

HABITAT ACTION PLAN: Eutrophic Urban Pools

<p>Associated Species Action Plans</p> <p>Amphibians</p> <p>Bats</p> <p>Great crested newt</p> <p>Water vole</p> <p>White-clawed crayfish</p>	<p>Definition</p> <p>Eutrophic pools - two possible states</p> <p>The phosphorus content, chlorophyll a content and visibility through the water are used in the classification of lake water quality. Mesotrophic lakes are those normally associated with clear water conditions and a good diversity of plant and animal life. Hypertrophic lakes have very high phosphorus levels leading to algal blooms, coloured water and the loss of higher plants.</p> <p>Pools found in urban areas are generally eutrophic, characterised by high nutrient levels, and a consequent lowering of species diversity. Restoring pools to a mesotrophic state may be very difficult. Research indicates that eutrophic lakes may exist in one of two possible states:</p> <p>they may either be murky and green with high levels of algae; or: they can exist as clear water with higher plants and a greater ecological diversity.</p>
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<p>Associated Habitat Action Plans</p> <p>Canals</p> <p>Garden ponds</p> <p>Gardens, allotments, parks and public open space</p> <p>Rivers and streams</p>	<p>The depth of water, extent of surface area and type of construction (steep, shelving, etc) have great bearing on any problems and their possible solutions.</p> <p>1. Current status</p> <p>There are 673 Eutrophic Urban Pools of varying sizes recorded in Birmingham and the Black Country.</p> <p>The condition of most of our urban lakes cause complaints about smell, turbidity, algal blooms, and nearby goose droppings. There are indications that, in some, fish stocks are reduced or artificially maintained. Many of these pools are not natural but were built in urban parks, grounds, etc as attractive features to enhance the formal gardens, trees and lawns.</p> <p>Some were the result of the damming of streams which means that the source of any nutrients continues through continued stream input. They are often subjected to urban run-off from roads and developments, and increased nutrient levels due to wildfowl dropping and food deposited directly into the water. These pools are also the places where much of the nearby litter eventually collects.</p>
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Many of these pools are now visually poor, emit odours and support large populations of Brown Rats. Some contain the bacteria which give rise to botulism and salmonella

poisoning. They can, however, have wildlife value, for example, providing valuable feeding habitat for bats.

2. Current factors affecting the habitat

2.1 Water quality

Chemical and oxygen content of the water is important. High levels of phosphates and/or nitrates can cause algae blooms (including blue green algae, some of which are toxic). Low oxygen levels can cause fish deaths.

Silting up also affects the water quality by holding much of the nutrients within the system. De-silting sometimes has a positive effect on water quality as well as keeping a range of micro habitats in existence at the base of the pond. These micro habitats form refuges for invertebrates which feed on the algae and are also a necessary habitat for species such as crayfish.

High turbidity prevents plants from re-establishing due to lack of light for growth.

Run-off from roads or other civil engineering works can have an adverse affect on the quality and quantity of ground water and thus on pools.

2.2 Aquatic plants

Plant life contributes to oxygen levels in water and provides shelter for animals and a base for many aquatic food chains. Problems occur if the plants are over-grazed by waterfowl or uprooted by fish such as carp.

2.3 Invertebrates

Invertebrates are an integral part of the food web. Carnivores (leech, dragonfly larvae), herbivores (water snails), detritivores (water skaters), and filter feeders (such as *Daphnia*) all help to make this a potentially rich habitat.

Invertebrates such as *Daphnia* are an integral part of the aquatic food web. They are not only eaten by many other aquatic creatures, but themselves eat algae, thus helping to maintain a clear water environment. *Daphnia* are found in large numbers sheltering under floating aquatics such as water-lilies.

2.4 Fish

Carp fishing is a popular sport but carp can uproot plants whilst feeding. Bream can increase the turbidity of the water (they also tend to be bottom feeders) by causing re-suspension of sediments. This increases the amount of nutrients released into the water. Young bream feed on large amounts of *Daphnia*, reduction of which can also lead to reduced water clarity. It is also clear that bio-manipulation of fish stocks occurs unofficially.

2.5 Waterfowl

Birds such as Canada Geese have increased dramatically over recent years. They have inefficient digestive systems and large amounts of nutrients, particularly phosphates, enter the water through their droppings. Food left for them by humans

also often enters the water directly, rots, and reduces oxygen levels. Canada Geese also compete with native wildfowl for nest sites.

The feeding of wildfowl artificially increases the number of birds to a point where they destroy their own habitat. In addition their health can be at risk through inappropriate foodstuff as well as from material rotting in the water.

2.6 Humans

Paddling, swimming and boating also have an affect, albeit a minor one, on sediments, by stirring them back into suspension and contributing to enrichment and the further growth of algae. The excessive feeding of wildfowl also exacerbates any existing problems with brown rats thereby introducing health risks such as that of Weil's Disease.

The trampling of pool edges can increase erosion.

3. Current action

3.1 Legal status

Most urban pools are owned by Local Authorities or other statutory bodies. Many are within formal parks or public open spaces and are suffering from the general malaise affecting such areas. Most of these places have their own Bye-Laws, often not stringently applied.

3.2 Management, research and guidance

Under the Environment Act, 1995, the Environment Agency have a general duty to promote the conservation of aquatic flora and fauna, so far as they consider it desirable.

Local Authorities and British Waterways also have statutory duties towards nature conservation and some eutrophic urban pools are within SSSIs, SINCs and SLINCs.

All of these bodies have some responsibility for pollution control.

Closer co-operation has been perceived recently between angling groups, nature conservation groups and land (and water) managers. This must be encouraged and built upon.

The Environment Agency, English Nature, the Wildfowl and Wetlands Trust, Wandsworth Borough Council and the Game Conservancy have carried out research and published much research and advisory material.

4. Action Plan Objectives and Targets

Objective	Target
1. Ensure protection for all eutrophic urban pools of wildlife importance.	Ongoing
2. Identify all eutrophic pools in Birmingham and the Black Country and evaluate the problems associated with each.	2002
3. Create a "Still Water Management Group" for Birmingham and the Black Country made up of fishing, nature conservation and land management interests. (Both LA's and outside bodies).	2002
4. Create a set of "Best Practice" guidelines, perhaps using the Wandsworth experience as a basis for this work but to include sustainable urban drainage issues.	2004
5. Identify funding sources (e.g. Birmingham Landfill Tax Credits Pilot Scheme).	2004
6. Manage appropriately all relevant eutrophic pools within Birmingham and the Black Country.	2006
7. Monitor effect of management.	2011
8. Increase use of eutrophic pools for environmental education including interpretation explaining the results of excessive feeding of wildfowl.	2006

5. Proposed action with partners to meet objectives

ACTION	POTENTIAL DELIVERERS		YEAR							Meets objective number
	Lead	Partner	2001	2002	2003	2004	2005	2006	2011	
5.1 Policy and legislation										
Seek the inclusion of effective measures which protect eutrophic urban pools in the preparation of Unitary Development Plans, Local Environment Agency Plans and/ or other policy documents.	LAs, EA	WT, EN	As UDPs, LEAPs and other policy documents are prepared.							1, 5
Ensure that appropriate policy is included in all Parks and Greenspace Reviews.	LAs	WT	•	•	•	•	•	•	•	1, 5
Produce Best Practice Guidance Document	WT, LAs	EA, STWA	•					•		4
Set up a “Still Water Management Group”.	WT, LAs	Angling Clubs		•						3
5.2 Site and species safeguard and management										
Identify sites of particular value for biodiversity.	WT	Land Owners	•	•	•	•	•	•	•	1, 5
Identify sites in need of urgent management and introduce management and monitoring.	WT	LOs, LAs, EA		•	•	•	•	•	•	1, 5, 6
Identify presence of important species.	WT	LAs		•	•	•	•	•	•	5

ACTION	POTENTIAL DELIVERERS		YEAR							Meets objective number
	Lead	Partner	2001	2002	2003	2004	2005	2006	2011	
Draw up management plans where appropriate.	WT	EA, LAs, LOs		•	•	•	•	•	•	5
Identify funding sources for pool management	WT	EA, LAs	•	•	•	•	•	•	•	4
5.3 Advisory										
Draw up best practise guidelines and promote these to landowners and pool managers	WT		•	•	•	•	•	•	•	5
5.4 Future research and monitoring										
Continue existing Canada Goose monitoring.	LA WMBC	EcoRecord WT	•	•	•	•	•	•	•	1, 7
Introduce recording methods for fish catches.	LOs	ER		•	•	•	•	•	•	6
5.5 Communications and Publicity										
Prepare Advisory Booklet for schools.	WT				•	•	•	•	•	7
Interpretation at all appropriate pools.	LA EA	WT			•	•	•	•	•	7
5.6 Links to other action plans										
Canals, Garden ponds, Gardens, allotments, parks and public open space, Rivers and streams										

6. Co-ordination and Review

This Biodiversity Action Plan will be implemented over 10 years with a first review after 5 years. A group will be set up to co-ordinate implementation and to report to the Biodiversity Steering Group. This group will meet at a minimum on a yearly basis.

Review will be carried out in conjunction with related Habitat and Species Action Plans as appropriate.

Review will consist of measuring achievement of targets. The group will, with the support of the Steering Group, develop and implement appropriate monitoring methods which will inform the review process.

The Action Plan will be revised and updated in the light of review results and any relevant changes in circumstances and/or additional information which becomes available during the review period.

In line with national guidance, the Steering Group will report to the UK Steering Group.

7. References

ARC and the Game Conservancy - "Wildlife after Gravel".
Wandsworth Borough Council - London Lakes Project.