

Water voles in the North Pennines

Where they can be found, what they
need to survive and how you can help.



NORTH PENNINES

Area of Outstanding Natural Beauty



Water voles in the North Pennines



If your image of a water vole is based on the unflappable Ratty from Kenneth Grahame's story *'The Wind in the Willows'* then you might want to think again. Far from lazing about on languid lowland rivers, water voles have been fighting a battle in much of the UK against habitat loss and an introduced predator - the American mink. But the North Pennines, water voles seem to have been faring better.

Above: Water vole © William Richardson

With your help we hope that we can ensure the survival of this engaging and elusive animal.

Water voles in trouble

The water vole used to be common throughout mainland Britain. However, over the last 30 years or so they have undergone one of the most catastrophic declines ever recorded in the UK and are now one of Britain's most threatened native animals. Recent national and regional surveys suggest that only one fifth of the sites occupied by water voles during 1989-90 are occupied today.

In lowland areas in particular water vole habitat has been lost or damaged, leading to the isolation of water vole populations. This has led to an increased vulnerability to predators, especially the American mink. This mammal has been spreading throughout Britain since the 1970s after its earlier introduction to this country for fur farming. Anecdotal evidence in the North Pennines suggests that numbers of mink peaked following release or escape from fur farms in County Durham and Northumberland in the 1990s.

The North Pennines - a haven for water voles?

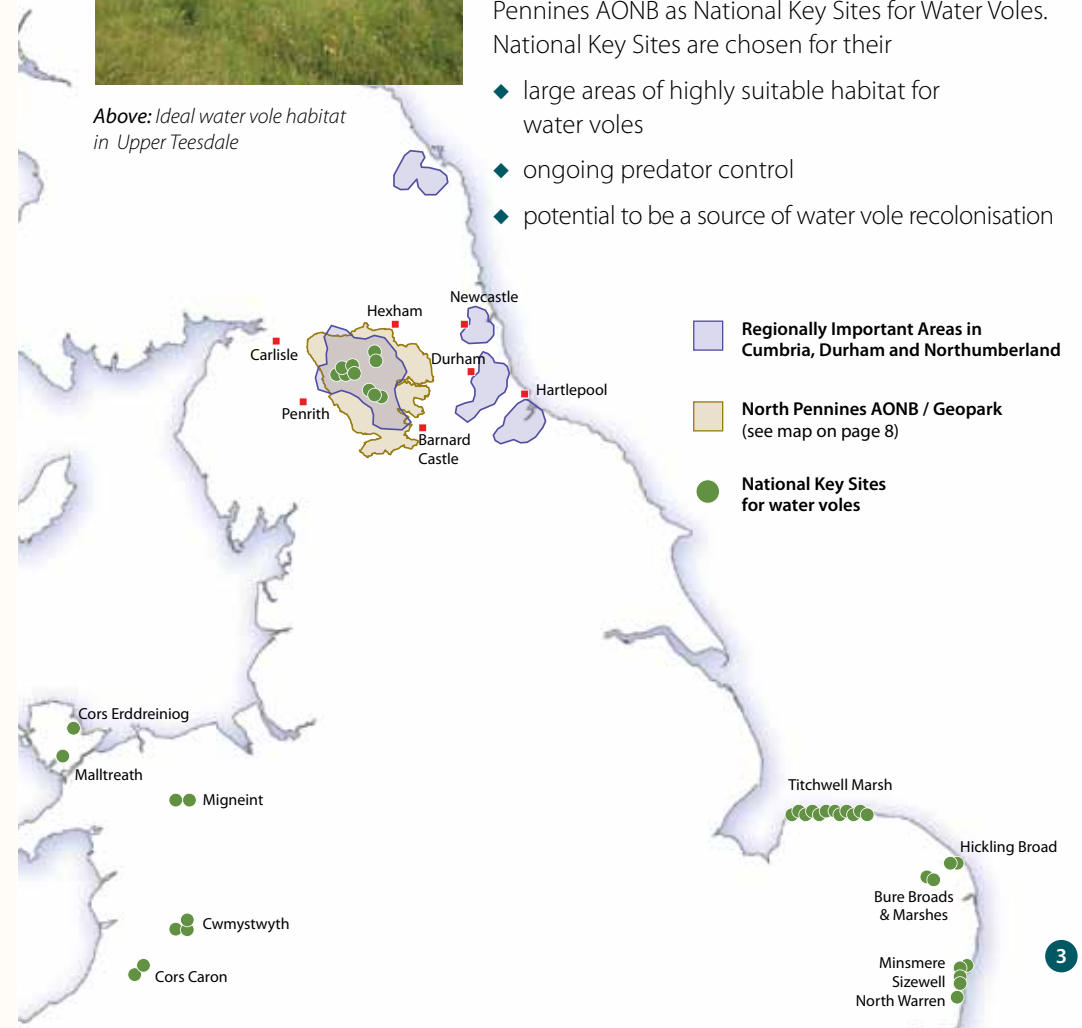


Above: Ideal water vole habitat in Upper Teesdale

There is just a handful of records for water voles in the North Pennines before the 1990s. Before this date upland habitats were not considered to be important for them. However as lowland water voles have disappeared, some upland areas such as the North Pennines have been found to hold significant populations.

Our recent identification of relatively strong and connected colonies in the upper reaches of the rivers Tees, Wear, South Tyne and East/West Allen, has led to national experts designating three parts of the North Pennines AONB as National Key Sites for Water Voles. National Key Sites are chosen for their

- ◆ large areas of highly suitable habitat for water voles
- ◆ ongoing predator control
- ◆ potential to be a source of water vole recolonisation



What do water voles need?

Water voles have four basic requirements:

- ◆ Water (for escape from predators)
- ◆ Somewhere to hide
- ◆ Vegetation to eat
- ◆ Well-connected areas of suitable habitat

Water

Water voles live next to water and are good swimmers allowing them to escape from their many land-based predators such as stoats, weasels, foxes and domestic cats. Water voles prefer water at least 15cm deep to drop into. Many upland rivers, streams and ditches are suitable, but those which don't hold water all year round or are uniformly shallow are unlikely to support water vole colonies.



Above: Good upland water vole habitat in Harwood-in-Teesdale, with steep banks, overhanging vegetation and deep pools



© William Richardson



Top: Dozens of water vole holes leading to burrows and an underground stream

Above: The banks of wide rivers are more exposed than narrow ditches, but even here on the Harwood Beck water voles are found under the overhanging vegetation at the river's edge

Main picture: Deep pools in fast upland streams provide a means of escape even in dry conditions



Somewhere to hide

Dense and varied vegetation at the waterside is essential to provide cover from predators as well as food throughout the year. This should extend at least two metres back from the water, although the larger the area of long vegetation the better, as water voles also travel over land and need dense cover to move safely.

Steep and overhanging banks are also used as cover from potential predators, and water voles will have entrance and exit holes at several levels ranging from below the water to several metres away from the bank.



Top and right: Water vole burrow entrances below and above steep or overhanging banks

Vegetation to eat

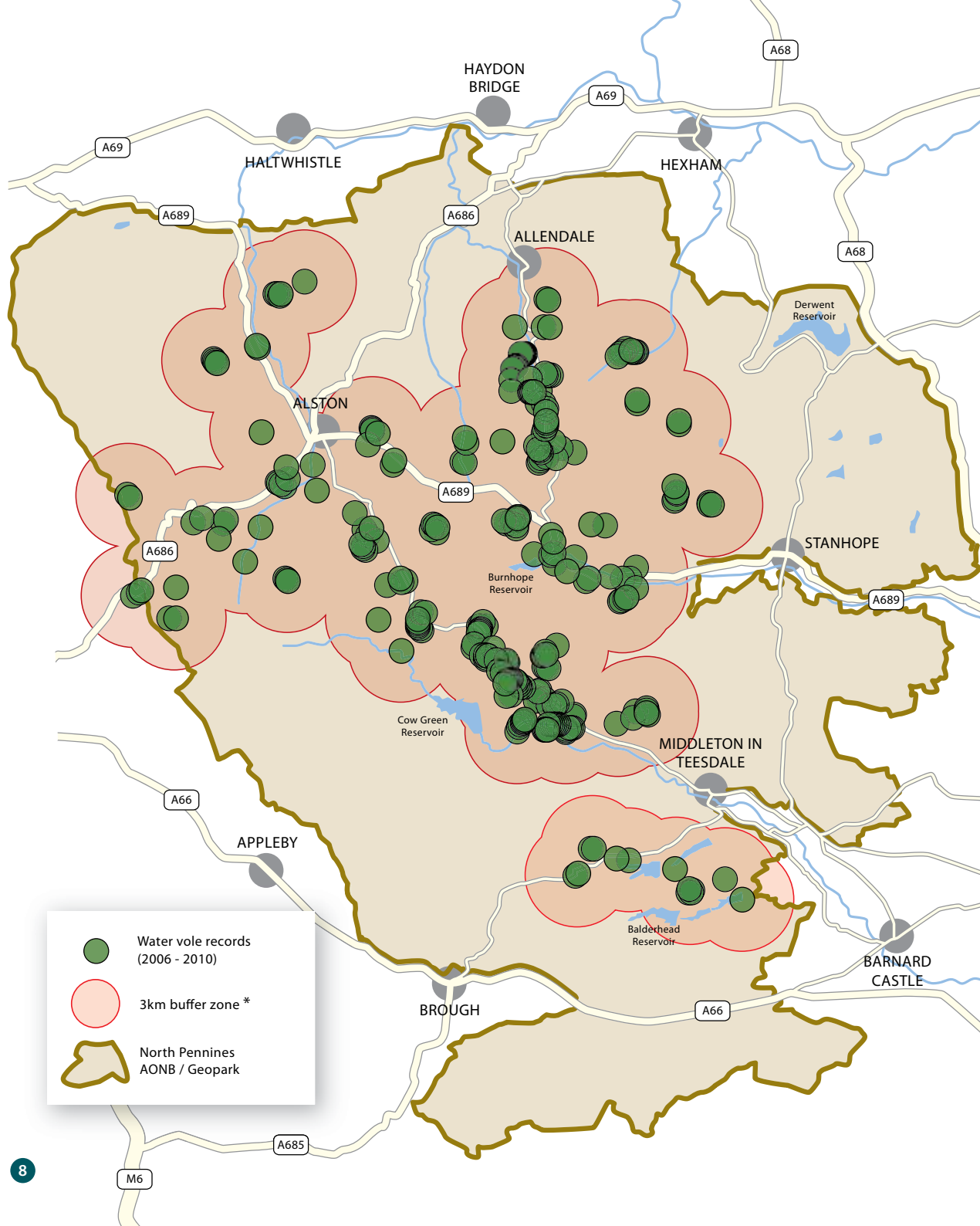
Water voles eat plants, roots and tubers and often create small grazed lawns where they are active. They are particularly fond of grasses and rushes, but many other plants form part of a varied diet. In the North Pennines water voles can be found in waterside habitats from species-rich grasslands to rushy pastures and on heather moorland with mossy stream banks. During winter water voles eat plant roots and stored food such as rushes, which can sometimes be found in neat piles near burrows. Willow scrub can also be a useful food source, and catkins are devoured in spring.

Well-connected areas of suitable habitat

Small colonies are vulnerable to extinction during harsh winters or from sustained attack by predators. For overall population levels across the landscape to remain healthy, empty habitat needs to be re-colonised quickly. To allow this to happen, good water vole habitats need to be linked together so that they can move about without being eaten by predators.

Below: Reservoirs have the advantage of a stable water level even in storm conditions. This reservoir at Allenheads also has good bankside vegetation





Where do we find water voles?

A quick glance at the current distribution map shows that water voles are now mainly found in the upper reaches of our rivers. They are found in a wide variety of habitats from main rivers to moorland ditches, as well as reservoirs and fast running fell streams. They also use stone drains in pasture and meadows, emerging to eat the grass where there is a break in the drain.

Not all of our rivers, streams and ditches are suitable for water voles. Some lack the steep banks needed to provide cover, and others lack year-round deep water for escape. Those which are suitable in other respects may be overgrazed or shaded out by trees. However water quality is not a major factor and water courses with a high heavy metal content like the Nent and the Rookhope Burn are still suitable for water voles.

We think water voles were once widespread in the North Pennines, occupying downstream areas where the habitat and climate are more favourable to them. Colonies in these areas have now disappeared.

The continued presence of water voles in the upper reaches of our rivers and streams is due to a number of factors, including the availability of lots of well-connected habitat and low numbers of predators in some areas. The uplands are not ideal habitat for mink so numbers of this predator may be naturally low. Also, more intensive gamekeeping in and around grouse moors keeps down numbers of common predators such as stoats, as well as any invading mink.

** The 3km buffer zone drawn around water vole records is a simple illustration of the area where water voles are most likely to be found.*

Threats to water voles

Predators

Water voles have evolved alongside a number of predators and have strategies for dealing with them. Water voles can swim and so often escape from land-based predators such as stoats, foxes and cats. Swimming predators like otter and bird predators such as herons and owls are too large to fit down water vole burrows.

However, the introduced American mink can not only swim, but the female can fit down a water vole burrow. Although all predators can have an effect on water vole numbers, one female mink can wipe out several water vole colonies in a season.

Domestic cats can also have a significant local effect on water vole colonies.

Grazing animals

Grazing animals can cause problems for water voles caused by reducing long vegetation at the water's edge when stock numbers are too high, and by the trampling of burrows, especially by cattle.

Below: Heavy grazing has reduced the cover available for water voles



American mink
© Essex Biodiversity
Partnership

Barn owl
© www.northeastwildlife.co.uk



Forestry and woodland planting

Some otherwise suitable stream habitats are made uninhabitable by dense plantations or woods. Woodland (even low density scrub planted for black grouse) eventually shades out the ground vegetation which provides food and cover for water voles.

Ditch clearance

Without ditch clearance, good water vole habitat may eventually silt up and disappear. However, although ditch clearance is vital for the maintenance of good water vole habitat, it has to be done sensitively. Ditch clearance also has to have regard to the law as water voles and their habitat are now fully protected by the Wildlife and Countryside Act (see page 15).

Below: Willow has completely shaded out parts of this water vole site on the River East Allen



Above: Birch and willow scrub beginning to shade out a water vole habitat



What can land managers do?

Pasture

Where vegetation is short along watercourses, consider fencing to reduce grazing pressure. Low grazing pressure should be maintained to avoid the development of scrub.

Hay meadows

Hay meadows often contain some of the strongest water vole colonies, leave at least a two metre margin along all ditches and streams when cutting for hay. Aftermath grazing should not be a problem unless it is very intensive.

Woodland planting

Avoid woodland planting within ten metres of any watercourse which holds water voles or which has the potential to do so. Isolated tree planting is acceptable. Groups of trees and shrubs on the eastern and western flanks of north-south orientated streams will have a particularly serious impact by effectively reducing the day length for water voles in these areas.

Consider removing or thinning out trees which have been planted too close to a watercourse which could support water voles.

Above: New fencing in Upper Teesdale will allow this stretch of water to be colonised by water voles, which are already in neighbouring fields



Above: A hay meadow stream with good marginal vegetation for water voles. Where no margin is left after haytime (below), water vole burrows are exposed to predators



Left: Conifer plantation which has excluded water voles on an otherwise suitable watercourse

Right: Conifers have been cleared to allow more light onto the banks of this stream in Allenheads, adjacent to existing water vole colonies



Ditch maintenance

Any ditches which hold water year-round in upland reaches of the Tees, Wear, South Tyne, Derwent and East/West Allen have the potential to support water vole colonies, and until surveyed should be treated as if they do. Ditch clearance should follow these guidelines:

- ◆ Do not clear all ditches on a holding in one year
- ◆ Clear from one side of the ditch only
- ◆ Clear the bottom of the ditch rather than the sides
- ◆ Ensure cleared ditch retains steep banks
- ◆ Ensure cleared ditch runs in a series of steps and falls - this kind of profile is more likely to retain pools of water during low water flows

A detailed advice note for land managers is available from www.northpennines.org.uk



Top: Maintenance on both sides of the ditch at the same time has destroyed this water vole habitat

Above: Ditch maintenance creating shallow edges is good for wading birds but provides little cover for water voles. The gradual incline in this newly cleared ditch creates no deep water

Spotting water voles



Above: The water vole has much blunter features than the rat (below) which has clearly prominent ears and a longer tail



Both images © www.northeastwildlife.co.uk

Reports of sightings or signs of water voles are always useful in helping us keep an eye on our water vole populations. The North Pennines AONB Partnership organises a water vole monitoring programme staffed by volunteers. Please get in touch if you would like to help.

How to recognise water voles and their signs

Water voles are small plant-eating mammals the size of rats, for which they are often mistaken. Water voles have blunter features than rats and have a shorter, hairy tail.

Water vole tracks can be a good feature to look for if there is sufficiently smooth mud for good prints, but without care they can easily be confused with rat tracks.

The most unmistakable sign of water vole activity is the presence of droppings, often several together in latrines which mark their territory. Droppings are about 12mm long with rounded ends and smell of mown grass or are odourless. Latrines are commonly found on flat rocks in the stream or flat areas of mud and moss beneath overhanging banks.



Water vole



Left: These are the left fore and left hind footprints of the water vole shown at actual size. Notice that the pad pattern and spread differs from the rat (below)



Brown rat



Left: These are the corresponding brown rat footprints, also shown at actual size

Right: A typical water vole latrine; each dropping is about 12mm long



Water voles and the law

Water voles have been fully protected under Section 9 of the Wildlife & Countryside Act since April 2008. This effectively means that water voles and their habitat are protected.

Amongst other things this legislation has implications for people maintaining ditches. Ditch clearance can be carried out in areas where water voles are known or assumed to be present, but only if certain guidelines are followed. Without following these guidelines an offence may be being committed. We have produced a detailed advice note on ditch maintenance which is available from www.northpennines.org.uk

This leaflet reflects our current knowledge of water voles in the North Pennines following three years' work by the AONB Partnership. It describes where they can be found, what they need to survive and how you can help.

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