

## Guidelines for the management of rivers and riverine corridors

### General objectives for managing water bodies

- Water bodies are extremely important natural features in their own right, as well as having a great influence on the nature of surrounding vegetation. With pollution being tackled and water quality now improving in the district, it is likely that there will be a gradual recovery of aquatic ecosystems.
- It is therefore important to make the most of this by managing wetlands and river corridor habitats sensitively for recovering species like the Otter.
- Opportunities to create new wetlands should also be explored to help redress past losses and, the removal of barriers to fish migration is critical if the sustainable fish populations are to be restored.

### Important features to maintain and develop

- Water of high quality, which is more likely to have a high diversity of aquatic life.
- The extensive wildlife corridor formed by rivers, streams and canals, which help link a variety of habitats across the district.
- Areas free from disturbance by people and dogs; keep one bank of a river free of access on any one stretch. Similarly with ponds and larger water bodies, limit access preferably to less than one third of the waters edge. It is desirable to have some river stretches completely free of disturbance.
- Vegetation cover for sensitive species: with some birds and otters it is particularly relevant. Islands can be an especially important refuge.
- A diversity of height structure in vegetation around the edges of water bodies. There should be trees, shrubs, scrub and some open ground (see note below) to provide a mosaic of habitats for a variety of species.
- A diversity of height structure in the vegetation of marginal areas of water bodies (the shallows). This may include tall reeds, lower growing marginal plants and even muddy or stony areas without vegetation.
- Small streams, ditches and dykes off the main water body can be particularly valuable habitats and may contain a range of other species (including Water Voles).
- A number of wetland habitats at any one site. If they cover a larger area, they are likely to support a greater range of species.
- Ponds without fish, which can be especially important as breeding sites for Great- crested Newts and invertebrates such as dragonflies.
- Disturbed habitats such as eroding sand cliffs and areas of exposed sand and gravel (either alongside or in the vicinity of wetlands), which are critical habitats for some species like mining bees and sand martins.
- Engineering of banks should be carried out sensitively, avoiding hard or steep-sided structures, which can impede the movement of animals (but see above).
- Road kills could determine the survival of otters in urban areas. It is important that bridges (over waterways) and culverts are designed to discourage this species crossing roads to bypass these structures.

## Priority species groups for which wetland habitat is important

Birds	Mammals	Invertebrates	Plants	Amphibians	Fish
Grasshopper warbler	Otter	White-clawed crayfish	Floating water plantain	Great-crested newt	Salmon
Reed bunting	Water vole		Pillwort	Common toad	Sea/Brown Trout
Snipe					European eel
Water rail					River lamprey
Woodcock					Brook lamprey

## Other species' groups for which the habitat is important

- Most animal species need water to survive and make use of water bodies in a variety of ways. A whole range of species are entirely aquatic (fish, some crustaceans and insects).
- In addition, amphibians, some birds and other invertebrates such as dragonflies, will use water bodies for breeding or as a nursery.
- Species like Sand Martins and some bats are particularly attracted to water bodies for feeding. Water bodies are therefore an extremely valuable complementary feature of other habitats.

## Alien plants along the waterways

- Japanese knotweed and Himalayan Balsam are aggressive colonisers of disturbed land, especially adjacent to rivers and streams. It is essential to minimise soil disturbance in these areas to help prevent further invasions. This is particularly relevant to the creation of new habitats where invasion by alien species is a real possibility.
- Soil contaminated with the seeds of Himalayan balsam should not be moved. It is especially important not to dig up and transport Japanese knotweed off site. Segments of the plant will propagate and aid its spread. Advice should be sought for dealing with Japanese knotweed.

## Maintaining and improving the habitat

The following activities will be of benefit:

- Removal of weirs or, installation of fish passes to restore natural fish migration.
- Water quality can be improved by filtering it through natural or artificially created reedbeds of *Phragmites australis* and other plants (if conditions allow). This is one function of sustainable urban drainage systems.
- Restoring semi-natural vegetation, where it has been lost alongside watercourses, will help maintain their integrity as wildlife corridors (see also guidance notes for other habitats).
- Creation of in-stream habitats, including dead wood and other natural features (but taking into account risk of creating flood problems).
- Where access causes disturbance to wildlife this can be minimised by natural screening (shrubs) or encouraging the use of alternative routes.
- It may be desirable to increase the areas of marginal vegetation in some water bodies, in others (usually ponds) it will need to be controlled to prevent the complete loss of open water.
- The creation of additional water bodies alongside others can add greatly to the overall value of an area. This may be particularly important for water voles, possibly helping

them to survive the predations of mink. When carefully designed, such water bodies can also provide quiet backwaters for other sensitive species.

- It may be possible to create artificial sand cliffs and areas of exposed sand and gravel near to water bodies. This is important where natural river erosion has to be controlled for the protection of property.

### **Important note**

The Environment Agency has the responsibility for water quality, flood defence, water abstraction and other issues in the water environment. When undertaking work around water bodies and watercourses it is essential to seek advice and guidance. It is illegal to introduce plants and animals into any watercourse or water body without proper consent from the Environment Agency and English Nature. Even in garden ponds it is unwise to introduce non-native species, which may eventually spread into the wider environment.