WATER VOLE

Arvicola terrestris

Hampshire Biodiversity Partnership

SPECIES ACTION PLAN

1 INTRODUCTION

The water vole is the United Kingdom's most rapidly declining mammal species: it has been lost from 94% of sites this century[7]. The water vole is listed in the UK Biodiversity Steering Group report as a priority species for conservation action. A species action plan for water vole was published as part of Tranche 1 of UK action plans in *Biodiversity: The UK Steering Group Report*, Volume 2 (page 82).

South-east England is the national stronghold for the species and Hampshire probably contains the highest populations within the region.

2 CURRENT STATUS

2.1 Ecology and Habitat Requirements

Water voles occur most frequently along the fringe of densely vegetated watercourses such as rivers, streams, canals, ditches and dykes. They are also found on ponds, lakes and gravel pits, although isolation of such habitats may be a barrier to colonisation. Water voles occur in both upland and lowland regions but do not normally occur in areas where water is only seasonally available. They are intolerant of brackish water.

Water voles are herbivores and rely upon macrophyte growth for most of their diet. They feed on a wide variety of plants but frequently exhibit a habitat preference for areas with extensive tall wetland plants such *Phragmites, Phalaris, Carex, Glyceria* and *Sparganium*.

Water voles normally inhabit burrow systems dug into banks, which are frequently complex with entrances both above and below the water level. Steep banks above the highest normal water level are generally important for good populations. Occasionally in the absence of sufficient suitable bank they are known to construct large domed nests in waterside vegetation.

The basic ecology of water voles is still poorly understood. They are rodents with a high reproductive rate, naturally high mortality and are subject to high predation: the introduced American Mink is believed to have contributed significantly to their current decline.

2.2 Population and Distribution

The water vole occurs throughout continental Europe, but not always associated with areas of water as in the British Isles. The species was previously widespread across Britain, ranging from the extreme north-east of Scotland to the westerly tip of Cornwall. Despite this widespread distribution, population trends are very disturbing. The rate of decline nationally is increasing and many populations are now very small and highly fragmented.

Within Hampshire there are still large populations in many areas, although there is evidence of a decline in some parts. The water vole still occurs on all of the main river catchments in Hampshire[3]. The only catchment that has been systematically surveyed is the River Itchen, and here there are large unfragmented populations of national importance[2].

2.3 Important Sites

Within Hampshire the River Itchen is a site of key importance[2]. The other main river catchments support water voles and also constitute important sites[3]. Detailed catchment based survey is required to ascertain the exact extent of distribution and degree of fragmentation. However it is clear that Hampshire still constitutes one of the best counties for water voles in England.

2.4 Protection

The water vole is protected under section 9(4) of the Wildlife and Countryside Act 1981 (as amended in 1998), which protects the water vole's burrows and the vole itself whilst in occupation.

SPECIES ACTION PLAN

3 CURRENT FACTORS AFFECTING WATER VOLES

- Predation by the American mink.
- Increasing fragmentation and isolation of populations, decreasing long-term viability.
- Loss of suitable habitat due to inappropriate or lack of management. For example, high intensity grazing destroys vegetation and bank structure, and extensive tree growth casts shadows on the river channel and decreases macrophyte growth.
- Habitat destruction due to riparian engineering works or development.
- Predation and/or competition with brown rats.
- Excessively fluctuating water levels, resulting in seasonally dry habitats or flooding that excludes water voles from burrows.

4 CURRENT ACTION

4.1 National

- The Vincent Wildlife Trust conducted a National survey during 1989/90[4], which was repeated during 1996/97. The results show a 94% decline[7].
- The Environment Agency has consistently funded a variety of survey and research work focusing on habitat and management requirements of the species, and a conservation handbook was published in 1998[5].
- A national captive-breeding programme has been established under the auspices of the Zoo Federation to provide animals for re-introduction and to support research. Sparsholt College in Hampshire are co-ordinating this project.

4.2 Local

- There have been a considerable number of local surveys in south-east England. Survey coverage has been quite thorough in some counties such as West Sussex. The focus for conservation and research work within the region is Hampshire.
- There has been a full survey and report of the River Itchen catchment during 1997[2], and an audit of the species within the county by the Environment Agency and Hampshire Wildlife Trust[3].
- The River Itchen is a site of national importance for research. An intensive trapping and radio tracking study led by Sparsholt College, with the support of the Environment Agency, has been monitoring populations since 1995 and investigating the autecology of the species[1]. Since 1997 detailed research on over-winter mortality and spacing behaviour has been conducted. Research into feeding ecology, disease and parasitology commenced in 1998.
- Much of the riparian corridor management led by the Environment Agency directly benefits water voles. There has been minimal management action in Hampshire specifically for water voles. Regular mink trapping, primarily along the Itchen and Test catchments, also benefits water voles.
- Individual water voles causing high levels of bank damage have been relocated from a number of sites in Hampshire to form the nucleus of a national captive-breeding programme.
- The South East Otters and Rivers Project (SEORP) has heightened awareness of water vole conservation in the region, and promotes riparian management which benefits the species.

5 OBJECTIVES

The overall aim of this Plan is to protect and increase the distribution and population of water voles in Hampshire. This broad aim translates into the specific objectives set out below. Where feasible, objectives have been allocated targets against which achievement can be measured.

The 'Proposed Action' table in section 6 identifies the action to be taken to meet these objectives.

	OBJECTIVES	PROPOSED ACTIONS
A	Maintain existing populations and range of water voles in Hampshire. Ensure no further loss or fragmentation.	**1-6, 9, 15, 17, 19-21**
B	Enhance the status of water voles in Hampshire. Enhance the suitability of riparian habitats currently unoccupied by water voles, to increase distribution and decrease fragmentation of populations.	**1-9, 14, 15, 17, 20, 21**
C	Establish and maintain a comprehensive understanding of water vole distribution, status and ecological requirements within Hampshire through appropriate research, surveying and monitoring.	**7, 10-19, 22**
D	Promote communication, education and awareness of the status and needs of the water vole.	**2, 4, 5, 9, 16-23**

6 PROPOSED ACTION

The following table lists the actions required to achieve the objectives set out in this Plan. Each action has been assigned to one or more 'Key Partners'. Key Partners are those organisations that are expected to take responsibility for the delivery of the actions assigned to them, according to the targets set in this Plan. Other organisations may also be involved in the delivery of action, and they have been indicated in the 'Others' column.

Key to symbols in Action Table:

◆ To be completed by the indicated year. Work can commence at any time before the due date, at the discretion of the Key Partner.
◆➪ Design or production of a plan/strategy to be completed by this year and then followed by its implementation.
➨ To start by the indicated year and usually followed by ongoing work. A start arrow in year 2000 can indicate a new action, or a new impetus to existing work.
➪ Work that has already begun and is ongoing.

	ACTION	DELIVERY BY		YEAR ◆ = complete by ◆➪ = design by and implement ➨ = start by ➪ = ongoing						MEETS OBJ.
		Key Partner	Others	2000	2001	2002	2003	2004	2010	
Site and Species Policy and Protection										
1	In accordance with section 9(4) of the Wildlife and Countryside Act, ensure that future development, drainage or hydrological alteration works fully consider the needs of water voles. Where necessary, carry out appropriate survey and recommended mitigation works.	EN, EA, HCC, DCs	HWT, SCH	➪	➪	➪	➪	➪	➪	A, B
2	Endeavour to take account of the requirements of this species when reviewing and adjusting agri-environments schemes.	MAFF/ FRCA, EA	FWAG, HMAP, EN	➨						A, B, D
3	Identify sites occupied by water voles that are not currently SSSI's and consider designating them as SINC's in the first instance.	HWT, HCC, DCs, EN		◆						A, B
Site and Species Management										
4	Encourage sympathetic management of riparian habitats in river catchments that contain water vole populations.	EA	HWT, EN, MAFF, FWAG,	➪	➪	➪	➪	➪	➪	A, B, D

			LAs							
5	Encourage landowners to take up beneficial land management schemes such as Countryside Stewardship at sites currently containing or adjacent to water vole populations.	FWAG, HMAP, MAFF/ FRCA	EA, Las, EN	➪	➪	➪	➪	➪	➪	A, B, D
6	Implement appropriate mink control in key sites/river catchments supporting water Voles.	EA	NFU/ CLA	➪	➪	➪	➪	➪	➪	A, B
7	Utilise survey and research information to identify unoccupied sites which are, or may become, suitable for supporting water vole populations. Encourage suitable management to maintain and improve these sites.	EA	HWT, SCH, Las	➪	➪	➪	➪	➪	➪	B, C
8	Establish a co-ordinated programme of water vole reintroduction to increase the range of the species or reduce the degree of fragmentation.	SCH	EA, HWT, Las, NFU/ CLA	➨						B
9	Ensure the incorporation of water vole conservation and protection measures within local area management plans such as EA LEAP's, integrated catchment management plans and nature reserve management plans.	EA,	Las, HWT	➨						A, B, D
Research, Survey and Monitoring										
10	Conduct full surveys of all river catchments (excluding the previously surveyed River Itchen catchment) within Hampshire to act as a baseline for monitoring future changes in the water vole population and to focus conservation action.	EA, SCH, HWT`	-	➨						C
11	Following a full catchment survey, conduct three-yearly '25% of catchment' surveys, and annual '10% of catchment' surveys in order to monitor water vole population trends and the degree of fragmentation.	EA, HWT	SCH	◆➪						C
12	Continue the existing and establish new research initiatives on the ecology and conservation requirements of water voles along river catchments within Hampshire.	EA, SCH	HWT, EN Las,	◆➪						C
13	Undertake research on the ecology and dispersal of isolated pond and lake populations of water voles in Hampshire.	EA, SCH	HWT, EN, Las	➨						C
14	Undertake research to establish the most suitable local strategy and protocol for the reintroduction of water voles.	EA SCH	HWT, EN, Las	➨						B, C
15	Undertake research to investigate the nature of the	EA,	HWT,	➨						A, B, C

	predatory/competitive relationship between brown rats and water voles in Hampshire.	SCH	EN, Las							

	ACTION	DELIVERY BY		YEAR ◆ = complete by ◆➪ = design by and implement ➨ = start by ➪ = ongoing						MEETS OBJ.
		Key Partner	**Others**	**2000**	**2001**	**2002**	**2003**	**2004**	**2010**	
Communication, Awareness and Promotion										
16	Facilitate the collation of all distribution and population data and ensure incorporation within appropriate local and national biological databases.	HMR	EA, EN, HCC, HWT	➪	➪	➪	➪	➪	➪	C, D
17	Continue the county water vole working group meetings to maintain the exchange of information between those involved in water vole conservation and research in Hampshire, and to promote management actions.	HWVG		➨						A, B, C, D
18	Encourage the publication of research papers and articles within local and national media to raise awareness of water vole conservation issues and the importance of Hampshire populations nationally.	EA, EN, HWT, LAs		➨						C, D
19	Establish a series of demonstration sites that exhibit good conservation management practice.	EA	NFU/ CLA	➨						A, C, D
20	Ensure that the requirements of the water vole are considered during the production and implementation of other action plans for habitats used by water voles and species with overlapping ranges.	HWT, HCC		➨						A, B, D
21	Conduct a series of presentations to all local authorities in Hampshire highlighting the plight of water voles and appropriate protection and conservation measures.	EA, LA's	HWVG	➨						A, B, D
22	Liase with National Water Vole BAP Steering Group to facilitate exchange of information on research and national issues.	HWVG		➨						C, D
23	Ensure that information on water vole conservation requirements and sympathetic habitat management is available to all riparian owners, managers and users through appropriate workshops and printed guidelines.	EA, LAs, HWT	HWVG	➨						D

KEY TO ORGANISATIONS:

CLA	Country Landowners Association
EA	Environment Agency
EN	English Nature
FRCA	Farming and Rural Conservation Agency
HCC	Hampshire County Council
HMR	Hampshire Mammal Recorder
HWT	Hampshire Wildlife Trust
HWVG	Hampshire Water Vole Group
LAs	Local Authorities
MAFF	Ministry of Agriculture, Fisheries and Food
NFU	National Farmers Union
SCH	Sparsholt College Hampshire

REFERENCES

1 ***Water Voles in Hampshire - A protocol for intensive study***, M J R Jordan, Proceedings of the Water Vole Day, PTES, London, 1996.

2 ***The River Itchen Water Vole, Otter, Mink and Brown Rat Survey***, M J R Jordan, Environment Agency, 1997.

3 ***Audit of priority species of rivers and wetlands - Water Vole* Arvicola terrestris *in South Hampshire***, M J R Jordan, Environment Agency/Hants. Wildlife Trust, 1998.

4 ***The Water Vole* Arvicola terrestris *in Britain 1989-90: It's distribution and changing status***, R Strachan, & D W Jefferies, The Vincent Wildlife Trust, London, 1993.

5 ***Water Voles Conservation Handbook***, R Strachan, EA/EN/Wildcru –University of Oxford, 1998.

6 ***The Mink & The Water Vole Analysis for Conservation***, D Macdonald & R Strachan, EA/Wildcru – University of Oxford, 1999.

7 ***The Water Vole in Britain 1996-1998***, R Strachan, The Vincent Wildlife Trust, London, 1998.

This is one of many Habitat, Species and Topic Action Plans being prepared by the Hampshire Biodiversity Partnership. It will be monitored by the Partnership and fully reviewed and updated in 2004.

This species action plan has been prepared by Mike Jordan and the Water Vole SAP Working Group on behalf of the Hampshire Biodiversity Partnership.

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