



UPDATED PLAN DECEMBER 2021

WATER VOLE

Arvicola amphibious

1. INTRODUCTION

Made famous as 'Ratty' in "[The Wind in the Willows](#)", the water vole is now the most threatened mammal in the UK, having disappeared from many parts of the country where it was once common. Once a common sight in Warwickshire, the water vole is now very much on the brink of extinction, having declined by as much as 95% in the county and in the UK as a whole. Reed beds appear to be an important refugia from predation by mink (*Neovison vison*).



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It is primarily associated with slow-flowing rivers, streams, ponds, lakes, canals and ditches; it can also be found in marshes, reed beds and areas of wet moorland. Much bigger than other voles, 20cm long with a tail of 11cm and weighing 80-180g, it is distinguished from the larger brown rat by its chestnut-brown fur, rounded nose, small rounded ears that do not protrude from the fur and its furry tail. If startled, a water vole will jump into the water with a distinctive plop which is often the way it is noticed that they are there. The species has an average lifespan of 1.5 years.

Water voles are predominantly herbivorous, eating 80% of their body weight a day and favouring open vegetation with luxuriant marginal / emergent plants and bank-side grasses, reeds and sedges; they will also eat apples. However, a mosaic of vegetation is important as scrubby species such as bramble and hawthorn supply water voles with food (bark, roots and berries) in the winter and protection from flooding and predators.

Water voles live in colonies, with individuals establishing territories along watercourses and inhabiting burrow systems dug into the banks that can extend for 70m. A series of subterranean 'high-rise' apartments allows the voles to move ahead of a rise in water levels, illustrating the importance of steep river banks for making burrows (Woodroffe, 2014). There are tunnel exits, or entrances, at various levels to allow escape from predators into, or from, the water and also from the burrow system during flooding. Stable water levels of at least 0.3m depth all year round are essential to keep burrow entrances and bolt holes below water and safe from terrestrial predators such as stoats & weasels. Banks must also be high enough so that some burrow systems will remain dry in periods of flooding.

One of the key indicators of the species' presence is the tennis-ball-sized burrow entrance which can generally be found throughout the bank, often with a nibbled 'lawn' of grass around the entrance. Water voles like to sit and eat in the same place, so piles of nibbled grass and stems may be seen by the water's edge, showing distinctive 45° angled-cuts at the ends. 'Latrines' of rounded, cigar-shaped droppings with which they mark their territories may also be found.

2.	OBJECTIVES	TARGETS
Associated Action Plans are: 'Allotments', 'Rivers & Streams', 'Ponds', 'Marsh & Swamp', 'Lakes & Reservoirs' and 'Canals'		
PLEASE CONSULT THE ' GENERIC SPECIES ' ACTION PLAN IN CONJUNCTION WITH THIS DOCUMENT FOR OBJECTIVES COMMON TO ALL SPECIES PLANS		
A.	Maintain the size of all viable populations known to be remaining in the county in 2013.	ongoing
B.	Increase population size and range by encouraging the expansion of existing populations in the county.	ongoing

3. NATIONAL BAP OBJECTIVES & TARGETS

The water vole is on the current [UK Biodiversity Action Plan \(BAP\) Priority Species list](#) published in 2007 by the Joint Nature Conservation Committee. The targets and objectives for the Water Vole BAP were updated in 2010.

4. CURRENT STATUS

Once common and widespread in lowland England, the water vole (*Arvicola amphibius*) has suffered an accelerating decline in numbers and distribution throughout the last century. The intensification of agriculture in the 1940s and 1950s caused the loss and degradation of habitat but the most rapid period of decline was during the 1980s and 1990s as [North American mink](#) (*Neovison vison*), released from fur farms, spread across the country.

The first national survey in 1989/90 indicated that water voles were absent from 68% of the sites where they had been present since 1939 (Strachan & Jefferies, 1993). The second national survey during 1996/98 revealed a further 88% reduction in the population in just seven years. Numbers dropped from an estimated 7.3m in 1990 to 875000 in 1998 (Jefferies, 2003). There was concern nationally of a further decline in 2013 and unfortunately an absence of recording and data in several areas across the country owing to lack of resources.

In 2019 the species, although still widespread and locally common, was considered vulnerable to extinction and in 2020 was classified as 'Endangered' in England and Wales. It is possibly Britain's fastest declining mammal. As the amount of suitable habitat declines and local populations go extinct, water voles become vulnerable to population fragmentation, increasing the rate of local decline. Small isolated populations can also suffer from a loss of genetic variation and a reintroduction programme is underway, also a National Water Vole Monitoring Programme (PTES, 2019).

There are, however, healthy water vole populations in some areas and appropriate management can ensure that good water vole habitat is maintained, and degraded habitat restored to make it suitable again. Increased connectivity between populations, allowing range expansion and dispersal, is also needed for the survival of local populations and can

be achieved through habitat enhancement and restoration of areas adjacent to remaining colonies.

The results of surveys in Warwickshire in 2010 generally reflected the national trend and it was estimated that water vole numbers had declined by as much as 95% over the previous few decades. However, it appeared at that time that there had been an expansion and recolonisation of canals and smaller watercourses in the north of the county, the main *metapopulation* (a regional group of connected populations of a species, connected by occasional dispersal) surviving as a number of fragmented colonies in the Coventry / Nuneaton area, in rivers in Coventry, the [Ashby Canal](#), [Coventry Canal](#) and at Long Marston. Otherwise, with the exception of a few isolated colonies recorded elsewhere (around headwaters in the Cotswold Hills in the south of the county), the water vole seemed to have disappeared from the rest of the county.

In 2018 the situation had substantially changed, partly due to the displacement of mink by the increasing otter population, and also as a result of targeted habitat enhancement, including along the canals, and creation of new wetlands. Although some urban populations had disappeared loss had been compensated for by an increase in range on the Coventry and Oxford canals, with good numbers on the R. Anker and Wem Brook between the Coventry and Ashby canals. The Hawkesbury and Marston junctions of these three canals form an important hub of regional significance, linking these populations to the tributaries of the R. Sowe to the south and to the Oxford Canal's and the Coventry Canal's historic water vole sites which are now reoccupied and expanding. The isolated population on the Noleham Brook which flows into the R. Avon west of Welford on Avon still remains in 2021; an extension of the existing potential Local Wildlife Site (pLWS) at Long Marston to include the drains within the site would facilitate dispersal of this population from Noleham Brook (see **Action PL3**).

4.1 Legal and Policy Status

A wide range of species and habitats are protected under international and domestic laws, including the [Wild Birds Directive](#) (1979), the [Wildlife and Countryside Act](#) (1981), the [Conservation Regulations](#) (1994) and [EC Habitats Directive](#) (1992). Protection of sites is afforded nationally through [Sites of Special Scientific Interest](#) (SSSI) designation, [Special Areas of Conservation](#) (SAC) and [Local Nature Reserve](#) (LNR) statutory status. Other sites are offered recognition of their value through Local Wildlife Site status (LWS), Local Character Areas and identified Landscape Scale Areas. The [National Planning Policy Framework](#) (2012) chapter/section 11 states conditions with regard to any development negatively affecting biodiversity, including protected sites, ancient woodland and other irreplaceable habitats (paragraph 118). The Wildlife & Countryside Act and schedule 2 of the [Conservation of Habitats & Species Regulations](#) (as amendment, 2019, EU exit) make it an offence to intentionally kill, injure, take, possess, sell, buy or transport a range of species.

Since 2008 the water vole has received full protection under Schedule 5 (section 9) of the Wildlife & Countryside Act (as amended) making it an offence to intentionally kill / injure / take / possess / sell / buy or transport any water vole (dead or alive). It is also an offence to damage, destroy or obstruct access to any structure or place used by water voles or to disturb water voles whilst they are occupying such a structure or place.

4.2 Current Factors Affecting the Species

- **Loss and fragmentation of habitat** – rivers, streams and ditches over-developed, re-ditched and canalised, and intensive/inappropriate land management and river and canal maintenance practices have meant the bank structure and / or vegetation required by water voles have been lost.
- **Predation** - primarily by the now widespread population of non-native North American mink which was released / escaped from commercial mink farms, and including domestic animals in particular cats.
- **Disturbance** of colonies through both bankside and water-based activities - frequent mowing of grassland on canal towpaths exposes voles to predators and there is a need to balance their needs of with access requirements and the use of towpaths.
- **Poor water quality** and continued pollution incidents in some watercourses.
- **Poisoning** through mistaken identity and inappropriate use of rodenticides.

5. LOCAL ACTION

- The [Game & Wildlife Conservation Trust](#) offers information on mink control.
- The administration of agri-environment schemes (particularly the [Environmental Stewardship Scheme](#), now [Countryside Stewardship Scheme](#)) by [Natural England](#) has improved the management of riparian / wetland habitats.
- The [Environment Agency](#), through its regulatory responsibilities promotes a wide range of enhancements, relating not only to habitat, but also water quality. The planned flood defence works in the Avon valley west of Welford on Avon, in conjunction with [Heart of England Forest](#) and [Warwickshire Wildlife Trust](#) (WWT), will facilitate the dispersal of the isolated population on the Noleham Brook.
- Enhancement of the Nook, an 8ha site in Bedworth secured on a long term lease by Nuneaton & Bedworth Borough Council, included dredging, planting of 2200 native trees, reed bed creation for nesting birds, mud flats, seasonal flooding / grass areas for invertebrates and bund creation to improve the site for water voles; carried out from 2005-12 in close conjunction with the 'Friends of the Nook' community group and the local community.
- [Butterfly Conservation Warwickshire](#) increased the connectivity of habitat at Marston Junction between the Coventry Canal and adjacent meadows in 2014.
- WWT carries out much of the work in Warwickshire for water voles, which includes:
 - undertaking water vole surveys and monitoring.
 - providing advice to landowners and managers, ensuring appropriate habitat management and promoting habitat creation.
 - advising on mitigation related to developments.
 - providing training and support to a volunteer network.

- raising awareness of the water vole through appropriate publicity.
- a trial re-introduction in 2011 as part of a PhD dissertation organised by Middlemarch Environmental Ltd, at [Brandon Marsh SSSI](#); the population did not survive, thought to be a result of predation by herons.
- the '**Save Ratty**' project 2015-17, in conjunction with Coventry City Council and Nuneaton and Bedworth Borough Council and funded by a Heritage Lottery Fund grant, enhanced the habitat for water vole at 10 sites, through coppicing, hedge laying, scrub management, desilting, bank improvement, installation of coir rolls, invasive species control and the installation of 'motels'. These 1.5m wide platforms planted up with favourite food plants and attached to hard-piled canal banks have been installed on the Oxford Canal; as voles will only travel 1.5 km, 'motels' provide stepping stones of mobile breeding habitat along inaccessible stretches of canal to give access to suitable vole habitat further along the banks; the 'motels' also assist the dispersal of young after the breeding season.
- [Tame Valley Wetlands Partnership](#) (a Heritage Lottery funded project) has promoted the conservation of water voles through improving public awareness and worked alongside the 'Save Ratty' project to produce community information.
- [Canal and River Trust](#) promotes the water vole through appropriate working practices, the planned publication of a corporate BAP and the funding of projects; it has enhanced the habitat for voles on the Coventry and North Stratford Canals by installing coir rolls along hard-piled bank sides which are inaccessible to voles. Where water voles occur, or could expand to, the most appropriate mowing specification is chosen for biodiversity, that leaves cover along the water's edge whilst still maintaining a safe and welcoming towpath for people.
- Habitat Biodiversity Audit (2020): the Ashby Canal has been designated as a Local Wildlife Site in response to an urgent request from Peter Sanders (WWT); a recommendation that it be made a SSSI has been made to Natural England.

6. PROPOSED LOCAL ACTIONS

ACTION	Lead	Partners	By
PLEASE CONSULT THE '<i>GENERIC SPECIES</i>' ACTION PLAN IN CONJUNCTION WITH THIS DOCUMENT FOR ACTIONS COMMON TO ALL SPECIES PLANS			
Policy, Legislation & Protection			
PL1. Where additional viable water vole populations are identified, ensure protection of sites through designation as LWSs.	LWSP	EA NE WWT LAs	ongoing
PL2. Designate the Ashby Canal as a LWS at the earliest possible opportunity as it is a site of regional	LWSP	HBA NBBC	Achieved in 2020

ACTION	Lead	Partners	By
importance, connecting existing populations on the R. Anker and R. Sowe via the Hawkesbury and Marston junctions.			
PL3. Extend the existing pLWS at Long Marston to include drains to facilitate dispersal of the Noleham Brook population.	LWSP	HBA	2021
PL4. Respond to enquiries from parishes concerning the presence of water vole populations so that the information can be included in Neighbourhood Plans.	WBRC	LWSP WWT PCs	ongoing
Site / Species Safeguard & Management			
SM1. Maintain existing populations of water voles on Coventry watercourses, at Long Marston and Lower Quinton, on the River Anker and the Ashby, Coventry and Oxford canals.	CRT	WWT LOs	ongoing
SM2. Ensure management agreements exist for all LWS designated in PL1.	LWSP	EA SDC NBBC CCC RBC NWBC	ongoing
SM3. Consider the habitat requirements of water voles in site management plans, e.g. ditch bank management, including agri-environment schemes.	NE	LAs LOs	ongoing
SM4. Expand existing populations through the sympathetic management and restoration of adjacent habitat, targeting action to: <ul style="list-style-type: none"> • Long Marston and Lower Quinton by 2025 • River Anker by 2025 • on Ashby, Coventry and Oxford canals around Hawkesbury and Marston junctions by 2020 	WWT	EA WCC CRT LOs NBBC SDC CCC NWBC	2020 - 2025
SM5. Continue and extend appropriate mink control programmes to protect existing water vole populations.	WWT	EA CRT LWSP LOs RBC CCC NWBC NBBC SDC TVWP	ongoing
SM6. Identify and create well-managed mink controlled areas on water courses containing suitable habitat for recolonisation by water voles in target areas (see SM4).	WWT	WCC CRT NBBC SDC CCC NWBC	2025

ACTION	Lead	Partners	By
SM7. Connect existing wetland corridors around the Hawkesbury and Marston junctions of the Ashby, Coventry and Oxford canals to encourage recolonisation by water voles in previous strongholds.	CRT	WWT NBBC	2025
SM8. Trial the use of low-cost habitat improvements, especially on hard engineered canal side.	WWT	CRT LOs EA	2025
Advisory			
A1. Provide advice to key groups, including landowners and managers and relevant authorities, with regard to 'Best Practice' management for the benefit of water voles.	WWT	EA	ongoing
A2. Provide information and strong guidance regarding water vole habitat management, with regard to ditch management in particular.	WWT	EA NE PCs LWSP CRT LOs SDC CCC RBC NWBC NBBC	ongoing
A3. Circulate best practice guidance to all appropriate organisations to raise awareness of the differences between brown rats and water vole to aid correct identification and the threats posed to water voles by the use of rodenticides.	WWT	CRT NBBC SDC CCC RBC NWBC	ongoing
A4. Provide habitat management / restoration advice for sites adjacent to water vole LWSs.	NE	HBA WCC WWT	ongoing
Research & Monitoring			
RM1. Monitor remaining water vole populations by checking 20 key sites on an opportunistic basis.	WWT	EA NBBC CCC SDC NWBC RBC	ongoing
RM2. Survey all sites with historic records from the last 10 years, on an opportunistic basis.	WWT	WBRC	ongoing
RM3. Monitor the effectiveness and success of habitat enhancement and mitigation works undertaken, especially low-cost habitat improvements on hard-engineered canal side, e.g. at Hawkesbury and Marston junctions.	WWT	CRT EA LOs	ongoing
RM4. Maintain the digitised 'Alert' map re key water vole sites regarding management of watercourses,	HBA	WWT PCs	ongoing

ACTION	Lead	Partners	By
and in particular ditches, and circulate to the landowners.			
Communication, Education & Publicity			
CP1. Recruit and retain key volunteers to undertake water vole surveys.	WWT		ongoing
CP2. Organise water vole survey training.	WWT	WBRC	ongoing

Abbreviations: CRT – Canal & River Trust, CCC – Coventry City Council, EA - Environment Agency, HBA – Habitat Biodiversity Audit partnership, HOs – Homeowners, LAs – Local Authorities, LOs – landowners, LWSP – Local Wildlife Sites Project, NE – Natural England, NBBC – Nuneaton & Bedworth Borough Council, NWBC – North Warwickshire Borough Council, PCs – Parish Councils, RBC – Rugby Borough Council, SDC - Stratford District Council, TVWP - Tame Valley Wetlands Partnership, WBRC – Warwickshire Biological Record Centre, WCC – Warwickshire County Council, WWT – Warwickshire Wildlife Trust.

7. PROGRESS WITH ACTIONS

From 2015–2020 there will be a rolling programme of reporting on progress, of 10 action plans per year with an annual summary of results. Progress with this plan up to 2018 can be seen at <https://www.warwickshirewildlifetrust.org.uk/LBAP>.

8. BIBLIOGRAPHY

Roder, S.R. (1962) Water voles (Animals of Britain no.4), Sunday Times Book Publication.

Strachan, R. & Jeffries, D.J. (1993) The water vole *Arvicola terrestris* in Britain 1989-1990: its distribution and changing status. London. The Vincent Wildlife Trust.

Strachan, C., Strachan, R. & Jeffries, D.J. (2000) Preliminary Report on the Changes in the Water Vole Population of Britain as Shown by the National Surveys of 1989-1990 and 1996-1998 The Vincent Wildlife Trust.

PTES 'Reversing the Water Vole Decline I' (2001-03) and 'Reversing the Water Vole Decline II' (2003-06)

Jones, M. (2001) Water Vole Survey 2001 – The Distribution of the Water Vole in the Warwickshire Avon Catchment. Unpublished (Warwickshire Wildlife Trust).

Jefferies, D.J. ed. (2003) The water vole and mink survey of England 1996-98 with a history of long term changes in both species and their causes. London. The Vincent Wildlife Trust.

FWAG (2004) Restoring Voles and Other Biodiversity to the Wider Countryside. WildCRU, University of Oxford, South Parks Road, Oxford, OX1 3PS

RSPB (2007) [Farm Wildlife Handbook](#) available online or tel. 01234 263616

MacPherson, J. & Bright, P. (2009) Reversing the Water Vole Decline III: Evidence-based expansion of the National Key Sites series, extension of restoration around existing sites and development of sustainable recovery.

Lawton, J.H. (2010) [Making Space for Nature](#): a review of England's wildlife sites and ecological network. Report to Defra, advocating a landscape-scale approach guided by four key principles, summarised as '*more, bigger, better and joined*'.

Defra (2011) [Biodiversity 2020](#): A strategy for England's wildlife and ecosystem services.

Strachan, R. (2011) Water Vole Conservation Handbook. 3rd edition. WildCru, Oxford University.

Woodroffe, G. (2014) Wildlife Reports, p.117. British Wildlife vol.26, no.2.

Gow,D., Strachan,R., Northey,R., Anderson,K. & Campbell-Palmer,R. (2015) Restoring ratty to his river bank. British Wildlife vol.26., no.3, pp.185-193.

RSPB (2016) [State of Nature](#) – a stocktake of all our native wildlife by over 50 wildlife organisations.

Natural England (2016) [Conservation Strategy for the 21st Century](#). Sets out how NE will help deliver DEFRA's ambitions for the environment to reverse biodiversity loss, sustain distinctive landscapes and enhance engagement with nature.

Worldwide Fund for Nature (2018) [The Living Planet Report](#): aiming higher. Published in collaboration with the Zoological Society of London.

Freeman, G. (2020) Wildlife Reports. British Wildlife, vol.32, no.2, p127.

9. FURTHER INFORMATION

Habitat Biodiversity Audit (HBA) for Warwickshire, Coventry & Solihull – mapping data set and associated information. Phase 1 ([JNCC](#)) 1996-2002 and Phase 2 (Local Wildlife Sites) ongoing.

['Water Vole'](#) (2021) The National Water Vole Monitoring Project for Britain's fastest declining mammal.

[Cumbria Wildlife Trust Water Vole Project](#):

[Mersey Basin Campaign](#)

10. CONTACT

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