

WESTHAM PARISH COUNCIL

VILLAGE POND MANAGEMENT PLAN

SEPTEMBER 2018



Introduction and Acknowledgements

In producing this Management Plan for the Village Pond, we have had the advantage of being able to draw freely on an existing report; the Ecological Assessment Report of Westham Village Pond 2018 written by Robert Aquilina MCIEEM in August 2018 and commissioned by Westham Parish Council.

Mr Aquilina set out various options for management to be considered by the Parish Council. In this Plan we have looked at some of the recommendations some of which may divide opinion in the village and the Parish Council will have to decide on their implementation.

We would also like acknowledge the invaluable help of Mr Aquilina, local Ecologist Mr Evan Jones and the Environment Agency.

Westham Parish Council

DESCRIPTION

1: General Information

Westham Village Pond is located opposite Westham Village Hall at TQ 639 046 and is surrounded by roads on three sides and residential properties on the fourth (south). There is a boundary strip of mown grass and vegetation of a few meters wide around the pond and there are some mature trees to the north west (sallow and balsam poplar) and south east (oak) with others on an island. Smaller trees and shrubs are at intervals around the pond.

The pond is approximately 1900m² in area and 10 % of the perimeter is shaded by overhanging trees. The pond has hard engineered banks around 95 % of the perimeter with a small section of Iris and Reed growing in the south west corner that appears to have a more natural bank structure and plants actually growing in the water.

The Pond is owned and managed by the Parish Council. The pond and the land on which it is situated, were transferred to the Parish Council in 1975. The pond is more or less permanent but water levels run low in severe hot weather such as the summer of 2018.

2: Environmental Parameters

The following table provides a summary of the environmental parameters that were recorded on the 1st August 2018.

Parameter	Results
pH	7.54
Conductivity (uS/cm)	590
Temperature (°C)	19
Dissolved Oxygen (mg/L) by pump	9.1
Dissolved Oxygen (mg/L) by island	7.4
Nitrate (ppm)	21

Table 1. Environmental parameters

The chemical parameters are merely indicative of the overall conditions and status of the pond as they reflect a single point in time and these parameters would be expected to vary over the course of the year (and over the day in the case of pH and DO).

The water is neutral in pH and rather high in nutrient status (ions as measured by conductivity). The conductivity is high compared to ponds in the wider countryside but this is as a result of concentration of ions in the declining water levels as a result of the extended period of drought.

Dissolved oxygen levels have declined significantly from the previous survey (9.8 ppm) to such an extent that fish are dying. Threshold levels for fish survival are approximately 8.0 ppm and the levels measured by the island were 7.4 ppm.

However, levels by the pump were 9.1 ppm and therefore adequate to prevent fish dying. The pump had only been installed a few days previously, so the improvement in dissolved oxygen would be expected to continue to extend over time. The low oxygen levels are discussed below.

Nitrate levels were average and again are discussed further below. The previous levels measured in 2016 appear to be far too low and may have been the result of a faulty kit. The present levels were measured with a different technique.

3: Plants

The species recorded are presented in the table below. Note that only wetland and aquatic plant species from the standard list are included here (Pond Action, 1998) and therefore terrestrial species present are not included.

Common name	Species	2016	2018
<i>Bolboschoenus maritimus</i>	Sea Club-rush	y	
<i>Carex pendula</i>	Pendulous sedge	y	Y
<i>Carex pseudocyperus</i>	Cyperus sedge	Y	
<i>Carex riparia</i>	Greater Pond sedge	Y	Y
<i>Epilobium hirsutum</i>	Great Willowherb	Y	Y
<i>Epilobium obscurum</i>	Short-fruited Willowherb	Y	Y
<i>Glyceria maxima</i>	Reed sweet grass	Y	Y
<i>Iris pseudacorus</i>	Yellow flag	Y	Y
<i>Lycopus europaeus</i>	Gipsywort	Y	Y
<i>Lythrum salicaria</i>	Purple Loosedtrife		Y
<i>Juncus effuses</i>	Soft Rush	Y	Y
<i>Juncus inflexus</i>	Hard Rush	Y	Y
<i>Lemna minor</i>	Common Duckweed	Y	
<i>Oenanthe crocata</i>	Hemlock water-dropwort	Y	Y
<i>Phalaris arundinacea</i>	Reed canary grass	Y	
<i>Phragmites australis</i>	Common Reed	Y	Y
<i>Pulicaria dysenterica</i>	Common fleabane	Y	Y
<i>Rumex hydrolapathum</i>	Water dock	Y	Y
<i>Scrophularia auriculata</i>	Water figwort	Y	Y
<i>Sparganium erectum</i>	Branched Bur-reed		Y
<i>Typha latifolia</i>	Reedmace ('Bullrush')	Y	

Table 2 Wetland plants

A number of plants were not re-found during this survey but two new species were added (*Sparganium erectum* and *Lythrum salicaria*). There appeared to be an increase in deer grazing which might account for some species not being re-found as deer are selective browsers. The area at the south west of the pond has been cut back to some extent and again this may have affected some species which are probably still present but not identifiable as cut.

At 16 species the pond is comparable with good quality ponds in the National Pond Survey (average 18 species) but without any submerged plants (NPS average = 5).

No submerged vegetation was found presumably as a result of the presence of fish and ducks.

4: Invertebrates

Sampling the invertebrate fauna was significantly restricted by the low water levels leaving the marginal vegetation exposed and without water between plants to sample. This reduced the habitat that could be sampled and will have affected the results negatively.

Group	BMWP family	Species	Common name	2015	2018
Mollusca	Physidae	<i>Physella acuta</i>	Bladder snail	Y	
Mollusca	Hydrobiidae	<i>Potamopyrgus Antipodarum</i>	Jenkins spire snail		y
Hirudinae	Erpobdellidae	<i>Erpobdella testacea</i>	Leech	Y	y
Hirudinae	Glossiphoniidae	<i>Helobdella stagnalis</i>	Leech		y
Hirudinae	Glossiphoniidae	<i>Hemiclepsis marginata</i>	Leech		y
Hirudinae	Piscicolidae	<i>Piscicola geometra</i>	Fish leech	Y	
Crustacea	Asellidae	<i>Asellus aquaticus</i>	Water slater	Y	y
Crustacea	Gammaridae	<i>Crangonyx pseudogracilis</i>	Freshwater shrimp	Y	
Megaloptera	Sialidae	<i>Sialis lutaria</i>	Alderfly	Y	
Hemiptera	Gerridae	<i>Gerris lacustris</i>	Water skater	Y	y
Hemiptera	Corixidae	<i>Callicorixa praeusta</i>	Lesser water boatman		y
Hemiptera	Corixidae	<i>Corixa punctate</i>	Lesser water boatman		y
Hemiptera	Corixidae	<i>Sigara dorsalis</i>	Lesser water boatman	Y	
Hemiptera	Corixidae	<i>Sigara fallen</i>	Lesser water boatman		y
Hemiptera	Corixidae	<i>Sigara lateralis</i>	Lesser water boatman	Y	y
Hemiptera	Notonectidae	<i>Notonecta sp.</i>	Greater water boatman	Y	
Hemiptera	Veliidae	<i>Microvelia reticulata</i>	Water cricket	Y	
Ephemeroptera	Baetidae	<i>Cloeon dipterum</i>	Pond Olive	Y	
Odonata	Coenagrionidae	<i>Ischnura elegans</i>	Blue-tailed damselfly	Y	
Coleoptera	Haliplidae	<i>Haliplus ruficollis gr.</i>	Crawling water beetle		y

Coleoptera	Hydrophilidae	<i>Anacaena limbata</i>	Scavenger beetle	Y	
Coleoptera	Hydrophilidae	<i>Hydraena testacea</i>	Scavenger beetle		y
Diptera	Chironomidae	<i>Chironomini</i>	Non-biting midge	Y	y
Diptera	Chironomidae	<i>Orthocladinae</i>	Non-biting midge	Y	y
Diptera	Dixidae	<i>Dixa nebulosi</i>	Meniscus midge	Y	
Diptera	Dixidae	<i>Dixella aestivalis</i>	Meniscus midge	Y	
Diptera	Ptychopteridae	<i>Ptychoptera contaminate</i>	Cranefly	Y	
Diptera	Limoniidae	<i>Helius sp.</i>	Cranefly	Y	
Others		<i>Hydracarina</i>	Water mite	Y	
Others		<i>Oligochaeta</i>	True worms	Y	
				14	12

Table 3 Aquatic invertebrates (new species in yellow).

The pond had a BMWP score of 34 which is Poor. Note that not all the species identified (especially the Diptera- flies) count in these scoring systems.

The species richness score was 12 compared with 14 from 2016 which is well below the average score for high quality ponds in the National Pond Survey (average =32) and for the ROPA survey of ponds in the wider countryside (average = 26).

The reason for such low scores generally is the lack of vegetation growing in the water to offer habitat for invertebrates. Additionally ducks and fish will be predated them but generally would not make large inroads if the physical habitat to hide in were present. However, with regard to this seasons survey the low water levels prevented sampling within the richest habitat – the submerged stems of emergent vegetation in the wildlife area at the south west corner of the pond.

5: Incidental observations

During the 2018 survey a couple of observations were noted that were not directly part of the 2016 survey but are recorded here. Firstly two caterpillars of the Convolvulus Hawkmoth (*Agrius convolvuli*) were found in the marginal vegetation. This is a rarely seen immigrant moth.



Convolutus Hawkmoth caterpillar

The other significant observation was of eels in the water. Eels are a seriously declining species of fish classed as Critically Endangered by the IUCN and should be protected.

Both these observations enhance the wildlife and conservation value of the pond albeit by species not in the survey remit.

Carp and other smaller fish are also present.

6: Conservation Assessment

There remains good diversity of marginal plants in the pond but without any submerged plants. The presence of carp prevents the establishment of submerged vegetation.

Invertebrates were moderate in diversity with no rare or scarce species being present. This is primarily associated with the lack of submerged vegetation, but also has been depressed as a result of the extended period of drought which has lowered water levels and reduced water quality.

7: Archaeology

Westham Pond is of archaeological interest due to its historic use as a pond within the medieval and post-medieval village of Westham. There is also a high potential it forms a remaining section of a water channel that ran along the north side of Pevensey and Westham and was used during the Roman period as a quayside.

8: Pond Use

Over the centuries the pond has been used by villagers for a variety of purposes even ice skating in the winter but the original use of the pond was for the watering of cattle and horses. The pond is central to village life, it is used as a meeting point and by residents who like to feed the ducks.

9: Pond Maintenance

The most significant work was carried out in 2012. Land and Water Services installed pre-planted coir roll and hazel faggot revetment to the pond's banks and island. The original quote was revised because dredging was not feasible at that stage.

OBJECTIVES AND CONSTRAINTS

Mission Statement

The reason for writing this Management Plan is to identify and guide and changes that might help to achieve the following aim;

'To manage the Village Pond in such a way that wildlife is encouraged for its own sake and for its role in enhancing the appearance of the Pond. Also, to maintain the Pond as a village feature, with reasonable access for the public'.

The following will need to be addressed;

- 1) Improvement of the water quality.
- 2) Management of the marginal plant life.
- 3) Encouragement of aquatic plants.
- 4) Management of the adjacent trees.
- 5) Maintenance of the roadside grass.
- 6) Liaison with the public.

Objectives

Water Quality:

- a) Silt - Clearly there has been much debate about dredging or de-silting. Originally the Environment Agency was of the view that some form of de-silting might help but now that there is an absence of large fish it shares Mr Aquilina's view that it is not wholly necessary, especially if other steps are taken such as submerged vegetation and the introduction of Calcium Carbonate (often known as Siltex). Partial de-silting would however allow for greater volumes of water to be held within the pond and could assist with other works being carried out associated with the water flow into the pond.
- b) Fish - Reducing the number (and size) of fish will not only reduce the demand on the pond but will also reduce the amount of nutrients entering the water through fish waste. The carp also stir up silt and uproot and damage plants. The objective should be to maintain a low level of fish or even have them all removed. The eels are protected and cannot be removed. All large fish should be removed on a regular basis.
- c) Ducks - The Pond is frequented by ducks and other wild fowl. They disturb the silt and their faeces add to the build-up of nutrients in the water. In addition the presence of ducks gives rise to large amounts of bread being thrown into the pond. The objective should be the avoidance of anything that attracts more ducks to the pond and the introduction of more signage to discourage bread being thrown. Reducing the amount of bread should also reduce the number of rats whose numbers significantly increased this year with the severe weather.
- d) Water Plants - The removal of large fish will allow any submerged vegetation to become established. The introduction of plants should be considered in liaison with local ecologists.

- e) Barley Straw - When barley straw is put into water it starts to breakdown and release a chemical which suppresses the growth of algae. The knock on effect of this is that there is a reduced demand on the oxygen present in the water which can then be used to support other living organisms in the water.
- f) Mechanical Aeration - This is worth consideration given that future summers may be the same as this year. Care would need to be taken to avoid the risk of vigorous water movement which might agitate the silt. A solar powered option could be an eco-friendly alternative.
- g) Surrounding plants and vegetation - The objective is to maintain and encourage the plants growing around the pond. Control will be needed to prevent them spreading too far into the pond and blocking public view. Invasive species need to be monitored and removed as necessary.
- h) Management of trees - The Environment Agency is of the view that it is likely that summers such as we have had this year will be more common place in future. Bearing this in mind the more wind influence a pond can receive the better as this helps to naturally oxygenate the water and reduces temperature. The objective should be to review the number of trees and determine which should be removed or cut back. At the same time consideration needs to be given to neatly pollarding some of the remaining trees.
- i) Encouragement of biodiversity - The objective is to increase biodiversity especially around the western side of the pond to allow the reed bed to expand.
- j) Liaison with the public - It will be important to maintain contact with residents and their input sought in finalising the pond management plan. A managed working party could be asked to monitor the Pond and bring back recommendations to the Council. The review of trees could be done with a local ecologist and our own tree surgeon.

Constraints

Legal

The pond has to be retained as a horse watering pond in accordance with the Deeds of Transfer from Wealden District Authority.

Archaeology

The close proximity of Pevensey Castle to the Pond means that the County Archaeologist must be consulted if any form of de-silting or dredging is being considered. He has confirmed that partial de-silting should not present a problem although an archaeologist would need to be on site to monitor the silt removed. It might be possible to use an archaeologist from a local museum free of charge.

Algae

At the present time the Pond has a blue-green algae which is limiting any work around the Pond. It must be emphasised that many local waters have been susceptible to the same problem this year. The Environment Agency will be carrying out further tests in the next few weeks as the algae should decline with falling temperatures. The Environment Agency has confirmed that our signage on the notice board at the pond is sufficient.

Liability

The Council may only use contractors who meet the correct criteria, including insurance cover, to carry out work on or around the Pond.

At the current time the Council is still awaiting a detailed analysis of the sample silt which has been taken. This analysis will determine how we may dispose of any silt removed.

Public attitude

Reducing trees and possibly pollarding may be welcomed by some residents but opposed by others.

The removal of some fish may not be popular especially as the Environment Agency thinks that it is unlikely that any health checks would be viable considering the sample size that is required. The simplest solution to remove large fish is using a rod and line provided the person has the Councils authority and holds a valid EA license.

Feeding bread to the ducks is a long term tradition. People need to be educated as to what food to feed the ducks. Feeding ducks bread is harmful to them and can lead to potentially fatal or disabling health conditions. Uneaten bread causes algal blooms, allows bacteria to breed, affects water quality and attracts rats and other animals.

The Environment Agency has confirmed that in their opinion the current water level in the Pond is down to the severe weather conditions that the South East has encountered this year.

Finance

Whilst the costs of any work to be carried out will not be insignificant the Council should have sufficient reserves to cover the necessary expenditure but in order to cover future works and maintenance it might be logical to have a separate budget. Grants can also be considered depending upon the type of work to be carried out.

RECOMMENDATIONS

The Council needs to make a decision regarding de-silting and the use of Siltex. Applied in the correct quantities Siltex could help re-establish and kick-start the natural processes within the silt.

The usage of barley straw, limited water plants and aeration needs to be considered for introduction in early 2019.

The fish are a major factor in altering the pond environment by faeces, silt disturbance and damage to plants. Their numbers should be limited and all large fish should be removed on a regular basis.

The ducks are natural wild visitors to the pond. A continuous policy of education needs to be carried out to persuade people to restrict the amount and type of food they feed to the ducks.

Trees need to be regularly monitored and if pollarding is carried out a rotational programme could be set up.

Plants and growth around the Pond should be monitored and pruned back as and when required.

The advice of our ecologist and a local ecologist should be sought as to how best to encourage biodiversity on and around the West Bank.

An independent Ecology Report could be commissioned annually.

Appendix : Good practice guidance for wildlife ponds - Ponds in a national context

Ponds are defined as any permanent or seasonal body of water between 1 m² and 2 ha in surface area (1 ha = 100m x 100m), which would normally hold water for at least 4 months of the year. The definition is very broad and within it are contained a wide variety of pond types and pond communities.

We know that ponds are very important for biodiversity: around 2/3rd of all freshwater plants and animals can be found in ponds (c.400 wetland plants and at least 2500 invertebrate species), approximately 10% of our rarest species (including more than 100 Section 41 species) and 1 in 5 ponds in semi-natural habitats support at least 1 Red Data Book species.

We also know that ponds are one of our most threatened habitats. Estimates suggest that Great Britain lost more than 2/3rd of its ponds in the last century, with numbers having dropped from around 1.5 million to the current total of c.500,000. Encouragingly, results from the most recent national survey of ponds, undertaken as part of the government- funded Countryside Survey by Freshwater Habitats Trust and the Centre for Ecology and Hydrology, suggest that the decline has now stopped and pond numbers are increasing again (Williams et al., 2010). However, the real problem appears to be one of **pond quality**.

Nationally, over 80% of ponds are in poor or very poor condition, and only 10% remain in an un-degraded state. Unlike pond numbers, the pond quality situation is getting worse: the number of very poor ponds increased by 20% between 1996 and 2007.

As a matter of urgency we need to identify where the best remaining ponds are and ensure that they are protected and managed sensitively to maintain the characteristics which make them excellent wildlife ponds. We also need to be realistic about what we can do to restore ponds which are already degraded, because the underlying issue may limit the effectiveness of certain actions and some management may do more harm than good.

What makes a good wildlife pond?

There is much information from surveys across the UK about the characteristics needed to produce the best ponds for wildlife.

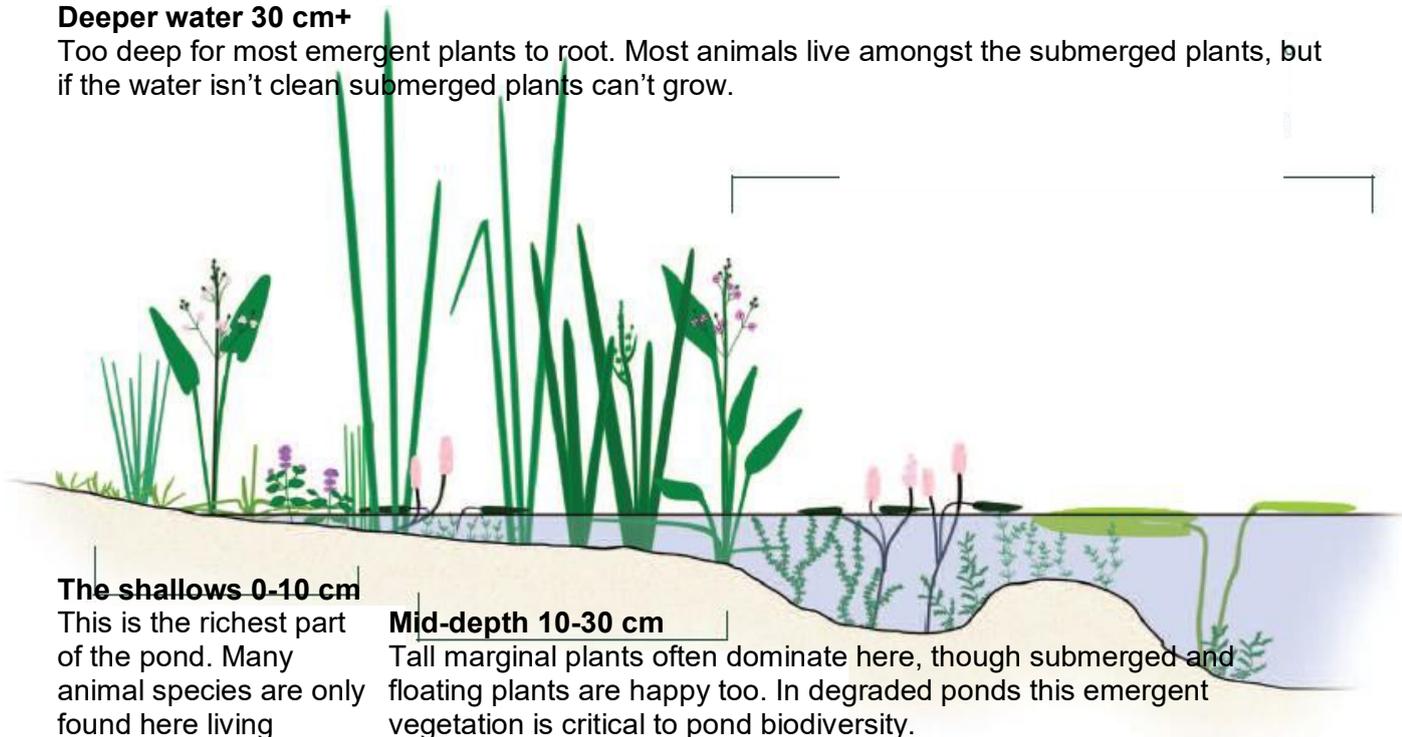
- 1. Clean water.** The most important factor influencing the wildlife value of a pond is whether or not it is fed by clean, unpolluted, water. This generally means water with low levels of nutrients (like nitrates and phosphates) and heavy metals, and no pesticides or other manmade chemicals. In the wider countryside, ponds which are fed directly from rainfall or from groundwater aquifers will have cleaner water than those connected to rivers, ditches and streams. In semi-natural landscapes ponds should be free from pollution, and as a result support communities which depend on high quality clean water and are therefore very vulnerable to even small pollution events.
- 2. Ponds free from heavy disturbance.** In areas of public access, unpolluted and high quality clean water ponds are impacted because of activities such as fishing, duck feeding and regular disturbance by dogs. The water becomes cloudy and turbid, and the pond becomes unable to support submerged plants. With no underwater habitat left aquatic animals rapidly decline. In contrast, the gentle disturbance associated with low density grazing animals is highly beneficial and a vital pond management technique (see below).

- 3. Broad shallow margins.** Most pond animal species live in very shallow water at the edge of the pond in water which is between 0 and 10 cm deep. Often ponds which are well vegetated can appear to have dried out – but if we consider it from the point of view of the invertebrates and plants which only need a few centimetres of water, we find that many ponds still have plenty of water. Many ponds are naturally temporary or have wide, shallow drawdown zones – an area of mud and vegetation which is flooded in winter and spring, which progressively dries as water levels fall in summer.

Figure 1 Identifying the most important habitats for pond wildlife

Deeper water 30 cm+

Too deep for most emergent plants to root. Most animals live amongst the submerged plants, but if the water isn't clean submerged plants can't grow.



The shallows 0-10 cm

This is the richest part of the pond. Many animal species are only found here living amongst the low submerged grasses and wetland herbs at the waters edge.

Mid-depth 10-30 cm

Tall marginal plants often dominate here, though submerged and floating plants are happy too. In degraded ponds this emergent vegetation is critical to pond biodiversity.

- 4. Moderate grazing can help to increase biodiversity.** Grazing can prevent single plant species from dominating a site. Animal grazing and hoof poaching creates patches of bare ground where a wider range of non-competitive plant species can germinate.
- 5. Trees and shade.** There is a perception that shade is bad for pond biodiversity and that trees should be removed to allow light to the water and open up views across a pond. This is often not the case. In fact, in semi-natural habitats, tree shade and leaf litter, combined with clean unpolluted water, are important habitats for a number of species found only in ponds which have areas of significant shade and tree cover.

Willows in particular are a valuable habitat because their branches root where they touch the water creating a complex underwater habitat in which invertebrates and amphibians can find refuge. In late successional ponds (those nearly filled-in with silt), mature trees in the pond margin may fall, creating new pools in the root-hole and the depression caused by the fallen trunks.

Overall, tree removal around pools should be considered with care. It is a far better policy to replace late successional ponds with new ponds to maintain a range of pond ages and pond types to support the greatest number of species at the landscape scale.

When should ponds be managed?

When managing ponds the best approach is to consider pond management at a landscape level. Ideally the objective is to ensure that all of the different types of pond in an area are maintained, to maximise the chances of keeping the very wide range of species that ponds support across a region. This means retaining shallow, seasonal and deep ponds, new ponds and silty ponds full of vegetation, grazed ponds and wooded ponds.

Ideally ponds should be surveyed before management, especially in landscapes of high nature conservation interest. In areas where there is limited survey data available it is still possible to undertake pond management, using a risk-based approach to decide the likely effect of management on the pond's biodiversity.

Essentially:

- If the pond is fed by polluted water, silty and heavily shaded and located in an *arable* or *intensively urban area* with few, if any, plants then the chances of the pond having species of conservation concern is quite low. In this situation, dredging to remove (what are probably) polluted sediments is likely to be beneficial, at least in the short term, and bank re-profiling, and possibly tree removal, may also be helpful. Management of this type is unlikely to be damaging but may only bring short-term improvements because the underlying issues, typically due to water pollution, are still likely to be affecting the pond.
- If the pond is in an intensive or *semi-intensive* land use area (e.g. improved grassland) *and the pond looks interesting* (e.g. has stands of wetland plants), then be cautious and precautionary with management: retain a good area of all the plant species or habitat types that are present in the pond.
- If the pond is located in any kind of semi-natural habitat (*e.g. old woodland, heathland, unimproved grassland*), or *in or adjacent to long established wetland areas like river valleys, fens and grazing marsh*, there is a high probability of it supporting endangered or rare species, even if the pond looks uninteresting.

In these high risk places it is better to explore other options, such as new pond creation, as an alternative to management.

This is not to say that management can never be carried out. Pond management in high quality landscape may be required to:

- Protect the population of a very rare species; but then the precautionary principle should apply so that no habitats are lost during management works.
- Refine the design of a newly created pond or an older pond which at the time of its creation did not have design elements suited to local biodiversity.
- Reduce access pressures on the pond, for example by allowing scrub to develop which shields the pond from disturbance.
- Maintain the variety of ponds types in the landscape. For example, a pond in woodland which is undergoing coppice work or reversion to heathland may benefit from management work.

In an area where many ponds are likely to have high biodiversity value or support populations of rare species, a survey of plants, invertebrates and amphibians will be required before management work begins. It is important to note that even ponds which look unappealing can be uniquely valuable. For further details please see *The Pond Book*.

