



Sheffield Local Biodiversity Action Partnership

Wetland Habitat Action Plan



Shire Brook Valley

Photo: Roger Butterfield

Draft for consultation 2012

1.0 Habitat Description and Background

Standing waters are areas of permanent or seasonal open water where there is no appreciable water flow. These may be anything from small ephemeral pools to large lakes and can include ponds, reservoirs, canals and ditches. They can encompass a very diverse range of wetland and aquatic habitats.

A wide variety of animal and plant life is dependent upon standing water bodies for all or part of their life cycle. Many of these species are of a high conservation interest because they are nationally and internationally threatened. These habitats are the main breeding sites of all amphibians and many invertebrates such as dragonflies and damselflies.

Over forty UK Biodiversity Action Plan (BAP) species are found in ponds, many of which are becoming increasingly rare, for example white-clawed crayfish (*Austropotamobius pallipes*). Other species which do not spend their life in water are also critically dependent on wetland habitats, for example many species of bat concentrate their feeding activities over open water bodies.

Larger bodies of open water and their fringing vegetation such as reed beds are very important for birds, particularly wintering or migrating wildfowl and waders. Marginal vegetation can provide shelter and breeding habitat for many UK BAP species such as reed bunting (*Emberiza schoeniculus*). Garden ponds are becoming an increasingly common feature of the urban environment and have a crucial role to play in providing suitable habitat for many wetland species, particularly amphibians.

Sheffield's five main rivers, the Don, Sheaf, Loxley, Porter and Rivelin rise in the north and west of the city and generally flow towards the east. In their upper reaches they are fast-flowing and clear with slightly acidic water conditions caused by the soils on the western moors where the rivers originate. The acidity reduces as the waters pass over the Coal Measures sandstones.

All of the rivers in Sheffield have been heavily modified by human intervention and these modifications range from the creation of reservoirs to supply water to the city and mill ponds, weirs and races which facilitated the industrial development of the city. These features influence the natural flow within the river system and have generally had a detrimental impact on wildlife movement. However, some of these features have also created good opportunities for valuable wetland habitat, particularly where they have been abandoned and allowed to revert to a more natural environmental system.

Until the latter half of the 20th Century Sheffield's rivers were heavily polluted due to by-products of the heavy industry which characterized the city, much of which laid along the water courses, in particular the lower Don. With the loss of much of this industry the impact of pollutants has been reduced and all the rivers in Sheffield have seen an improvement in water quality with key species such as otter (*Lutra lutra*) returning to the city's waters.

2.0 Current status

Nationally there are an estimated 265,000 hectares of standing open water. This represents a 1.9% increase in area between 1998 and 2007 in the UK and begins to reverse the historical process of decline¹. Initiatives such as Pond Conservation's Million Ponds Project have been contributory factors to this. 95% of the standing water bodies in UK are less than 1 ha in area (Natural England 1997). At a local level, many of these small water bodies receive recognition as being important for biodiversity by gaining Local Wildlife Site status.

At a national level some large water bodies receive conservation protection, particularly for birds. Sheffield has no large, naturally occurring standing water bodies. However, there are a number of man-made reservoirs some of which attract water birds. Also some sites such as Blackburn Meadows have more extensive areas of open water and as well as being attractive to birds they also provide a haven for a number of associated wetland species such as amphibians, many of which receive legislative protection.

The UK's rivers and running water cover an area of approximately 64,000 hectares². Whilst pollution remains a problem, with regard to water quality the number of water courses nationally has risen from 55% having "good biological quality" in 1990 to 72% in 2008³. The EU Water Framework Directive aims to tackle such issues as diffuse pollution and invasive species in wetland habitats. The Environment Agency is a key delivery organisation for much of the work associated with the implementation of this directive within the UK but is keen to work with partner organisations, particularly in the Don & Rother Catchment as pilot partnership/network way of working.

Pollution in Sheffield's water courses although much reduced, still has a significant impact on water quality and occurs due to industrial waste, run-off and seepage from former mine workings. The issue of culverting and alteration of natural flows by the construction of weirs, etc also continues to have an impact on the wildlife potential of water courses throughout the city, particularly in their ability to act as wildlife corridors. Though in some instances this has slowed or prevented the spread of invasive species such as signal crayfish. This needs to be considered when plans are made to remove or modify these features.

3.0 Current factors causing loss or decline

- Development, tipping and in-filling resulting in serious degradation and loss or fragmentation of standing water habitat.
- Pollution from eutrophication (excessive nutrient input); run-off from roads, landfill leachate, sewage overflow during storms, de-

oxygenation and industrial pollution can seriously degrade both running water and standing water habitats. On agricultural land, fertiliser run-off and use of pesticides which find their way into ponds and other standing water bodies have had a serious detrimental effect on wetland habitats and associated species.

- Poor management of water bodies and their adjacent habitats, including fisheries management.
- Poor catchment management leading to high sediment loading of watercourses and problems associated with the speed at which online water bodies silt up as well. This can have a direct impact upon flora through turbidity as well as fauna by causing a reduction in gill efficiency.
- Lowering of water levels caused by inappropriate drainage schemes or by abstraction of surface or ground water.
- The use of wetland areas for recreational use can cause disturbance to wildlife, damage to vegetation and degradation of wetland habitats through bank erosion and trampling.
- Introduced, non-native species of plants and animals such as New Zealand pigmy-weed (*Crassula helmsii*) and signal crayfish (*Pacifastacus leniusculus*) can have a devastating effect on the natural balance of wetland ecosystems. Animals such as amphibians can also suffer serious declines due to the spread of bacterial infections such as *ranavirus*.
- Physical modification of water courses for flood defence, drainage and water power has had a detrimental impact on the natural functioning of river systems and their catchment areas.
- Loss of wetland habitat due to residential and industrial development.
- Loss or degradation of suitable adjacent habitats required for many wetland species such as amphibians due to invasive vegetation such as Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*). However, these areas can provide potential cover for other associated wetland species such as otter and water vole (*Arvicola terrestris*).

4.0 Current Action

4.1 Surveys

A number of ponds in the Sheffield area were surveyed between 2008 and 2011 as part of the South Yorkshire Ponds Project including Arbourthorne, Blackburn Meadows and Crabtree Pond. The standardized Predictive System

for Multimetrics (PSYM) methodology was used to assess the habitat and water quality of the ponds surveyed.

The Sorby Natural History Society collects a variety of data on sites from across the city and this includes many wetland sites. Data collection particularly takes place for the specialized fauna which can be found in wetlands such as newts, frogs and toads as well as bird and invertebrate species.

Crayfish Action Sheffield is currently undertaking a crayfish project which aims to increase awareness of crayfish conservation, survey for populations of native and introduced species of crayfish and develop a conservation strategy for the native white-clawed crayfish. A Species Action Plan has also been developed for crayfish.

4.2 Conservation

- In Sheffield, some areas of wetland habitat have received statutory protection through designation as Local Nature Reserves. This includes sites at Shire Brook Valley, Wharnccliffe Heath, Crabtree Pond, Porter Valley and Townend Common.
- Many wetland sites have been designated as Local Wildlife Sites and although this offers no statutory protection, it does identify the sites and the wildlife they support as a nature conservation priority.
- Wetland management is currently being carried out on a number of sites throughout Sheffield. This often takes place via active local conservation groups and ranges from litter clearance to control of invasive vegetation.
- Wetland habitats have been designated as Priority 'At Risk' habitats at a national level as part of the UK Biodiversity Action planning process in recognition of the declines in extent and quality of such habitats.
- The Government's white paper on the environment *The Natural Choice: Securing the Value of Nature* lays out the aim to improve the number of water bodies in the UK which are in "good ecological status" from 26% to 32% by 2015.
- The body responsible for water quality in England and Wales is the Environment Agency acting under the Water Resources Act 1991, The Land Drainage Act 1991 and the Environment Act 1995. They have also produced a River Basin Management Plan for the Humber (2009) as part of their Water Framework Directive which encompasses the wetland habitats in Sheffield.
- A Sustainable Urban Drainage Systems (SUDS) scheme is being developed in the Sheffield area to protect water quality and improve flows into natural water courses thereby reducing the risk of flooding.
- In 2006 the England Catchment Sensitive Farming Delivery Initiative was launched which encourages farmers to tackle diffuse water pollution with a view to improving the quality of wetland habitats.
- In 2009 Natural England launched the Wetland Vision Grant Scheme for wetland improvement schemes. Although this fund is now fully subscribed, further funding may become available in the future.

- The development of natural methods of controlling effluents via specially constructed lagoons and reedbeds, such as the scheme at Deepcar on the Don, is providing additional valuable wetland habitat as well as improving water quality in the river.

4.3 Public Awareness

Sheffield City Council's Ranger Service offers a public events programme to help raise public awareness and increase education on natural history and conservation of wetland habitats. They also support a number of local 'friends of' groups that have a specific interest in wetland habitats such as Friends of Frecheville Pond and Friends of Arbourthorne Pond. Activities include pond clearance events removing litter and undesirable vegetation as well as pond-dipping sessions to explore pond life.

Sheffield Wildlife Trust also offers a number of interpretive events and practical work days to help improve wetland habitats and develop a greater understanding of wetlands.

5.0 Scope of the updated Wetland Habitat Action Plan

The Wetland Habitat Action Plan (HAP) is confined to the Sheffield administrative boundary minus the area within the Peak District National Park which is covered by a separate Biodiversity Action Plan for that area.

- The Sheffield Plan encompasses all wetland types within the city. This includes ponds, lakes, marshes, ditches, reedbeds, bogs, rivers, streams and brooks although some emphasis has been placed on aquatic habitats. Wet woodland and Wet Grassland are dealt with under the Woodland and Grassland Plans though they form an important component within many wetland habitats.
- This updated Habitat Action Plan identifies a number of target sites for maintaining, enhancing or creating wetland habitats across the entire geographical area of the city. The target tables include an appropriate amount of detail with regard to management of each site.
- The largest river in Sheffield (the River Don) has been excluded from this HAP as a Habitat Action Plan already exists for this water course. The Don Corridor Plan (2009) also covers the Sheffield and South Yorkshire Navigation Canal. Other river valleys in Sheffield would benefit from a similar approach and are therefore not included in this plan. Similarly, large water bodies have been excluded from consideration as target sites within the plan at the current time as it is estimated that these are beyond the scope of the HAP to influence. Positive management of such features would of course be supported by Sheffield LBAP and it is hoped to include them as target sites at a later date through partnership working (see Target 6 below).

6.0 Relationship to other Biodiversity Action Plan habitats and species

Wetlands include a range of habitats and habitat features that can support a great diversity of plants and animals some of which are locally or nationally rare and often ones which are afforded legal protection. A number of these species such as white-clawed crayfish, great crested newt (*Triturus cristatus*) and bats are all UK and Local Biodiversity Priority Species and have an appropriate Species Action Plan.

Many of the habitats adjacent to wetlands are critical to the survival of these species. For example, grassland areas are essential for amphibians such as common frog (*Rana temporaria*) and common toad (*Bufo bufo*). Invertebrates such as dragonflies spend the immature stages of their lives in ponds but require marginal vegetation on which to emerge and develop into mature adults prior to taking flight.

A large number of species associated with wetland habitats have suffered serious declines and many have acquired a number of conservation status designations such as UK Biodiversity Priority Species, RSPB Red List, etc. Consequently, all these species deserve consideration when planning and implementing specific biodiversity actions for any wetland habitat; this is reflected in the table of Target Sites (see below).

7.0 Objectives and Targets

The table below outlines the actions which the Sheffield Biodiversity Partnership aims to deliver over the 5 year period 2012 - 2016. It is intended that the plan should be a live document which should have a progress review at least once a year by the Sheffield Biodiversity Partnership. Opportunities should also be taken outside of those specifically outlined as and when these arise.

Broad actions are set out below as 7 objectives and targets which have been defined with an eye very much to implementation and delivery once the Habitat Plan has been adopted. The target sites are outlined at annex 1 and have been selected in consultation with local experts and expert panels such as Sheffield Wildlife Trust, Sheffield Biodiversity Partnership and Sorby Natural History Society.

Due to the inherent difficulty of calculating the areas of water bodies and wetlands the targets in the table below are given by number of sites rather than hectares. While this is in contrast to the Grassland, Woodland and Heathland HAPs it is felt to be a pragmatic approach for wetlands.

- Objective 1 Determine the extent and viability of the wetland habitats within the Sheffield Biodiversity Action Plan area. This should also include some assessment of their value for faunal and plant interest.

- Target 1 Secure resources for and develop an on-going programme of wetland habitat assessment and evaluation. Aimed for by 2013.
- Objective 2 Maintain and enhance the conservation value of existing wetland habitats and associated species through appropriate management and site protection. This also includes managing sites for their amphibian, bird and invertebrate interest as well as botanical diversity.
- Target 2 Increase the number of Local Nature Reserves with wetland habitats by 1 by 2016.
- Objective 3 Maintain the extent of the wetland habitat resource as currently identified.
- Target 3 Maintain 8 wetland sites in their current management as outlined in annex 1. N.B. this list of sites should be expected to increase during the lifetime of this plan through the actions outlined under targets 1, 4 and 7.
- Objective 4 Increase the extent and quality of the wetland habitat resource through the creation, enhancement and restoration of wetland sites.
- Target 4 Create wetland habitats at 2 sites by 2016. Target sites are outlined in annex 1, although alternative opportunities will also be exploited as and when they present themselves.
- Restore and enhance wetland at 24 Sites by 2016. Target sites are outlined in annex 1, although alternative opportunities will also be exploited as and when they present themselves.
- In planning the delivery of these targets care should be taken to avoid detriment to features of archaeological or cultural interest, for example when dealing with mill ponds.
- Objective 5 Link existing wetland habitat through restoration, enhancement and creation of wetland sites.
- Target 5 Identify sites for potential physical links or 'stepping stones' between wetland habitats and implement through restoration and creation by 2016.
- Objective 6 Raise awareness of the importance of biodiversity and wetland sites.
- Target 6 Create participation opportunities for land managers, volunteers, 'friends of' groups, local residents and the wider public. Also provide publicity via events, leaflets and the website to raise awareness with the public and Sheffield City Council members and managers.
- To begin a programme of encouraging land managers to sign up to appropriate management of wetland habitats on Local Wildlife Sites where the land is privately owned. Also, raise their awareness of national schemes encouraging positive management for wildlife in wetland habitats. This should include smaller scale habitats such as mill ponds as well as larger wetland habitats such as reservoirs.
- On-going assessment with first year summary as a result of Sheffield Biodiversity Partnership review in 2012 and yearly thereafter.

- Objective 7 Monitor the extent and quality of wetland habitats within the Sheffield BAP area.
- Target 7 Establish a clear, comprehensive wetland monitoring scheme to follow up on baseline surveys by 2014.

¹ Convention on Biological Diversity (2009): *Fourth Report to the United Nations Convention on Biological Diversity: United Kingdom*

² *op. cit.*

³ *Water Framework Directive: accessed on Environment Agency website 2012*

Habitat Action Plan prepared and written by Michael Guy and Brian Armstrong of Sheffield City Council Ecology Service.

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HM Government (2011): *The Natural Choice: Securing the Value of Nature*

Joint Nature Conservation Committee: *UK Priority Species and Habitats*

UK Biodiversity Action Plan

With thanks to:

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