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**Invertebrates in the landscape:
invertebrate recording in site evaluation
and countryside monitoring**

Proceedings of the National Federation for Biological Recording
Annual Conference held at
the University of Sussex 5th July 1991

Supplement edited by Paul T. Harding

PREFACE

Invertebrates have recently gained in importance in the evaluation of sites and the monitoring of changes in the countryside. There are still many difficulties in using invertebrates as indicators of site quality and environmental changes, but, as the papers in this publication show, considerable progress has been made in recent years.

Central to this progress have been two closely allied developments; the national recording schemes for invertebrates, organized in collaboration with the Biological Records Centre, and the Invertebrate Site Register. Also, the establishment of local records centres, most of which are based at museums, is having a significant effect on the availability of authoritative information on invertebrates at county and district levels.

Vascular plants and birds are likely to remain the first priority for site evaluation and environmental monitoring for many years to come. However, there are some ecological features for which invertebrates are already acknowledged to be sensitive and reliable indicators, for example relic forest areas with old trees and lowland wetlands.

The difficulties of using invertebrates include the sheer number of species, the taxonomic problems of many groups, the lack of experienced taxonomists and field workers and the scarcity of truly replicable sampling techniques for many groups or biotopes. Although the speakers at the 1991 Annual Conference of the National Federation for Biological Recording could only touch on many of these topics, the published account of their presentations provides up-to-date reviews and plenty of food for thought.

The 1991 conference was organized, at short notice, by Derek Lott and Alex Tait. I am grateful to the authors for responding, more than a year after the conference, to my request, on behalf of NFBR, to provide a written version of their presentation. I am also grateful to Julie Gaunt for preparation of the camera ready copy for publication.

Paul T. Harding
Biological Records Centre

Glossary of abbreviations:

BBCS - British Butterfly Conservation Society (now Butterfly Conservation);
BRC - Biological Records Centre (Monks Wood);
DC - Development Control;
ISR - Invertebrate Site Register;
JNCC - Joint Nature Conservation Committee;
LNR - Local Nature Reserve;
LRC - Local Records Centre;
NCC - Nature Conservancy Council;
NNR - National Nature Reserve;
RDB - Red Data Book;
RSPB - Royal Society for the Protection of Birds;
SSSI - Site of Special Scientific Interest;
UDP - Unitary Development Plans.

THE INVERTEBRATE SITE REGISTER — OBJECTIVES AND ACHIEVEMENTS

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INTRODUCTION

Background

Information on the status, distribution and biology of species underpins much of nature conservation practice. The unavailability of such information for invertebrates has been the main cause of their relative neglect by conservation bodies. A large majority of practitioners in the statutory conservation agencies and voluntary bodies have little or no expertise in invertebrates. If they are to consider invertebrates when selecting sites for conservation and making decisions on their management, it is essential that the necessary information is available in an immediately usable form. In collating information from a great many diverse sources and interpreting and disseminating it, the Invertebrate Site Register (ISR) attempts to fill this information gap. The inclusion of unpublished information from amateur specialists is important in this respect as it would not otherwise be available.

The ISR is the largest and longest running in-house project concerning terrestrial and freshwater invertebrates undertaken by the Nature Conservancy Council (NCC) and its successor bodies (the Joint Nature Conservation Committee, English Nature, Scottish Natural Heritage and the Countryside Council for Wales). It started in 1980 with two contract personnel based in England and one each in Scotland and Wales. From 1983 onwards the whole team was based centrally in the Chief Scientist's Directorate of the NCC's Great Britain Headquarters. A substantial increase in personnel occurred in 1985 and, from mid-1986, computerization of the database became a central issue. When NCC was split up in 1991, the ISR moved to the Species Conservation Branch of JNCC.

Objectives

The objectives of the ISR were defined as follows by Palmer and Ball (1992):

- 1 to identify, document and evaluate sites of importance for the conservation of terrestrial and freshwater invertebrates in Great Britain, in order to provide national and local overviews of the resource and set this in a European context;
- 2 to provide a clear statement on the invertebrate fauna of individual sites, which can be used to strengthen the scientific basis of site defence and management planning, with the aim of retaining this fauna;
- 3 to maintain up-to-date statements on the national and regional status, ecology and conservation of British invertebrate species;
- 4 to contribute to the production of Red Data Books, and revision of Schedule 5 of the Wildlife and Countryside Act (1981) and implementation of the requirements of the EC Habitats and Species Directive;

- 5 to increase liaison between invertebrate zoologists and staff of the conservation agencies and to facilitate the interchange of advice and information, particularly so that future research and survey effort can be encouraged where it is most needed;
- 6 to supply progress reports on invertebrate conservation to invertebrate zoologists and other interested people.

Related projects on invertebrates

Other projects have been funded separately from the ISR, but complement its objectives:

- 1 the *ENTSCAPE entomological bibliography* — a computerized bibliography of the British national and regional entomological literature from 1930, with keywords covering taxonomic group, geographical area and subject;
- 2 the publication of *Red Data Books* on invertebrates.

METHODS

Information has been collated from many sources including published literature, museum collections, national and local biological record centres and the files of statutory conservation agencies and voluntary bodies. A special effort has been made to involve amateur specialists and to tap their considerable knowledge and experience, which are often unpublished.

Two main types of report have been produced:

- 1 *National species group reviews*. These cover a taxonomic group and identify the scarcer species. Information on the status, distribution, biology and conservation management requirements of these species is collated and eventually published in the form of data sheets.
- 2 *County ISR reports*. These cover a geographical area based on modern English and Welsh counties and Scottish regions, but broken down into smaller units in the case of larger counties or regions. Inventories of scarcer species are collated for conservation sites (SSSIs, NNRs, County Wildlife Trust and RSPB reserves, LNRs, etc.) and for sites which local naturalists consider significant.

The ISR database

One of the features of the ISR project is that the information collected to assess sites and species is closely interlinked. A relational database is the obvious way to organize the data so that they may be examined in terms of both species distribution and the occurrence of species at a location. Storage of ISR information in a relational database began in 1986.

Assessment of species statuses and the production of data sheets

Definitions of and the criteria for the various status categories are given in the Appendix. The method by which statuses are allocated is as follows. A checklist is annotated with statuses suggested by distribution maps, if available, or by taxonomic works such as the Royal Entomological Society *Handbooks for the Identification of British Insects*. This provisional list is circulated to specialists, both professional and amateur, for comment. A revised list is produced, based on these initial comments, and is used as a basis for further research. Museum collections are visited, a more extensive literature search is made with the help of ENTSCAPE and data on distribution and biology are abstracted for each of the scarcer species. This process usually results in adjustments to the preliminary statuses. Data sheets are then compiled by collating information under headings such as *Distribution, Habitat and Ecology, Status, Threats, and Management*