, and these staff are active in the countryside with or without our assistance, fell on deaf ears once again.

Local government is one of the more lethargic animals known to science and it took six months for the post to be filled. Andy Godfray, employed for his geological training, joined our staff in October 1989 and is now being introduced to the dubious delights of Rotherham and the genuine ones of Stuart Ball's RECORDER computer program.

Bill Ely, Rotherham Museum Biological-Records Centre

BRISC proposes an accreditation scheme for record centres

The Biological Recording in Scotland Campaign (BRISC) has prepared a discussion paper on a proposed accreditation scheme for Biological Record Centres in Scotland. This was submitted to its AGM in October. If approved, BRISC will seek endorsement of the scheme by NCC and the Scottish Wildlife Trust.

By setting minimum standards, it is hoped to provide guidelines to enable centres to attain accepted levels of service, and (although not stated in the document), to provide criteria by which centres might qualify for grant aid.

Certainly, it would be useful if the users of biological records could consult a directory to discover what resources individual centres were able to offer. However, in practice, these standards may be very difficult to define. Clearly, a centre needs to be a "permanent" institution where records are kept under safe conditions, secure from accidental loss or from unauthorised access. It is also assumed that a centre should have the services of qualified staff and should be able to respond efficiently and impartially to requests for information.

The BRISC proposals make a number of assumptions which have doubtful validity in England and Wales. For example, in the top category of centre, reference is made to the storage of specimens supporting biological records, and throughout the document there is an underlying assumption that category one centres will be associated with museums and that centres will be housed in "a museum, library, or similar public service building". Although museums have taken a leading role in the development of record centres, it is clear that the museum model is not the only one. Other services considered as essential in the discussion document are a habitat mapping scheme and a site documentation facility. As far as records are concerned, a botanical recording scheme is seen to be essential with "at

least three other biological groups as active data banks".

At first reading the BRISC proposals appear to be too simplistic, but we have to start somewhere, and BRISC is to be congratulated on stimulating a debate.

In this context members will be interested to hear that the Steering Group set up by the meeting organised by NERC in February 1989, Biological Recording in the UK, has now prepared its report on the proposal to set up a Co-ordinating Commission for Biological Recording in the UK. It will, I understand, shortly be circulating this report to the participants of the first meeting. It is no secret that one of the topics suggested for consideration by the Commission is the accreditation of sources of biological records and the establishment of standards in recording.

G. Stansfield, October 1989

A plant recording sheet for Greater London

While investigating the setting up of a Borough data base for biological and other site information, officers of the London Borough of Ealing (LBE) soon recognised the need for a locally applicable field recording sheet for flowering plants. After careful consideration, certain criteria were selected for the development of such a survey sheet including:-

- * The sheet would be in "checklist" form, with boxes for various coded qualifiers, e.g. "garden escape" and "wet areas"
- * There would be a box for abundance based on the ACFOR scale, but using the "5 bar gate" symbols
- * Nomenclature and taxonomic order would follow Clapham, Tutin and Moore (1987)
- * Scientific names would not be abbreviated

- * Format would follow that already adopted by the London Ecology Unit (LEU), i.e. the sheet would be A4 with a flip up lower half containing another half page of species.

- * There would be space for a sketch map, notes etc.

Existing recording sheets were considered to be inappropriate; for example the BSBI card contains many species rarely (or not at all) found in West London. An "Ealing" list was therefore formulated, largely comprising species recorded in Burton (1983) from the 23 2km square tetrads wholly or partly in LBE. At 700 or so species, this list held well over the figure which we had estimated would be a manageable maximum. Many species would have to be discarded.

Nick Bertrand of the Lewisham Group of the London Wildlife Trust, then also a LBE officer, was, in addition to collating the list of "Ealing" species, working on producing a recording sheet for use in the London Borough of Lewisham. Separate sheets for each Borough seemed to be an increasingly ridiculous proposition and a London-wide approach, using a fairly rigorous means of species selection, was then adopted. Returning to Burton (1983) and with the invaluable assistance of Dr D. Dawson from LEU, N. Bertrand has now produced a recording sheet for the Greater London Area. The first attempt, which tried to include every species occurring in 5% or more of the 400 tetrads in Greater London, yielded an over-long list, so a 10% "cut-off" was finally chosen.

After adjustments for increasing or under-recorded species, the list finally comprised 438 species. As might be expected for the London area, the list is boosted by many ruderals, including a number of exotic species, but recorders will find the completed recording sheet suitable for most London area situations. Recording in rarer habitats, such as wetland, downland or heathland, will obviously require a more extensive use of the blank spaces which have been left on the form for additional species and for other information.

Although we could not agree on the species ordering, a "compromise" was reached: the plant recording sheet will be printed in two formats. One will be in alphabetic order, the other (in preparation) in taxonomic order with the families separated by bold lines. Whilst the former carries much traditional favour, there does seem to be increasing interest in the second format, which not only encourages use by the less experienced recorder but yields information which is "ready made" in family groupings. It is anticipated that LBE will employ the "taxonomic" sheet whilst LEU will adopt the "alphabetical" style. The London Wildlife Trust, which does not have a centralised recording system at present, will leave it to individual recorders to decide on the style to be used.

The "Plant Recording Sheet for Greater London", published jointly by the London Borough of Ealing, London Ecology Unit and London Wildlife Trust, will be of interest to many field recorders particularly in urban/suburban south-east England. Anyone interested in receiving a copy should send a SAE to A. McCord, London Borough of Ealing, Community Services Department (Parks), Civic Centre, 14/16 Uxbridge Road, London W5 2HL

Acknowledgements A number of people made useful comments during the preparation of the recording sheet, but particular thanks must go to Alison Clifton (London Wildlife Trust) for entering the species list onto word processor and Mathew Frith (LEU) for preparing the final layout. I would also like to acknowledge Nick Bertrand, who hugely improved the first draft of this paper.

References: Burton R.M (1983) *The Flora of London Area*, London Natural History Society Clapham, A.R., Tutin, T.G., Moore, D.M. (1987) *Flora of the British Isles*, Cambridge University Press

Andy McCord

New system in view for the World Conservation Monitoring Centre

The World Conservation Monitoring Centre, based at Kew and at Cambridge, is a joint venture between the three partners who developed the World Conservation Strategy: IUCN, UNEP and WWF. Its mission is to support conservation and sustainable development through the provision of information on the world's biological diversity.

WCMC plans to replace its computing systems with more modern hardware and software. The material below was abstracted from their "Computing Strategy Summary".

WCMC's computing strategy was drawn together by a group of international computing experts. Recognising the constantly evolving needs of WCMC, the expert group recommended a modular system in which the components were integrated by a range of standard interfaces and protocols. The objective of this policy is to reduce dependence on individual hardware and software products. It thus enables future enhancement and evolution as new requirements and technical solutions arise, without detrimentally impacting on existing systems.

The planned components are:

Database Management System: will provide the major information handling and integration services for WCMC. It must be capable of handling at least 15 simultaneous users and manage databases consisting of 50-100 tables, the largest of which will contain over 1 million records. Many of the other key tables will contain over 10,000 records. The total data volume will be 1-2 Gigabytes. The DBMS must be fully SQL compliant and must develop in line with extensions to the SQL and other relevant standards.

Geographic Information System: will enable WCMC to input information directly from maps, integrate geographically related information, and display the results in cartographic

form. The system must have the capability to input processed information from organisations specialising in the interpretation and use of remotely sensed data, such as UNEP-GRID.

Statistics/Graphics: will permit a range of statistical analyses and business graphics to be produced from the DBMS and GIS systems.

Word Processing/Office Automation: will permit the input, editing and output of text managed within or in conjunction with the DBMS system. In addition, it will provide the normal range of office functions.

Networking: will provide and control the exchange of electronic information between facilities as well as between WCMC and external partners, using a range of network protocols.

Data Exchange: will extend the network file transfer services to allow exchange of files via a wide range of magnetic media.

Program Development System: will enable the design, development, testing and maintenance of the programs required to integrate individual facilities and to perform specific information manipulation functions. It should support a range of third and forth generation tools and methods.

Accounts and Administration: will provide a standard range of accounting and administrative functions.

User Interface: will be uniform and thus will standardise the interaction between computing facilities and users. Users will therefore be freed from specific details of each separate facility and type of workstation, thus simplifying learning of the system. In addition, the uniform user interface will ensure that the underlying processes can be altered without necessarily affecting user-system interaction.

Operating System: will control the interaction between the other facilities and the underlying hardware systems. To minimise dependence on specific hardware, a portable and open operating system should be used. The Unix system was recommended.

WCMC is soliciting donations not only of hardware and software, but also of support services. Significant hardware and software donations have been received from both DEC and IBM. Additional donations have also been received from several other vendors.

Contact: Duncan McKinder (01) 940 4547

NCC/RSNC Biological Recording Project

Over the past year the RSNC has been involved in discussions with the NCC and WWF (UK) over the funding of a joint project to assess and develop the "RECORDER" software for use by Wildlife Trusts (see also page 12). The funding for the first year has now been agreed.

The project, which is jointly co-ordinated by NCC, RSNC and WWF, aims to discover whether the Advanced Revelation based RECORDER package is suitable for use by Wildlife Trusts and other voluntary bodies. The adoption of the package as the standard biological recording software in use by NCC, Wildlife Trusts and other voluntary organisations will assist data interchange through increased standardisation.

The project involves the appointment of two development officers, one based at the RSNC Computer Unit in Nettleham and the other at NCC HQ, Peterborough.

The RSNC Development Officer is funded by WWF(UK). The NCC will be funding 50% of the hardware and software at three trial sites (Lincolnshire and South Humberside Trust for Nature Conservation, Somerset Wildlife Trust and Gloucestershire Wildlife Trust) during the first year of the Project. WWF will be adding 10% of installation costs. NCC has fully funded an installation at the RSNC of an OPUS pc 7 386 VGA.

Given a satisfactory assessment after the first year, up to 12 more Wildlife Trusts would be eligible to join the scheme if funds are made available. RSNC expects to receive funding for this second phase.

The RSNC Biological Recording Officer, Merion Jones, is now in post at Nettleham. He can be contacted at: RSNC, The Green, Nettleham, Lincoln, Lincs LN2 2NR, tel (0522) 752326. Philip Dutt is in post in NCC Peterborough.

NCC appoints Senior Data Manager

NCC has appointed Nick Phillips as Senior Data Manager, a new post in the Data and Information Division, Peterborough. Nick formerly worked in the Computer Services Unit of the World Conservation Monitoring Centre.

In his new job he is responsible for overseeing and coordinating the management of data in NCC, and ensuring the standardisation of data management procedures and coding systems. He will be establishing and maintaining an inventory of data holdings, and identifying gaps and limitations. He is also involved in facilitating data exchanges with external agencies, both national and international, and developing common coding systems and transfer formats, as well as providing advice on databases and nature conservation.

NCC gets GIS

NCC has recently acquired a Geographic Information System (GIS), a system for capturing, storing, checking, integrating, manipulating, analysing and displaying spatially referenced data.

It took NCC two years to assess the potential value of acquiring a GIS, investigate the range and capability of commercially available hardware and software and prepare a case for consideration by the Board of Directors, the Department of the Environment and the Treasury.

In preliminary discussions with potential suppliers it soon became evident that NCC's needs were special. Many organisations have needs in one major activity, such as computer-aided graphics, photogrammetry, spatial analysis or image analysis. NCC needed all of these and more. They wanted a system in which all these functions were fully integrated. It was essential to capture data from paper maps, field surveys, air-photos or satellite images, utilise these anywhere in the system and link them to any other dataset. More specifically, they needed to be able to scan existing maps to store and edit data in raster format (a picture divided into many small squares or "pixels") as well as by digitising into the more common vector format (a picture formed only from lines). They also needed to be able to combine their specialist vector maps with raster OS backdrops to provide a ready frame of reference for map users. Where the raster backdrops contained redundant information or too much detail for convenient use, they needed to be able to edit this. The raster scanning facility was also particularly important to NCC because the availability of vector-digitised maps is largely confined to urban areas and is unlikely to extend to remoter areas for many years.

Eight companies were then invited to supply specifications, with an indication of cost, to meet the NCC's requirements. On the basis of these responses, four companies were subjected to exhaustive bench-mark tests in which all the essential functions were covered, and

typical, but simplified, projects were undertaken. The final outcome was the award of a contract to Intergraph (UK) Ltd., followed by delivery in spring 1989.

The most immediate impact on NCC's work will probably be in routine cartography. The demand for maps and map-based products has increased markedly over the last few years and the cartographic section has not been able to cope with meeting it. It is a relatively simple task to modify a digital map and keep it up to date. It is not necessary to create and store a paper print-out until the user needs it, and even then a map can be produced which meets a specific requirement. Eventually, the concept of individual maps with their fixed scales, contents and borders will be abandoned, and maps will be perceived as transient outputs, produced to meet a particular need at any given time and then discarded.

The facility for spatial analyses will enable NCC to undertake scientific projects in which several datasets are integrated in order to explore the relationships which exist between them. It should be possible to use the same techniques for economic modelling, and for assessing the impact of changes in national policies or local management on conservation issues.

The development of a predictive capability and the creation of "expert systems" to aid decision making also becomes possible.

The contribution to NCC's research capability is also potentially very significant. Existing large datasets can be analysed spatially to investigate species environmental tolerances and preferences. At a relatively simple level one might use species distributions and climate data to search for potential indicators of early effects of environmental warming.

Progress achieved to date includes:

- * A methodology for SSSI map production has been established. Sites not yet notified will have their maps prepared on the system. The Great Britain National Nature Reserves map has been input into the system.

- * The Ferns and Wixball Mosses project concerned peat extraction and calculations of the volumes involved for working out compensation payments. The modelling capability enabled NCC to derive an accurate 3D map of the area and the underlying depth of peat, based on survey and soundings. The relevant volumes were then calculated quickly and very accurately. It is considered that the volumes were less than those assumed from a superficial inspection and so the compensation was lower than originally anticipated. More effort could be expended in gathering survey data because the previously tedious calculation could be handled automatically by the GIS.

- * Another study concerned otter distribution. For a fuller analysis of existing data, it was necessary to derive the area of Britain within a series of lines drawn at 5 km intervals inside the coastline. To derive these results manually would be extremely time-consuming and tedious, but was simple to do on the GIS.

- * The system is being used to measure changes in salt marsh vegetation along the coasts of Essex and Kent. Aerial photographs from 1973 and 1988 are being used to map the boundaries. These data are then input into the GIS where measurements of change are made.

- * Distribution maps have been produced directly from the Ancient Woodlands database, some 40,000 pieces of information.

- * Certain rare plants in central Scotland are associated with snow beds that remain into late May. Satellite images are being used to map these snow beds. These maps can then be used in the field to help locate new sites for these species.

The introduction of GIS is planned to occur in phases. Progress is also heavily dependant on the rate of capture of digital data. Sharing the task of digitising with other organisations who need the same data should also assist progress.

Contact: Chris Goody, NCC, Peterborough

The ITE Environmental Information Centre

Nigel Brown, of Monks Wood Experimental Station, writes:

The Terrestrial and Freshwater Science Directorate of the Natural Environment Research Council has announced the formation of an Environmental Information Centre (EIC) within its Institute of Terrestrial Ecology (ITE).

The ITE EIC is located at the Monks Wood Experimental Station, Abbots Ripton, Huntingdon, under the leadership of Dr. Barry Wyatt. It will be concerned with the following activities:

- * Remote sensing
- * Geographical Information Systems
- * Ecological databases

The Centre comprises the present Biological Records Centre, together with Institute staff at present engaged in remote sensing, digital cartography and GIS at its sites at Monks Wood and at Bangor. Present computing facilities at Monks Wood will be enhanced to provide an integrated system supporting image analysis, vector and raster digital cartographic processing, GIS and large-scale environmental database.

The function of the Centre is to promote the use of remote sensing, GIS and digital information processing in association with ITE's existing ecological and environmental databases. This is in order to disseminate these technologies within the ITE scientific community, and to ensure that the resulting database is fully exploited in scientific applications, both in support of research commissions and as a commercial asset in its own right.

Therefore EIC will have 5 main activities. It will undertake methodological research in relation to the application of remote sensing and GIS in ecology. It will promote this work in ITE Science programmes. It will manage and

operate a limited number of major databases, including the Biological Records Centre, the ITE component of the CORINE programme of the European Commission and the basic infrastructure for an ITE GIS. It will begin to introduce common standards for the description and organisation of ecological data, within the general framework of the standard NERC database system. And, finally, EIC will be responsible for marketing ITE data - both as a resource in its own right, but, more importantly, in conjunction with the Institute's broader capacity for scientific analysis and interpretation.

Progress with RECORDER

RECORDER is the package for biological recording which is being developed by NCC and, now, RSNC - see page 9. This article summarises the current position from the NCC point of view.

NCC's timetable for the release of RECORDER

The organisational side of the project has now been taken over by Nick Phillips, Senior Data Manager in the Data and Information Division at Peterborough. He is now the main contact point for matters concerning availability, charges, etc. (except county trusts who should contact Nick Longman at RSNC Headquarters).

NCC intends to allow six months for the preparation of documentation and for further development and training, and aim to have a fully supported release available around the end of April 1990. However, there is considerable demand from a number of organisations to obtain a copy of the package earlier than this. Therefore it has been decided to issue "pre-release" copies to further sites on two conditions:

- * They should be "computer literate", or have access to their own computing expertise, so that they can cope without full user do-

cumentation and with minimal support from NCC.

- * They take the package on the understanding that the version they receive may not be compatible with the eventual full release (although an upgrade path will of course be provided!) and is unsupported.

A number of organisations have been identified as pre-release sites and will be receiving copies in the next few weeks (see list below).

Software review of RECORDER for NCC

A review of the RECORDER software was carried out for NCC by Peter Rooney of the World Conservation Monitoring Centre, acting on a voluntary basis. He has extensive experience of both Revelation G and Advanced Revelation and also of biological databases for both taxonomic and international distribution data. He was generally satisfied with the system.

Charges for RECORDER supplied by NCC

No definite decisions have yet been made but it is expected that an initial charge for installation will be made, after which there will be an annual registration fee for membership of the user group and provision of upgrades and support. The initial installation fee will be of the order of £200-£600 to commercial organisations, but will be reduced or waived completely for local record centres and similar organisations. The annual fee will be 10% of this (£20-£50) and is intended to cover the cost of sending upgrade disks, newsletters, etc. for which no other money is available in the project at present.

Use within NCC

The applicability of RECORDER for use within NCC in conjunction with the COREDATA system is currently under consideration by staff at the country data units. One possibility, which may well be tried out later this year, is to use RECORDER as a "front end", to gather data for COREDATA's species index which will eventually be passed to NCC's mini-computer network.

RSNC's Timetable for release of RECORDER

There will be a six month period of assessment, documentation and, if necessary, further development. A fully supported and documented release will then be made (25 March 1990) to three trusts (Lincolnshire, Somerset and Gloucestershire). After a further six months (25 Sept 1990) the package will be released to a further 9 trusts, making 12 in total. It is possible that RSNC may decide to accelerate this somewhat: an early installation may be made at one or more of the initial three trusts in order properly to assess the package in use and, if all goes well, releases to the 9 "second phase" sites may be brought forward so that more installations can be completed in the 1990/91 financial year.

User group

A RECORDER user group will be established for those using the software. It will probably produce a newsletter and run regular meetings.

Version 2.2 of RECORDER

A new version of the document describing RECORDER was completed in June and has been distributed to organisations who have expressed an interest in the package.

Current distribution

Individuals and organisations currently having RECORDER are as follows:

Three trial sites: Clifton Park Museum, Rotherham Castle Museum, Norwich City Museum, Bedford

Individuals with copies for demonstration and assessment: Charlie Copp (Antec, Bristol); Alex Tait (East Sussex County Council); Peter Rooney (World Conservation Monitoring Centre, Kew); Nick Longman (RSNC); Alistair Blake (England Field Unit, NCC); Mike Turner (local Dragonfly Recording scheme, Surrey/Hants)

Further organisations where "pre-release" installations will be made soon: Bucks County Record Centre; Aylesbury Planning Dept.; Suffolk Biological Record Centre, Ipswich; Dorset Record Centre, Dorchester; England Data Unit, NCC (Peterborough); Welsh Data Unit, NCC (Bangor); Scottish Data Unit, NCC (Edinburgh)

Organisations who want pre-release copies, but with whom no definite arrangements have yet been made: Planning Dept., Macclesfield; NRA, Welsh Region, Cardiff; CEEB environmental section; Royal Ulster Museum, Belfast; City Museum, Dundee; RSPB, Sandy

Advanced Revelation 2.0

A new version of Advanced Revelation will be released in Britain in October 1989. The upgrade for existing users will cost \$140 in the USA, which probably means it will be at least £140 in Britain! The complete package will cost \$1150, which is an increase from the \$950 at which Revelation, in all its versions, has been "officially" priced for a long period. One of the new features of Version 2 is that it will support Structured Query Language. Certain potential users may find SQL support a very useful "selling point" in persuading their computer departments to go for RECORDER and Advanced Revelation.

The arrival of Version 2.0 does raise a question however: what do we do in future about Revelation upgrades? If RECORDER is upgraded to follow Revelation, does this commit users to spending money on future AREV upgrades? If some do not, then we get into problems in supporting multiple versions. I think this is another point to be discussed by the User Group.

**Stuart Ball, NCC, Peterborough
1 October 1989**

BTO/Bird Clubs Partnership Computer Review

I have just been appointed by the BTO to undertake a computerisation and bird clubs review. The aim of this project, which is being funded by RSPB, is to find out exactly what is happening in terms of local bird recording and to see how the BTO can help in the collection and analysis of data.

As part of my work, I hope to visit, along with Steve Woolfall (Regional Officer, BTO), as many clubs as possible and to discuss with interested parties how the use of computers in bird recording may develop.

If there is a general feeling from clubs that bird recording could benefit from computerisation, then it is hoped that the BTO may be able to co-ordinate some degree of standardisation.

The field has great scope, and if anyone has ideas they would like to share, please contact me.

Martin V. Sneary, British Trust for Ornithology, Beech Grove, Station Road, Tring, Herts. HP23 5NR

Habitat creation, introductions and biological recording

Habitat creation is an increasingly popular exercise involving the introduction of a variety of species. Habitat creation or wildlife gardening (as some say is the more appropriate term) has an important purpose in providing wildlife as amenity for the general public and as an educational resource. Indeed fostering a general appreciation of wildlife can lead to the protection and conservation of natural and semi-natural habitats that cannot be recreated or reproduced.

There are, however, a number of problems associated with habitat creation. One of the more serious is the current trend by developers and their consultants to use habitat creation as an excuse to allow habitat destruction. Severe damage has been done by the argument that loss of ecologically important sites can be mitigated by attempts to create similar habitats elsewhere.

Another problem with habitat creation, wildflower seed scattering and more specific plant introductions is the risk of crossing strains and altering native populations. Loss of the genetic integrity or hybridization of native populations of species may occur when introducing native (or similar) species which have dubious origins. This may be a problem, for example, when sowing wildflower seed of native species imported from Europe. This problem and its effects are poorly documented.

There is little scope for any official control of most plant introductions especially those carried out by well intentioned but ignorant enthusiasts who do not use local stock. However, it is important that all introductions, including those which are part of habitat creation or enhancement, are recorded thoroughly and that the data are readily accessible to those organisations with a remit to protect wildlife. There is no established procedure for recording and monitoring introductions, yet this is essential in order to ensure the integrity of distribution data and species status surveys. It is these very data that are often needed to understand the conservation requirements of species and habitats and to ensure their protection. The species used, the nature of the material (eg part of plant), the source of the stock, the location and the time of the introduction(s) should be recorded and the information sent to the local Biological Records Centre.

An appraisal of introductions and its many facets, with references to the many organisations involved and the documentation available, is given in the booklet "Towards an Introductions Policy", which is published by Wildlife Link, 45 Shelton Street, London WC2H 9HJ. Copies are £5.50 inc. p&p

Identification and microcomputers

Recorders will inevitably have to identify plants and animals before being able to map their distribution. The availability of identification keys varies tremendously according to what organisms are being studied. A wide range of computerised identification methods now exists, ranging from programs to construct keys to interactive expert programs for identifying specimens directly. These are all available for IBM PC compatibles and various other computers, together with a variety of data sets for British Plants. Some of the data sets include computerised illustrations (marked with *). Data are currently available for the following groups:

Euphrasia (eyebrights); *Rubus* (blackberries) in Scotland; grasses in a vegetative state (note 1); **Carex* (sedges) (note 2); *British orchids (in colour only); ferns and fern allies.

The data sets plus expert program are £10 (plain) or £20 (when illustrated).

Note 1: Corresponds to the Field Studies Council punched card key for grasses by Pankhurst and Allinson

Note 2: Available from BSBI publications, 24 Glaphorn Road, Oundle, PE8 4JQ at £10 (without images) or £20 (illustrated). Requires Hercules monochrome graphics or EGA colour graphics monitor.

The program and data sets as listed above are distributed as ready-made items without the means to create and edit fresh data sets. To make up your own identification data you need the PANKEY program package, which uses the DELTA format for taxonomic description, which is for sale separately.

Most of the development of these methods so far has gone into botanical examples, but the programs and methods are equally as suitable for other organisms. I would be very glad to hear from entomologists and zoologists who would like to develop data sets for other groups.

For further information contact:

RJ Pankhurst, Head of Computing Section, Dept of Botany, British Museum (Natural History), London SW7 5BD
tel (01) 938 8820

Book Review: "Environmentally Sensitive Areas"

This is the First Report produced by MAFF on environmentally sensitive areas (ESAs). It deals exclusively with England, explaining the background to the introduction of ESAs, setting out the main features and objectives of designating each of the ten existing ones, and describes the programme which has been initiated for monitoring the effects of the scheme.

Part One covers the development of ESAs. The objective is stated as "to help conserve those areas of high landscape value and or wildlife value which are vulnerable to changes in farming practices by offering payments to farmers willing to maintain or introduce environmentally beneficial farming practices....at the same time, the scheme helps to offset pressure on farmers to intensify production and thereby contributes to the reduction of agricultural surpluses". The budget for the 1988/89 financial year was £8.3 million. Part of the cost of the ESAs is reimbursed by the European Commission

The criteria for selecting ESAs are:

- * each area must be of national environmental significance
- * its conservation must depend on adopting, maintaining or extending particular farming practices
- * farming practices in the area must have changed, or must be likely to do so in ways that pose a threat to the environment

- * each area must represent a discrete and coherent unit of environmental interest

Part Two describes the areas (Pennine Dales, North Peak, Breckland, Broads, Suffolk River Valleys, South Downs, Test Valley, Somerset Levels and Moors, West Penwith and Shropshire Borders), outlining their particular conservation interest (both wildlife and historical), need for designation, land use, land cover statistics (are of grassland, arable, woodland etc.) and the management objectives of each.

Part Three covers policy evaluation, and starts with the statement "The government attaches great importance to assessing the effects of the scheme". The assessment will cover:

- * the extent to which the environment has been preserved or enhanced by the scheme
- * the level of interest shown by farmers in the scheme, especially as indicated by the level of participation and changes in attitudes towards conservation
- * the estimated savings in support costs from lower production or change in mix of production
- * the effect on the farm business, its income and employment impact
- * the administrative costs per agreement and in relation to payments made

In true Thatcherite style, "the assessment of performance against these indicators will be drawn together to obtain the best view possible of the value for money obtained from ESAs".

The programme for monitoring the environmental impacts also comprises five elements:

- * a comprehensive land cover survey of the whole of each ESA, including linear features, such as hedgerows and drystone walls
- * a landscape assessment of each ESA
- * a selective biological monitoring of key habitats

- * a survey of the principal features of historic interest
- * the assessment of selected management practices

The situation at the time of designation will be compared with that after three or four years..he report recognises that detailed biological recording will be needed to measure any changes in the quality of habitat in terms of species composition and changes in the diversity and condition. Monitoring will be focussed on selected habitats in each ESA, for example in the Somerset Levels and Moors on grassland, rhynes (ditches), and breeding waders and associated grassland habitats. Let us hope that the detailed data are made generally available.

The environmental monitoring will be carried out by ADAS staff, and the input will average about 20 man (sic) years per year at a cost of 400,000 per year. NCC, the Countryside Commission and English Heritage have helped to develop the methodology.

The two appendices contain extracts of relevant legislation.

The booklet is well written and presented, with colour illustrations, though it is expensive at 7.50. Sadly it is not on recycled paper.

Environmentally Sensitive Areas, pp 50, HMSO 1989, 7.50

Meg Game

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Harding, P T	(BRC)	Bolton Museum, Natural History Section	
Hearn, J	(Cladocera Mapping Scheme)	Booth Museum, Brighton	(Legg)
Heath, J	(Colchester and Essex Museum)	Brecknock Wildlife Trust	
Hopkin, S P	(University of Reading)	Bristol Regional Environmental Record Centre	(Wilson)
Irwin, A G	(Norfolk Museums Service)	British Butterfly Conservation Society	(Sutton)
Key, R	(NCC)	British Waterways Board	(Ferguson)
Kirby, P	(NCC)	Buckinghamshire County Museum, Aylesbury	
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McDonnell, E J		Carlisle Museum and Art Gallery	
McLean, I F G	(NCC)	Countryside Planning and Management	(Clements)
Micheltmore, F	(Oxford University)	Coventry Museum	(Wright)
		Cumbria Wildlife Trust	Bullard)
Morton, A J	(Imperial College)	Derby City Museum	(Grange)
Norton, J	(Shropshire BRC)	Derbyshire Wildlife Trust	(Brassley)
Onslow, N		Dorset Environmental Records Centre	(Surry)
Phillips, N M	(IUCN)	Dorset Trust for Nature Conservation	(Elton)
Ramsay, D	(Greater Manchester Countryside Unit)	Dundee Museums	(Brinklow)
Rich, T C G	(BSBI/BRC)	Dyfed Wildlife Trust	(Taylor)
Riggall, J	(NCC)	Falkirk Museums	(Sanderson)
Romeril, M	(States of Jersey)	Farnborough College of Technology	(Moulding)
Royston, J		Field Studies Council	(Thomas)
Sheppard, D A	(NCC)	Glasgow Museum and Art Gallery	(Hancock)
Shirt, D B	(NCC)	Gloucestershire Trust for Nature Conservation	
Smith, A J E	(UCNW, Bangor)	Grampian Biological Records Centre	(Watt)
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Symes, R	(MAFF)	Hampshire County Council	(Court)
Tait, A I	(East Sussex County Cncl.)	Hancock Museum, Newcastle	(Tynan)
Tompsett, P E	(Cornish Biological Records Unit)	Hereford and Radnor Nature Trust	(Brian)
Turk, S M	(Cornish Biological Records Unit)	Hereford City Museum	(Keeper, Nat. Hist)
Walpole, M		Horniman Museum, Natural History Department	(Reid)
Warren, J		IUCN, Threatened Plants Unit	(Leon)
Way, L		Inverness Museum and Art Gallery	(Assistant Curator Natural Sciences)
Welstead, A R		Isle of Wight Natural History Society	(Pope)
Institution members		Joint Countryside Advisory Service, Maghull	(Deans)
Antech	(Copp)	Leicestershire Museums	(Evans)
Anglian Water, Huntingdon	(Fuller)	Lincs & South Humberside Trust for Nature Conservation	(Crooks)
Balfour-Browne Club	(Foster)	London Borough of Ealing (Leisure Services)	(McCord)
Bedford Museum	(Brind)	Luton Museum Service	(Hyman)
Beds & Hunts Wildlife Trust	(Moreau)	Maidstone Museums (Kent BRC)	(Philp)
Berks, Bucks and Oxon			

Montgomeryshire Wildlife Trust	(Longley)	Wiltshire BRC	(Scott-White)
Museum Documentation Assn.	(Roberts)	Worcester City Museum	
National Museum of Wales	(Librarian)	Yorkshire Naturalists' Union	(Bramley)
National Museums and Galleries on Merseyside	(Greenwood)	Yorkshire Wildlife Trust	
National Trust, Biological Survey	(Alexander)		
National Trust for Scotland, Brodick	(Warner)		
Nature Conservancy Council	(Keymer)		
Newport Museum	(Campbell)		
North Hertfordshire Museums, Baldock	(James)		
Northern Highland ERC	(Redgate)		
Nottingham Museums	(Walley)		
OCIM, France	(Guillet)		
Orkney Field Club			
Oxfordshire Museum Services	(Campbell)		
Passmore Edwards Museum	(Curator)		
Peak Park Joint Planning Board			
Perth Museum			
Peterborough Museum Society, Natural History Section	(Eade)		
Radnorshire Wildlife Trust	(Hargreaves)		
Rotherham Museums, Clifton Park Museum	(Ely)		
RSNC	(Heaton)		
Rural Surveys Research Unit	(Francis)		
St Albans Museums	(Collins)		
Sheffield City Museum	(Riley)		
Shropshire TNC	(Tucker)		
Somerset TNC Environmental Record Centre	(McDonnell)		
Southampton Common Studies Centre	(Hand)		
Southend Museum, Biological Records Centre			
Staffordshire Nature Conservation Trust			
Stoke City Museum	(Halfpenny)		
Suffolk Biological Records Centre	(Sanford)		
Suffolk Wildlife Trust	(Smyth)		
Sussex Wildlife Trust	(Lee)		
Trust for Urban Ecology			
Tyne and Wear Museums Service	(Coles)		
Ulster Museum	(Farr)		
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