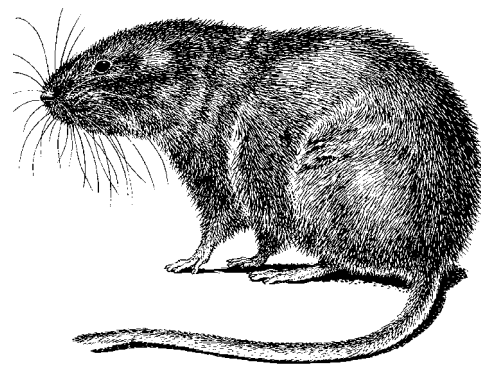


# Water voles

*By the end of the 20<sup>th</sup> century water voles had disappeared from over 90% of known sites - making them Britain's fastest declining mammal.*



## Ecology

The water vole (*Arvicola terrestris*) is the largest of the British vole species weighing between 225-310g. Although often mistaken for rats, they are significantly different: a rich brown shaggy coat, a blunt nose, short furry tail and small ears are just some of the differences.

Other characteristics:

- ◆ Occupy a linear home range of between 60 – 300m for males and 30 - 150m for females depending upon habitat quality.
- ◆ Home ranges are marked by piles of droppings (latrines). Droppings are odourless, 8-10mm length, 4-5mm width and often dark green.

- ◆ Breeding season is March to October during which time 2-5 litters of 5-8 offspring will be reared.
- ◆ Burrows are 4 – 8cm in diameter, found on the bank or within 5m of bank edge.
- ◆ No spoil or areas around burrows unlike rats.
- ◆ Water voles consume reeds, grasses and sedges, often leaving neat piles of cut vegetation.

## Habitat description

As their name suggests, they are at home on and by water, inhabiting slow flowing rivers, ponds, canals and drainage ditches. Other habitat requirements include a steep sided

bank in which to make their burrows for shelter and breeding, and lush vegetated banks on which to forage for their largely herbivorous diet.

Although water voles are found on some of Greater Manchester's urbanised and heavily modified rivers, brooks and canals, it is large scale wetland landscapes with ponds, reed beds and interconnecting ditches and brooks that will provide refuge from predators and opportunities for colonisation, which is essential to the recovery of this species.

## Current status and distribution

### National

The water vole was once common and widespread in Britain. A repeat of the 1989-90 National survey carried out in 1996-98 found that the water vole had been lost from over 89% of the sites it occupied in 1939, with a marked and steep decline in the last 25 years (Strachan et al, 2000).

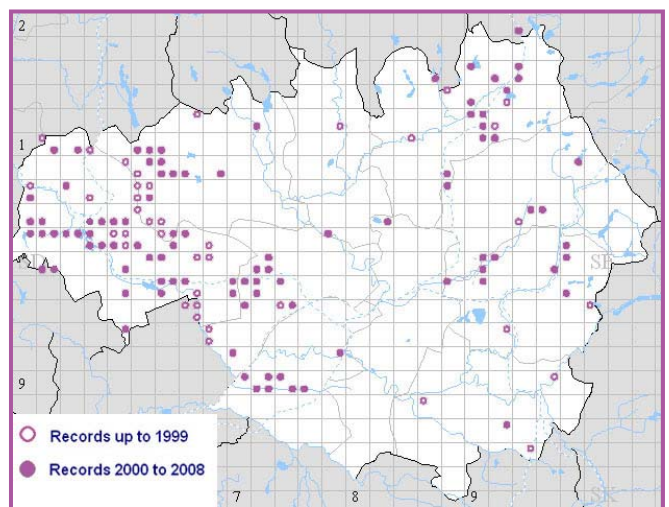
### Greater Manchester

Water vole populations are widespread and locally common in Greater Manchester, although populations are often fragmented and susceptible to local extinctions.

The records mostly indicate that water vole populations across the 10 boroughs are relatively sporadic and isolated. There are

## Water voles

exceptions: robust populations exist in and around the areas between Wigan and Pennington Flashes; throughout the streams and ditch network of the Mosslands in the east of the Trafford and Salford borough and in the headwaters and tributaries of the Roch, Irwell and Tame. The challenge for the BAP is to enable these populations to expand.



Water vole distribution in Greater Manchester

## Factors affecting the species

Water vole populations have declined in the long term due to agricultural practices such as intensive livestock grazing and land drainage. More recently river culverts and hard walled revetments, lack of suitable management and population fragmentation caused by development pressure, have contributed to the dramatic decline in population. Pollution and persecution, where water voles are perceived as rats or

damaging banks, have also caused decline. Most significantly already depressed water vole populations have suffered predation where whole colonies have been wiped out by American mink (*Mustela vison*) – see [Impact of invasive species](#).

### Greater Manchester

Increasing development pressures on the edge of towns is a problem within Greater Manchester for water vole. It can lead to increased and faster surface water run-off, flooding out burrows before water voles have a chance to escape. This may further be exacerbated by the impacts of climate change with increased flooding events. When rivers are heavily engineered, or have mink present, water vole rely on wetland areas and adjacent habitats, such as ponds for survival. These can also be at risk from developments that reduce the availability of wetland habitat for water vole to take refuge.

Mink have caused localised extinction within Greater Manchester. At Hollinwood Branch Canal SSSI, for example, mink destroyed the local population in early 2000's. However, mink control can be difficult in public places, although a control project is currently being proposed in the Mersey Valley.

Management of marginal vegetation along the watercourse can also affect water voles

in Greater Manchester. Overgrazing particularly by horses, can also be a problem but can be improved through bank fencing, although if there is no management of the banks it can lead to scrub development and the loss of water vole habitat

### Legal

Since 6<sup>th</sup> April 2008 water voles have become fully protected under schedule 5, section 9, of the Wildlife and Countryside Act 1981.

### Current actions

#### ◆ Northwest Lowlands Water Vole Project.

This is a three-year project that began in April 2008 and is funded by SITA, the Environment Agency and the Greater Manchester Ecology Unit. It covers the lowland areas of Lancashire, Merseyside, Cheshire and Greater Manchester. The projects objectives are:

- *Survey and monitor water vole populations*
- *Collate and map data to identify prime sites for habitat management*
- *Targeted landowner liaison and habitat management work*

- *Recruit and train volunteers.*

During 2008 the project carried out 70 surveys across Greater Manchester including, Wigan, Salford, Stockport, Trafford, South Manchester and West Bolton. Results from these surveys indicated presence at 37 sites, with 33 sites showing no signs of water voles.

- ◆ Creation of ditches and pools across Wigan Flashes funded by the Environment Agency as mitigation for the proposed Haigh Plantations flood defence works.



Halton Moss – Ideal water vole habitat

- ◆ Habitat creation opportunities throughout Mosslands (Salford) where Lancashire Wildlife Trust have bought

and leased mosslands for restoration. Officers will survey these sites for water voles in the 2009 season and advise the Wildlife Trust for North Merseyside, Manchester and Lancashire as to how to proceed with restoration.

#### ◆ Environment Agency

The National lead partner organisation for water vole conservation.

- ◆ As part of any development involving riparian systems, the Agency seeks to improve and enhance the river corridor habitat. This will continue and be further strengthened by targets in the Water Framework Directive to get catchments to good ecological status by 2027.
- ◆ Key role in protecting populations through river maintenance programmes and flood risk works to ensure works do not detrimentally impact on known populations and seek to enhance the habitat where feasible.
- ◆ The Agency also work in conjunction with key external wildlife organisations, such as, Natural England, GMEU and the Wildlife Trusts, to ensure all new riparian development protects and where feasible enhance the aquatic

environment, such as Kingsway, Stamford Brook (Altrincham).

### ◆ Kingsway

This large 180ha site was granted permission by Rochdale MBC for a regional business park in 1999. The Council, GMEU, Environment Agency and the development consortium have all worked together to try to ameliorate the impacts of the proposals on the water vole population. This has involved:

- ◆ The establishment of a detailed mitigation package of trapping and relocating water voles.
- ◆ The creation of lengths of new ditches adjacent to the course of the Stanney Brook.
- ◆ Using ecological design principles in the formation of one of the flood attenuation ponds to incorporate habitat for water vole.
- ◆ Creation of swales adjacent to some of the roads, which hold water and provide additional habitat and connectivity across the site.
- ◆ Establishment of a captive breeding programme at Chester zoo.

To date the results of the programme have been:

- ◆ The establishment of a relocated population of water vole at Healey Dell SBI by the reintroduction of approx 45 water vole.
- ◆ The colonisation of the newly created ditches on Stanney Brook.
- ◆ The extension of the existing water vole population along the entire length of Stanney Brook.

The development of the site is likely to be over a 20-year period and several phases of development. Although the bulk of the water vole mitigation work has been completed, there are still areas of habitat on the site suitable for the species, which are being monitored and may be impacted by future works. In addition, there is a commitment to manage and monitor the site and its water vole populations for a number of years.

## Objectives and targets

Objective	Target	Quantity	Target date
Establish current population and range	Continue surveys and monitoring of the lowland area, but also include other areas of Greater Manchester such as, Oldham and Rochdale.	Third of the North West Lowlands area. For areas outside the Lowland project, aim for a quarter of the 1km grid squares, including 2km of optimal riparian habitat.	2010
Expand range	Identify sites for habitat creation and linking between suitable habitats	10 new sites	2015

## Proposed actions

- ◆ Raise awareness of water vole, its decline, and how to identify and survey them, by running 5 workshops and training sessions that will train 100 volunteers. [NWLWP, CWT, LWT. 2010](#)
- ◆ Survey and monitor a third of all suitable water vole habitat in the Northwest Lowlands Project area. [NWLWP, CWT, LWT. 2010](#)
- ◆ Identify 10 sites for habitat management that connect existing water vole populations with habitats to colonise. [NWLWP, CWT, LBM's. 2015](#)
- ◆ Through Higher Level Stewardship bring 5 upland farms with suitable habitat into positive management for water vole. [NE, LBM from Rochdale, Oldham and Bury. 2015](#)
- ◆ Update water vole records through surveys and coordination with the GM Local Records Centre and integrate appropriate safeguarding actions within proposed capital works on rivers. [NWLWP, EA, LA's. 2015](#)



- ◆ Identify all sites in Greater Manchester that support significant populations or clusters of populations. Monitor for mink near to these key populations and control where appropriate. **NWLWP, CWT, LWT, GMEU, GMBP, LBM, EA. 2012**
- ◆ Rivers that are maintained by other bodies, such as Local Authorities and Private Landowners, should ensure they comply with existing environmental legislation and improve maintenance to benefit water vole populations where possible. **NWLWP, GMEU, LA's. Ongoing**
- ◆ Ensure species protection and sites that support populations are safeguarded through the local planning system. **GMEU, LBM's, EA, NE. 2012**
- ◆ Seek habitat improvement and creation opportunities through 2 regionally important strategies: Green Infrastructure (Red Rose Forest) and North West River Basin Management Plan (Environment Agency). **EA, LBM's, CWT, LWT. Ongoing**

### Lead Partners

<b>CWT</b>	Cheshire Wildlife Trust
<b>EA</b>	Environment Agency
<b>GMBP</b>	Greater Manchester Biodiversity Project
<b>GMEU</b>	Greater Manchester Ecology Unit
<b>LA's</b>	Local Authorities
<b>LBM</b>	Local Biodiversity Managers
<b>LWT</b>	Lancashire Wildlife Trust
<b>NE</b>	Natural England
<b>NWLWP</b>	Northwest Lowland Water Vole Project

### Best practice guidelines

Only with the targeted and coordinated restoration, recreation and reconnection of extensive areas of riparian habitat together with mink control, where appropriate, will populations begin to recover. Wigan Flashes provides a good example of wetland habitat creation on areas of former industrial site, such as Scotsman's Flash and the Hawkley Hall reed bed. It has benefited many species especially water vole, where the large area of interconnecting lakes, reedbeds, brooks and ponds provide refuge from predation.

An extensive selection of case studies and best practise can be found in the Water Vole Conservation Handbook (Moorhouse & Strachan, 2006).

## Impact of invasive species

**American mink (*Mustela vison*)** escaped from fur farms in the 1950s and are now well established as breeding populations across the entire country. They are particularly devastating to water voles because not only can they swim and hunt in water but females and juveniles are able to enter water vole burrows and prey on its inhabitants. Mink territories are up to 3km and they can travel up to 40km when dispersing in the autumn. Their impact on water vole colonies is lessened when water voles are able to colonise and take refuge in habitats such as ponds, reedbeds and other wetlands.

**Himalayan balsalm (*Impatiens glandulifera*)** and **Japanese knotweed (*Fallopia japonica*)** are alien invasive species that are now widespread and locally abundant, particularly on river banks, where the flowing water acts as a vector for seed dispersal and movement of viable propagating material. Both species are able to dominate the bank side vegetation reducing the diversity of bank vegetation and therefore limiting foraging opportunities for water vole.

## Water voles

### Further information on control of invasive species can be found at:

Great Britain Non-Native Species website.  
[www.nonnativespecies.org](http://www.nonnativespecies.org)

[American Mink Raft](#) The Game Conservancy Trust

[Mink Advice](#) - DEFRA Rural Development Service

[Himalayan Balsam Advice](#) – Centre for Ecology and Hydrology

[Japanese Knotweed Advice](#) - Centre for Ecology and Hydrology

[Invasive species information and control measures](#) – Environment Agency

### Links to relevant BAP's

Reedbeds & Bittern

Ponds & Lodges

Lowland Mosslands

### References

Burnham, D. & Macdonald, D. 2008. *The State of Britain's Mammals*. Oxford: WildCRU.

Moorhouse, T. & Strachan, R. 2006. Water Vole Conservation Handbook. 2<sup>nd</sup> ed. Oxford: WildCRU

Strachan C, Strachan R, Jefferies DJ, 2000; Preliminary Report in the Changes in the Water Vole population of Britain as shown by the National Surveys of 1989-90 and 1996-98. Vincent Wildlife Trust & JNCC.

### Acknowledgements

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