



Northumberland

## Water Vole Information Guide



### Why does the water vole need help?

The water vole, (also know as the water rat), was once common throughout Britain. However, nation-wide surveys which examined almost 3000 sites across Britain revealed that the water vole has been declining, particularly in the last 50 years. In 1998, only 11% of known water vole sites remained in Britain and this decline is continuing.

### How do I recognise a water vole?

Water voles have:

- Chestnut-brown fur
- Short rounded ears almost hidden by fur
- Blunt snout and chubby face
- Long hair-covered tail of 10-15cm
- A body length of up to 20cm
- Four toes on the fore paw and five on the hind

### **Where do you find water voles?**

Water voles occur on rivers, canals, ditches, dykes, reedbeds, lakes and ponds. They usually prefer slow flowing water where the water level does not fluctuate greatly. Water voles need banks to burrow into and create extensive tunnel systems. These have nest chambers at various levels in the steepest parts of the banks and usually have underwater entrances to give the animals a secure route for escape if danger threatens. In reedbeds water voles weave nests in the vegetation above the water level. Earth or clay is ideal for burrowing but soils with a small amount of gravel are also used. Where water levels fluctuate, water voles prefer a high steep or stepped bank profile with a good amount of vegetation where they can retreat to in times of high water.

### **What do they eat?**

Water voles are vegetarian. They eat a wide variety of plants on the riverbank and in the water (227 plant species have been identified in their diet). Abundant waterside and bank vegetation is extremely important for food and shelter. During the winter, water voles will store food underground in stock piles and will also eat plant roots and tubers when vegetation has died down.

### **How can you tell if there are water voles present?**

Water voles create burrows 5-8 cm wide near or below the water level. Holes may also appear at the surface on the top of the banks and the voles will graze the vegetation around this entrance creating circular 'lawns'.

Rat burrows are slightly larger than those of voles. These are not always right at the water's edge and often there is a heap of earth at the entrance. Rats produce heavily trampled runs, which form a network between the various burrows.

The droppings of the water vole are a reliable field sign of their presence. They are cylindrical, 8-12 mm long and rounded at both ends. They vary in colour from bright green, brown, grey or even purplish. Droppings left in piles are called 'latrines' and occur during the summer breeding season (March/April until October) and rarely in winter. Latrines are usually at the water's edge or a few centimetres higher, on convenient platforms such as a flat rock or floating log or sometimes at the entrance of a burrow on bare soil.

### **What are the water voles predators?**

Water voles are eaten naturally by weasels, stoats, foxes, otters, pike, herons, barn owls and other birds of prey. However, North American mink are the water voles chief adversary and are a major factor in their decline.

The usual way of evading predators is to run into a burrow or to dive underwater, kicking up a cloud of sediment to confuse the pursuer in the water.

## Threats to water voles

### Predation

The single most significant recent impact on the water vole is predation by North American mink. Centuries of retreat from large grazing mammals and agricultural intensification have reduced the water vole to its present day semi-aquatic existence. The introduction of this alien and highly opportunistic predator has been the final nail in the coffin as it has coincided with the most intense phase of watercourse use this country has ever seen.

### Habitat loss

- Degradation and loss of habitat (through mowing or strimming);
- Insensitive river engineering, canalisation, reinforcement and maintenance works;
- Increased urbanization of the river flood plain;
- An increase in boating activity on waterways leading to bank erosion from the resulting wash;
- Heavy grazing of the bank by livestock which removes food and cover, excessive trampling (poaching) also leads to burrows collapsing and being destroyed.

### Population fragmentation

As local extinction of water voles increases the remaining populations become isolated. This leaves them vulnerable to local disturbances and unsympathetic management of their habitat. Where recolonisation can not take place inbreeding may occur and add to the problem.

### Persecution

The indirect persecution of water voles through rat control operations may be a threat to the survival of some urban and rural populations.

### Predation

The introduced North American mink is known to have a severe impact on water vole populations, causing the extinction of most populations. The female mink is slim enough to enter the water vole" burrow and so pursue the water vole both in the water and underground. Water voles are most likely to evade predators where there is dense vegetation cover, adjacent ponds, ditches and wetlands such as reedbeds. However this is also beneficial to the ever opportunistic mink. The presence of mink appears to be reduced where their presence is negated by the presence of Eurasian otter. Intra guild aggression appears to minimize the presence. However, otter populations are not every where and it may be sometime before this is the case.

### **Over grazing**

Over grazing by sheep and cattle and to a lesser but more modern extent, horses, is a historic occurrence. The water vole is in fact a species of tall grasslands but has adapted to a more semi-aquatic lifestyle as our grasslands have eroded under centuries of grazing pressure. Today the threat is more focused with agricultural intensification increasing the numbers of animals next to watercourses thus increasing the amount of erosion and poaching associated. The modern horsey culture has also increased the problem into more suburban and urban environments. This combined with direct predation from North American mink means that the water vole is teetering on the edge of extinction.

### **Variations in water levels**

Water levels that fluctuate swiftly flood the burrow systems and can drown water voles before they have time to escape. Flash flooding brought about by excessive drainage is a problem. Drought conditions similarly pose problems as the burrow entrances are exposed and the water voles may be more vulnerable to predators.

### **Pollution**

Water voles are also probably affected by poor water quality, both directly through contamination of water bodies with pollutants and indirectly through eutrophication, build up of nutrient levels in water which causes algal blooms and a loss of water vole food plants.

### **Legal protection**

Water voles are now protected under the Wildlife and Countryside Act (1981 Amendment 1998) where it is illegal to intentionally disturb, damage, destroy or obstruct access to a place which water voles are using for shelter or protection.

### **Habitat improvement for water voles**

The management of vegetation is critical to determining habitat quality. It can be enhanced where suitable banks exist for water voles by providing a broad swathe of bankside cover. Below are possible habitat enhancement techniques for water voles. Fencing off the bank to allow natural regeneration to occur. This can be small areas or meanders in the river as little fencing is needed.

Managing and cutting of vegetation should be done in a patchwork of 50m sections which always leaves an area with cover. Where possible a fringe of vegetation should be left at the water's edge at all times and work should be carried out during the winter when water voles are underground.

Re-profiling steep-sided ditches that have little marginal vegetation to provide wet berms or shelves along one or both banks will stimulate the development of emergent vegetation. These may be scallop-shaped hollows at intervals along the bank. Water controlling features such as sluices help to hold back water in the summer without restricting drainage efficiency in winter. You will need to consult the Environment Agency and/or the Internal Drainage Board for advice and permission.

Grants may be available for this work. Buffer strips adjacent to a watercourse or ditch system will further enhance the habitat.

Ponds, oxbows, backwater channels and ditches are extremely valuable for water voles as they provide additional habitat to the main river channel. When designing new wetlands, the design should maximise the length of the water's edge to help provide a self-sustaining population. As a guide, one breeding territory requires 30-50m of waterway bank, including both banks if less than 2m wide.

### **Best Practices**

- The following best practices are recommended on watercourses needing routine maintenance work:
- Work should be conducted outside the water vole breeding season which is April - October.
- At least one third of the ditch should remain untouched with work limited to small stretches.
- De-silting should not interfere with the bank sides.
- Spoil should be carefully disposed of and not used to fill in other hollows.

### **Mink Control**

Mink have a significant impact on water vole populations and it is necessary to control their numbers. Using live traps and disposing of the mink in an appropriate method should do this. The best time to carry out mink control is in the early autumn when dispersing youngsters are establishing territories and in spring before females have produced young. The Project Officer can advise you on the best places to site traps and the correct disposal methods to ensure that animal welfare issues are addressed.



