

POND ACTION: PROMOTING THE CONSERVATION OF PONDS IN BRITAIN

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Introduction

Pond Action is an independent freshwater conservation project which was started in 1987 by Anne Powell, Roger Sweeting and Jeremy Biggs. It is based in the School of Biological and Molecular Sciences in Oxford Polytechnic and has five full-time staff with two senior advisors.

The main aim of Pond Action's work has been to promote the conservation of ponds by creating a sound, scientific basis for pond conservation. An essential aspect of this work is the need to make the results of scientific work available and understandable to everybody concerned with pond conservation.

The importance of ponds

Natural and man-made ponds, from the mountain lochans of north-west Scotland to worked-out clay pits on Dartmoor and from field ponds in Oxfordshire meadows to pingos in the Norfolk Brecks, provide an enormous range of habitats for freshwater plants and animals. Protecting

these vulnerable ecosystems is a vital part of freshwater conservation. As well as hundreds of common and widespread species, ponds provide a refuge for some of our most endangered wetland plants, invertebrates and amphibians. These include the starfruit or thrumwort (*Damasonium alisma* Mill.), the glutinous snail (*Myxas glutinosa* (Muller)), the tadpole shrimp (*Triops cancriformis* L), the fairy shrimp (*Chirocephalus diaphanus* Prevost), the medicinal leech (*Hirudo medicinalis* L) and the natterjack toad (*Bufo calamita* Laurenti), all of which are listed under Schedule 5 of the Wildlife and Countryside Act as requiring special protection.

Ponds are also an important place for people of all ages to learn about wetland wildlife and almost everybody knows that managing an old pond or creating a new one is good for wildlife. So it's not surprising that the conservation movement has made ponds a high priority, with many ponds protected in nature reserves or Sites of Special Scientific Interest.

Ponds are still threatened

Despite their popularity and importance, ponds remain under threat and the great majority of the 350,000 or more ponds believed still to exist in Britain remain exposed to threats posed by intensive land-use, water pollution, lowering of water-tables and general neglect. Added to these factors may now be the effects of climatic change. Intensity of land-use seems likely to be of particular concern since ponds, because of their small size, seem to be even more influenced by their catchments than are lakes and rivers.

In addition to this range of threats, the protection and conservation of ponds has been hampered by lack of understanding of pond ecology. Because of their complexity (the very thing that makes ponds such valuable wildlife habitats) ponds have proved a great challenge to freshwater biologists. Techniques are now being developed to assess the conservation value of ponds but managing them still remains a hit-and-miss combination of dredging silt, raking and cutting water plants, and trimming overhanging trees and shrubs.

What's needed to protect ponds?

To protect ponds adequately we need to combine technical understanding of their ecology with awareness of the importance of ponds for nature conservation. The two most urgent requirements for technical information are (1) descriptions of the plant and animal communities of ponds, and (2), the development of techniques for assessing the nature conservation value of individual ponds.

To improve awareness of the importance of conserving ponds we must have more refined information and advice on the value and management

of ponds, and regional and national pond conservation strategies, to determine which ponds should be protected and how many.

Pond Action: promoting the conservation of ponds

Pond Action was started in 1987 with the support of the World Wide Fund for Nature (WWF) to fulfil the need for information about the ecology of ponds, to counter threats to ponds and to develop pond conservation strategies. Since its inception Pond Action's philosophy has been that good conservation work depends on integrating concern for environmental protection with the best possible understanding of the environment.

Pond Action has set out to provide some of the urgently needed work on ponds: we have started to develop regional and national classifications of the communities found in ponds with the Oxfordshire Pond Survey, and now the National Pond Survey. We have already started work on studies needed to refine the management of ponds and we will be promoting regional and national pond conservation strategies in the near future. Above all, our work is helping to demonstrate the importance of ponds as a nature conservation resource and the need to protect these fragile ecosystems.

Pond Action projects in progress

Following a pilot study in 1987 (funded by WWF and consultants Hamlet Partnership), Pond Action ran the Oxfordshire Pond Survey (OPS) in 1988 and 1989. The main aim of the OPS was to develop a classification of the ponds of one region, based on the composition of their plant and macroinvertebrate animal communities. The OPS results, which are being analysed at the moment, indicate that considerable differences exist between the communities of ponds with permanent water (for example, those fed by streams or by flood-water from rivers) compared to ponds that are not connected to other surface waters. The survey has also revealed that many stream- and spring-fed ponds in Oxfordshire have very high nitrate concentrations.

The National Pond Survey

Methods developed during the OPS have been applied to the National Pond Survey (NPS), now in progress in collaboration with freshwater biologists and conservationists throughout Britain. FBA members will already have received a request for assistance with the NPS. Survey sites have been established from the north-west highlands of Scotland to Devon and from Pembrokeshire to East Anglia. The survey aims to include at least 400 sites across Britain in the next three years. Essential

to the success of the NPS is consistency in identification, particularly with aquatic macroinvertebrates. For this reason we are in the process of writing a Guide to the Identification of Freshwater Invertebrates, with the support of WWF. The Guide will update existing keys, offer advice on the use of the keys and define the standard for all species-level identification work undertaken as part of the National Pond Survey. Further information about the NPS can be obtained from Pond Action.

Applied studies of pond-management techniques

Description of communities is only the first stage of the work needed to improve the conservation of ponds. The classifications now under development will provide the basis for studies on the functioning of pond ecosystems and the effects of practical management work on ponds. All of the standard pond-management techniques, like silt removal, raking out "weeds" and cutting back overhanging trees and shrubs, remain to be investigated technically. At present our understanding of the effects of such work on pond communities is extremely basic.

As opportunities have arisen Pond Action has already been able to start some of the experimental work needed to improve our understanding of the ecology and management of ponds. For example, at Pinkhill Meadow beside Farmoor Reservoir near Oxford, we are taking part in an exciting joint venture with the NRA (Thames Region) and Thames Water pic to develop a small complex of shallow-water wetland habitats. The site, which is owned by Thames Water pic, will be managed particularly for wading birds but also offers the opportunity to develop conservation techniques for the whole of the freshwater wetland community. With funding from the NRA we have established a programme of monitoring and experimental work, particularly to investigate techniques for establishing species-rich plant communities in newly created ponds. Elsewhere we will be establishing a small group of experimental ponds on the Otmoor SSSI in Oxfordshire, in collaboration with the Nature Conservancy Council, with funding from the Peter Nathan Trust. We have plans also for a number of much larger schemes, locally and in other parts of the country.

Disseminating information

Gathering information is only half the conservation job. Getting that information to the conservation movement, and to the general public, is vital if the information is to be useful. Providing good information, in an appropriate form for the audience, has been a central aspect of Pond Action's work. We have given advice to local conservation groups

managing ponds and are now seeking funding to make this advisory work widely available (at present it can usually only be provided under contract). We are also in the process of developing a new series of information leaflets on the conservation and management of ponds. These will draw on the most up-to-date sources of information as well as our own extensive practical experience of pond management. At the most technical level, Pond Action offers specialist advice on the conservation and management of wetland habitats to the National Rivers Authority and the Nature Conservancy Council and is frequently called in to environmental assessment projects.

The future for ponds

What is the future for ponds in Britain? Much needs to be done to ensure that the number of ponds does not decline further and those remaining either retain their existing value or are improved in value. We believe that the development of a national pond conservation strategy, in consultation with the many interested groups, will be vital. It will be particularly important to see ponds included within the remit of the National Rivers Authority, whose powers to control water quality and duties to promote conservation could be of great benefit to ponds.

We must also ensure that all existing ponds of high nature conservation value are protected and this means that we must have a good indication of the nature of the pond resource. With many thousands of ponds across the country it will be essential to relate the quality of ponds to land-use, particularly through the land-use surveys being undertaken by the Institute of Terrestrial Ecology.

Pond Action will continue to encourage the general public and the conservation movement to become practically involved in the protection and management of ponds. Only with popular support will it be possible to ensure that the number and nature conservation value of ponds declines no further and that, if possible, we begin to reverse the trend.