

National Federation for Biological Recording

**BIOLOGICAL RECORDING  
IN A  
CHANGING LANDSCAPE**

edited by

P. T. Harding and D. A. Roberts

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Proceedings of a seminar and workshops held at the  
inaugural conference of the National Federation for  
Biological Recording, Fitzwilliam College, Cambridge,  
15-16 April 1986.

edited by

P.T. HARDING and D.A. ROBERTS

**National Federation for Biological Recording  
Cambridge**

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**Biological recording in a changing landscape**

Proceedings of a seminar and workshop.  
Edited by P.T. Harding and D.A. Roberts.

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## PREFACE

This volume is a collection of four seminar papers and the reports of 10 workshops, from the Inaugural Conference of the National Federation for Biological Recording (NFBR). The Conference, held in Cambridge over two days in April 1986, was attended by over 80 people drawn from a wide variety of locations and disciplines, but all with an involvement or interest in the collection, management, dissemination and use of biological information about our environment.

The volume takes its title from the seminar, but all the workshops were highly pertinent to the topic, dealing as they did with the practical aspects of records and the problems and priorities of those involved with recording.

In his Introduction, Geoff Stansfield has briefly described how the National Federation for Biological Recording came into being. Whether the Federation has a future depends not only on the commitment and energy of its officers, but also on the support of its membership. It is only by expressing a corporate view, through the Federation, that the needs for biological recording, at all levels, will be clearly heard.

As conference organizers and editors, we have been fortunate in having the support and enthusiasm of our contributors. We are very grateful to them all for presenting their papers, or convening their workshops, and for preparing written summaries (with only a minimum amount of harassment from us).

We should also express our (and their) gratitude to the anonymous note-takers at each workshop who helped collate the discussions. Many other people deserve thanks: the Steering Committee of the National Federation for Biological Recording, chaired by Charles Copp, who helped us plan the meeting; Llywela Hopkins of The Museum Documentation Association (MDA), who dealt with most of the administration of the meeting; Jayne Abblitt of the Biological Records Centre (BRC), who prepared much of the publicity for the meeting; Sheila Green and the domestic staff at Fitzwilliam College, Cambridge for providing an excellent venue; and Anna Mackay-Smith of MDA for typing these proceedings.

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July 1986

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## ACRONYMS

BCG	Biology Curators' Group
BRC	Biological Records Centre
BSBI	Botanical Society of the British Isles
CSD	Chief Scientist Directorate (NCC)
DPA	Data Protection Act 1984
EEC	European Economic Community
EDU	Ecological Data Unit
ESA	Environmentally Sensitive Area
FWAG	Farming and Wildlife Advisory Group
ITE	Institute of Terrestrial Ecology
MAFF	Ministry of Agriculture, Fisheries and Food
MDA	Museum Documentation Association
MSC	Manpower Services Commission
NCC	Nature Conservancy Council
NERC	Natural Environment Research Council
NFBR	National Federation for Biological Recording
NNR	National Nature Reserve
NVC	National Vegetation Classification
RSNC	Royal Society for Nature Conservation
SSSI	Site of Special Scientific Interest
WCA	Wildlife and Countryside Act 1981

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## INTRODUCTION

G. Stansfield

Chairman, National Federation for Biological Recording

Biological recording is not a new activity. It has its origins in the work of the amateur Victorian naturalists who painstakingly and meticulously assembled collections of animals and plants, recording their finds in diaries and field note-books. What is new, is the recognition that a well organised system of biological recording is an essential pre-requisite of conservation planning and is also a very valuable resource for heritage interpretation.

The growth of the biological recording movement and its co-ordination at a national level through such schemes as the Botanical Society of the British Isles' (BSBI) Atlas of the British Flora and the national Biological Records Centre (BRC) has been well documented and described elsewhere, but the present level of activity and concern needs some explanation.

There have been several moves to improve the co-ordination of biological recording and to put the movement on a firmer organisational and financial footing. In 1973, the Leicester Conference "Centres for Environmental Records" (Stansfield, 1973), sponsored jointly by the Department of Museum Studies of Leicester University and the BRC failed to achieve its objective of having the biological recording function recognised as a top-tier local authority responsibility in the reorganisation of local government in 1974. A similar conference in Scotland, BIOREC 1975, did little more than draw attention to the problems and review the present situation (Sommerville, 1977).

In the 1970s a series of articles appeared describing the operation and recording systems adopted by various record centres, and in the early 1980s the Biology Curators' Group (BCG) published the results of surveys of biological record centres (Harding and Greenwood, 1981; Greenwood and Harding, 1982; Whiteley, 1983).

In 1984 the BCG felt that it was time for a new initiative. There had been a tremendous growth in the amount of time and manpower being devoted to recording. Museums had been able to take advantage of government sponsored Manpower Services schemes, as also had county naturalists trusts, some of which, with their growth in membership and with the support of the Nature Conservancy Council (NCC), had begun to computerise their records. Many national societies were also embarking on new recording schemes so that communication and coordination between the various schemes and organisations had become a major problem.

The seminar held in 1984 at Leicester, "Biological recording and the use of site based biological information" (Biology Curators' Group, 1985), although wide-ranging and rather diffuse, did arrive at some fairly predictable conclusions which set the scene for the present movement. The seminar 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 of standards and finance. Although the seminar produced few constructive proposals, it did lead to the setting up, at the instigation of the BRC, of an ad hoc group, drawn from the BCG and other interested organisations, to find means of improving the situation.

It is a tribute to this informal group, and to the energy and imagination of Paul Harding, Charles Copp and Lawrence Way in particular, that the Biological Recording Forum held at Chelsea College, London, in April 1985 was so well attended, with more than 100 delegates drawn from all sections of the biological recording community. The two-day Forum was arranged around seven themes, for each of which a discussion paper was prepared and circulated in advance. A report of the Forum has been published (Copp and Harding, 1985).

The Forum led to the formation of a steering committee (with members from the previous group), whose brief was to maintain the momentum and prepare a draft constitution for presentation to the inaugural meeting of a properly constituted new organisation. That organisation, the National Federation for Biological Recording, hosted a seminar "Biological Recording in a Changing Landscape" and a series of workshops at its inaugural meeting in Cambridge on 15th and 16th April 1986. Papers from the seminar and workshops form the contents of this volume.

It is now felt that the time is right for a determined attempt to set up a properly organised and financed system for biological recording at both the national and regional level. Several factors support this view. It is now accepted by the main political parties that the conservation of the environment is a crucial issue facing Britain at the present time. Many sections of the community, and most importantly the farming community, recognise that farming strategies and techniques must take account of the need for conservation. The environmental and nature conservation movement has become a powerful and coherent force and has succeeded in alerting public opinion to the issues involved. Also, the demand for information about our natural heritage for public enjoyment and interpretation has reached an unprecedented level. It is recognised that the most effective way of achieving conservation objectives is through a partnership between the official and the voluntary movement. It is the view of the Federation that the money and other resources devoted to a well-organised and properly financed system of biological recording would be cost effective by resulting in better informed decision-making and planning.

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## BIOLOGICAL RECORDING IN A CHANGING LANDSCAPE

Seminar chaired by Professor R.J. Berry

### THE NEED FOR BIOLOGICAL RECORDING NOW

F.H. Perring

In the 40 years since the second world war, changes have been taking place in Britain's countryside which, most would agree, have been harmful to wildlife. With the exception perhaps of the control of some pesticides and the improved water quality of some rivers, these changes continue to the present day.

It is against that background that the upsurge in biological recording in Britain has taken place. Its origins can be traced to the BSBI scheme which started in 1954, but significantly at that time it was called the Distribution Maps Scheme. The desire was for accurate information; all records from 1930 to 1960, when the recording phase of the scheme ended, were regarded as "recent".

Only after the transfer of the BSBI data to the BRC in 1964, at a time when concern about effects of farming on wildlife was growing, was the importance of the data, as a basis for assessing change, apparent. The Red Data Books for Vascular Plants of 1977 and 1983 were a consequence of this other use of the data.

Now in 1986, we find ourselves having to face a new situation: the trends of the last 40 years are either going to be reversed or to go in new directions.

The most important of the events taking place is agricultural over-production and the growing unwillingness of this or any other British government to continue to pay farmers to produce food we no longer need.

Milk quotas were introduced two years ago and it is only a matter of time before steps are taken to control cereal production, either by quotas or by price reductions, or by a combination of the two. The effect of these on farming practice will vary, for example:

a) Quotas - all farmers will have to reduce production by

- reducing output per acre;
- changing to other crops;
- taking some land out of production.

This would lead to similar changes throughout the cereal growing areas and would reduce threats to marginal land of conservation interest from agricultural improvements such as ploughing and drainage.

b) Price controls - only larger, more efficient, units would be able to compete, leading to

- larger, highly mechanised farms would strive to increase production and efficiency;
- small farms on less productive land would be unable to compete and would either cease growing cereals or cease farming altogether.

This would lead to polarisation of landscapes with, for example, even greater intensification on farms in East Anglia and much less intensive farming in the west.

Whichever method is chosen, though probably a combination of the two, agricultural land is going to be taken out of production. This will accelerate from 1988 onwards, which is as early as the European Economic Community (EEC) and the British Government can act.

The latest calculation is that 15% of arable land will have to be taken out before we are rid of surpluses. To put that in context, it means the equivalent of the whole of the former county of Lincolnshire (Vice-counties 53 and 54 to us biologists).

Some of the consequences already being talked about which would affect wildlife are, in terms of cultivation practices:

- changes in plant breeding from yield increase to pest and disease resistance - with less need to use expensive pesticides, thus lowering production costs;
- fallowing or non-cropping of headlands around fields, leading to the encouragement of permanent pasture at the hedge margin. Consequently the spraying and burning of hedge-bottoms and ditches would end;
- fallowing of whole fields for green manuring;
- change from autumn- to spring-sown crops with longer periods in stubble.

In addition, changes of land-use will increasingly occur:

- to new arable crops, especially for food oils, leading to many more fields of flowers;
- to forestry. This change coincides with the Forestry Commission's new Broadleaved Woodland policy with increased grants for planting native hardwoods. If this is to be economically successful, it may be necessary for co-operation between adjacent farms to produce large enough units. There remains the problem of loss of income, for say 10 years, which may mean this is only an option if the farmer already has unexploited woodland as a cushion against financial problems.
- to recreation, for example, letting for horses and donkeys, caravan sites, etc.

This process may well be encouraged by fiscal incentives. The current cost to tax payers, of buying and storing surpluses, totals £650 million per year. The county could afford to pay the farmers of the 1.5 million acres no longer needed for agriculture, £100 per year not to produce food. The costs would then be only £150 million; a saving of £500 million per year.

The British Government has already pushed the EEC some way in that direction and this principle is already accepted for Environmentally Sensitive Areas (ESAs). However, the six ESAs likely to be adopted initially are far too few. We need fiscal incentives to concentrate on some areas of new landscapes, where conservation interests can be integrated with other land uses so that large areas are created.

However, the opportunity to 'set-aside' land should be available to all farmers who want to, within a limited budget: perhaps a two-tier system with higher payments to ESAs, could be developed.

Undoubtedly then, what a senior Ministry of Agriculture, Fisheries and Food (MAFF) official has described as 'Greater changes than any since the War' are going to be a major factor for wildlife over the next decade. In addition, other changes are taking place:

- protection of Sites of Special Scientific Interest (SSSIs).
- The increased budget and staff of NCC means that a larger percentage of land will be better protected;
- growth of Farming and Wildlife Advisory Groups (FWAGs). There are now over 30 Farm Conservation Advisers;
- growth of nature conservation trusts. Trusts add 100 . reserves per year and have an increased ability to manage over 1600 reserves using staff funded by the Manpower Services Commission (MSC);
- growth of country parks and their management for conservation;
- urban and parish wildlife movement;
- general change in people's attitudes to wildlife brought about by the media and conservation organisations.

All this together means that the landscape and townscapes of Britain are at a turning point. It is therefore vital in my view that we actively record the wildlife of Britain now (which may mean in a period of less than five years) as a basis for studying the effect of the immense changes predicted. The conservation reasons are abundantly clear, but as biologists this prospect must surely also generate a sense of excitement. Gigantic 'experiments' are about to occur which will provide a feast of facts for the foreseeable future. Have we in the biological recording movement got our knives and forks and other hardware (or software) ready to enjoy the feast now? To coin a phrase I seem to have heard somewhere else recently - Tomorrow's too late.



**BOTANICAL SOCIETY OF THE BRITISH ISLES  
MONITORING SCHEME**

**R.G. Ellis**

**Introduction**

The first edition of the Atlas of the British Flora (Perring and Walters, 1962) was published in 1962; although new 'editions' were published in 1976 and 1982 these contained revisions of only about 320 rare taxa: the bulk of the work is now out-of-date and the BSBI has decided not to allow further reprints.

The BSBI was aware that great changes had taken place in our flora since 1962 and believed it would be timely to set up a new Atlas project in the near future.

The Records Committee of the Society therefore set up a new Monitoring Scheme Sub-Committee which met for the first time on 20 December 1983. In the course of several meetings the Sub-Committee recognised that a new Atlas should combine four main groups of taxa, the collecting of data for which would have to be made in different ways:

- Red Data Book species - already under more or less continuous surveillance;
- critical taxa - requiring the involvement of a limited number of specialists;
- increasing and decreasing taxa;
- all other taxa.

It was also recognised that the most urgent need was to commence a study of the increasing and decreasing taxa, and to do it in such a way that the BSBI could continue to monitor change regularly, independent of any longer term Atlas project.

The proposed scheme described below has been accepted by BSBI Council as a step towards a new Atlas in the 1990s and the beginning of close monitoring of possible changes in the British and Irish flora. It has also been accepted by the NCC as a scheme worth funding and they have agreed to finance it for a period of three years.

**Aims of the scheme**

The aim is to survey the flora of a sample of the 10 km squares in Great Britain and Ireland (approximately 10% of the total), so as:

- to provide, by comparison with the results of the Atlas 10 km square survey (1954-59), an objective assessment of the species which have changed in frequency over the last 25 to 30 years. Species showing a marked increase or decrease would later be surveyed comprehensively to produce maps for a new Atlas;
- to provide a selected network of 2 x 2 km squares (tetrads), from within the chosen 10 km squares, to be used in future, in addition to the 10 km squares, to monitor changes in the flora. (This will probably not be feasible in Ireland.)

## Operation of the Scheme

Following statistical advice, the 10 km squares for Great Britain have been chosen by taking as a starting point the Isles of Scilly square (SV91) and taking every third square north and east to cover Great Britain. The starting point for Ireland has been taken as the most south-westerly square of the Irish Grid and proceeding as for Great Britain. All coastal 10 km squares so selected will be surveyed regardless of the amount of land in the square and regardless of its treatment in the Atlas.

This selection of 10 km squares meets the requirements for a broad geographical spread, contains all major habitat types and a good amount of coastline. Every vice-county is also included, with usually two to three squares in each.

**Recording of the 10 km squares** will be open to all members of the BSBI and will be co-ordinated by the vice-county recorder. Each square will be recorded on at least six days spread over the two year period of the scheme, with visits in spring, summer and autumn. All native, naturalised and casual species will be recorded, as well as generally recognised infra-specific taxa and hybrids, by presence or absence. (The occurrence of taxa recorded during this survey will be compared with data collected from the same 10 km squares in the 1950s.) New field record cards will be available for the four countries (England, Ireland, Scotland and Wales), and nomenclature will follow Clapham, Tutin and Warburg (1981). The same three tetrads, A, J and W, have been chosen within each of the 10 km squares selected above, following standard BSBI nomenclature. If one should fall entirely in the sea it will be ignored, but not replaced by another. There will be no opportunity for recorders to select tetrads different from those named above.

**Recording of the tetrads** will be confined to BSBI vice-county recorders or their appointed representatives. Recording will be of presence and absence of taxa, together with notes on land-use and habitat and where appropriate, population counts of species of local interest. It is hoped that each tetrad will be visited for at least half a day each season and that careful records will be kept of the dates and route followed, so that surveys in future years (?10 year intervals) could be made at the same time and covering more or less the same ground.

## Organisation of the Scheme

A steering committee will be set up, responsible to the Records Committee of the BSBI, which will be in overall control of the scheme.

National co-ordinators will be appointed for England, Ireland, Scotland and Wales. The co-ordinators will be volunteers, but they will be given financial help with travel and subsistence. In Ireland, Scotland and Wales they will work in close co-operation with the existing regional BSBI committees.

The functions of the national co-ordinators will be to:

- promote the scheme within their areas;
- recruit recorders;