# 5. Pond Restoration

## 5.1. Pond restoration

Most lowland ponds in Britain are in a poor state and support very little aquatic life. The Countryside Survey 2007 concluded that 80% of ponds were in poor or very poor condition. Although some of our amphibians are relatively tolerant of poor pond conditions, breeding is likely to be more successful in better quality ponds. This section considers the restoration of ponds found in the countryside (excluding those with artificial liners).

Pond restoration generally involves some or all of the following:

- Removal of pond vegetation
- Removal of silt
- Re-profiling the pond base
- Cutting back shading shrubs and trees.

These activities have the potential to harm wildlife already present or to alter a habitat that already provides a valuable role. Pond Conservation has produced a risk assessment (Williams *et al*., 2010) to minimise the risk of causing harm during management activities (including pond restoration). This section of the handbook draws heavily on this approach.

## 5.2. Find out about species present

Information about the species that are present or likely to be present in a pond can provide guidance with regard to restoration. If no species of conservation interest are present then major restoration work can proceed. If species of conservation interest have been recorded from the pond in question, or occur within the local area and may be present in the pond, then restoration work should be modified to accommodate species requirements, reduced in scale to avoid harm or, in some cases, not carried out at all.

Information about species present or likely to be present can be obtained from:

- Pond Conservation's BAP Species Map **www.pondconservation.org.uk/millionponds/bapspeciesmap**
- National Biodiversity Network **www.nbn.org.uk**
- Local Biological Records Centres
- Specialist interest groups

Some species associated with ponds are legally protected under:

- The Wildlife and Countryside Act 1981
- The Conservation of Habitats and Species Regulations 2010

Animals listed under Schedule 5 of the Wildlife and Countryside Act 1981 are protected from intentional or reckless killing, injury or capture. Plants listed under Schedule 8 of the Act are protected from destruction, uprooting or picking. In addition the habitat of species covered by the Conservation of Habitats and Species Regulations is protected from damage or destruction.

### Pond animals listed under Schedule 5 of the Wildlife and Countryside Act 1981

- Norfolk hawker
- Southern damselfly
- Tadpole shrimp
- Fairy shrimp
- Glutinous snail
- Fen raft spider
- Lesser silver water beetle
- Spangled diving-beetle
- Medicinal leech
- White-clawed crayfish
- Water vole has additional protection against damage, destruction, and prevention of access to any place it uses for shelter or occupation.

### Pond plants listed under schedule 8 of the Wildlife and Countryside Act

- Adder's tongue spearwort
- Baltic bog-moss
- Brown galingale
- Creeping marshwort
- Cut-grass
- Fen violet
- Grass-poly
- Pennyroyal
- Petalwort
- Ribbon-leaved water-plantain
- Starfruit
- Strapwort
- Water germander

### European protected species associated with ponds

- Otter
- Great crested newt
- Natterjack toad
- Pool frog
- Little whirlpool ram's-horn snail
- Creeping marshwort
- Floating water plantain
- Fen orchid
- All bat species

Pond restoration work may, incidentally, harm protected species and their habitats. If any of these legally protected species are recorded from your pond then restoration work must be planned to avoid harm. Licensing will be necessary if the management action (or even survey work) would contravene any of this protection legislation. Guidance and forms are available from Natural England, Countryside Council for Wales and Scottish Natural Heritage. There is often more detailed guidance for great crested newts.

## 5.3. Pond risk assessment

In many cases, information about species in a pond will either be absent or incomplete. A risk assessment has been developed by Pond Conservation (Williams *et al*., 2010) to assist potential pond restoration (summarised in the table overleaf). There are three levels of risk depending on the intensity of the surrounding land use, and the presence of plants in the pond.

## 5.4. Restoration of low risk ponds

Low risk ponds are unlikely to harbour significant pond species or rich communities because of poor surrounding land use/pollution. Drastic restoration work can be beneficial to such sites. Shading scrub and trees should be removed from the southern banks of the pond. A belt of trees can be left to the immediate north of the pond to act as a windbreak, creating a warm microclimate and to provide good quality terrestrial habitat. Cut timber and brash should be left on site and used as in section *8. Terrestrial Habitat*.

The accumulated silt in low risk ponds on farmland usually comprises sediments polluted by agricultural inputs. This should be removed by mechanical excavator. If the silt is deposited into a trailer it can then be spread on arable land as far as possible from the pond by tipping the trailer slowly whilst driving. The spread silt can then be ploughed in.

Pond restoration may provide an opportunity to modify the pond profile to create gently sloping sides. This should be attempted only on water-holding soils. On free-draining soils water may be retained by a clay lining, which should be kept intact. An experienced machine operator should be able to 'feel' a pond lining and hence remove overlaying silt without damaging the clay base.

Pond restoration is best carried out in late summer or early autumn. Water levels should be low at this time, allowing ease of removal of silt. Spreading silt on fields bare after harvest is a good means of disposal.

Pond restoration should be supported by subsequent management of terrestrial habitat. Livestock grazing or annual cutting is required in most cases to prevent a restored pond from becoming encroached by shading scrub after restoration. On agricultural land, designation of a buffer strip around the pond is beneficial. The buffer strip will require management as above to prevent excessive growth of shading scrub.

| Pond Risk Assessment (taken from Williams *et al.* [2010]) | | |
|---|---|---|
| **Risk** | **Description** | **Recommended action** |
| Low | Ponds within areas of intensive land use and which have virtually no wetland plants. Unlikely to support rare species. | Restoration work has minimal risk of harming wildlife. |
| Medium | Ponds within areas of moderately intensive land use (e.g. improved pasture) but which have good growth of pond plants. May turn out to be biologically poor but also may support BAP species or, more rarely, rare species. | Pond survey desirable. If survey is not possible, then adopt precautionary approach to restoration work. |
| High | Ponds within semi-natural habitats such as woodland, scrub, marsh, heath and unimproved grassland. At least a quarter of such ponds support nationally rare species. | Review need for restoration work. If this is still deemed necessary, then obtain full survey information and use knowledge of species present to guide management. |

## 5.5. Precautionary principles

If a pond is categorised as medium risk and there is no survey information to guide management, then the best approach is to manage gently and with caution in a minimally-invasive way that will reduce any potential harm.

- Do not destroy any microhabitats in the pond completely (retain portions of all those present prior to management).
- Do not deepen temporary ponds to make permanent water.
- Do not remove more than 1/4 of the pond's sediment over a three-year period.
- Do not remove more than 1/4 of the vegetation as a whole, or of an individual plant species, in a three-year period.
- Do not link ponds to drains or streams: these may add pollutants to the pond.
- Do not steepen the water's edge profile or reduce the extent of the drawdown zone (the area of the pond that is wet in winter, dry in summer).
- Do not allow the surrounding land use, and particularly the pond's surface water catchment area, to become more intensive (e.g. buildings, roads, arable land).
- Do not drain the pond.
- Do not cut down more than 1/4 of the trees, either in or around the pond, over a three-year period.
- Ensure that a variety of pond types is maintained in the landscape.

## 5.6. Restoring great crested newt ponds

Where survey information is available and protected species are present, then restoration work has to accommodate this. In the case of the great crested newt, pond restoration is recognised as one of the actions needed to achieve the targets of the species action plan (The Herpetological Conservation Trust, 2009). Guidance in England (Natural England, 2009) recommends that restoration takes place over winter (November 1 to January 31) so as to minimise the risk of harm to newts, thereby avoiding the need for a conservation licence.

Although pond restoration work entails intervention that may appear destructive, the long-term effect should be to enhance habitat. In such a case licensing is not required for 'damage' or 'destruction' of newt habitat.

In practice winter may not be the best time for restoration work. If restoration has to proceed when newts may be present, then the work must be licensed.

## Low risk ponds

**Pond isolated in an arable field, subject to fertiliser inputs and completely shaded by trees and scrub (ARC)**

**Pond receiving inputs from farm yard (ARC)**

## Medium risk ponds

**Pond in arable field but supporting aquatic vegetation (ARC)**

**Pond in improved pasture but with good water quality and supporting aquatic vegetation (David Orchard)**

## High risk ponds

**Pond set in scattered scrub and woodland, receiving no agro-chemical inputs (ARC)**

**Heathland pools (ARC)**

## 5.7. Literature

Natural England (2009). Pond management work and great crested newts. Natural England. **www.naturalengland.etraderstores.com/NaturalEnglandShop/Newt2**

The Herpetological Conservation Trust (2009). Great crested newt species action plan. **www.herpconstrust.org.uk/downloads/HCT_GCN_%20Action_plan_June09.pdf**

Williams, P., Biggs, J., Crowe, A., Murphy, J., Nicolet, P., Weatherby, A., Dunbar, M. (2010). Countryside Survey: Ponds Report from 2007. Technical Report No. 7/07 Pond Conservation and NERC/Centre for Ecology and Hydrology. (CEH Project Number: C03259).

Williams, P., Biggs, J., Whitfield, M., Thorne, A., Bryant, S., Fox, G. and Nicolet, P. (2010). The Pond Book: A Guide to the Management and Creation of Ponds. Pond Conservation, 2nd edition. Pond Conservation, Oxford.