Water Vole Survey

Overton Biodiversity Society

www.overton-biodiversity.org

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Introduction

The parish of Overton lies in north Hampshire with the upper reaches of the River Test running through it.

Illustration 1: River Test At Southington

The River Test is designated as a Site of Special Scientific Interest (SSSI). Its SSSI citation describes it as a classic chalk stream and one of the most species rich rivers in England (Natural England website).

Historically the river has been used for a range of purposes including watercress growing e.g. at Southington providing power for watermills such as Town Mill and as a world famous trout fishing stream. Evidence of this can be seen in the weirs and channels scattered along its length as well as the riverside paths providing access for fishing.

The land adjacent to the river forms a mosaic of wet woodland, former water meadows, disused watercress beds and grazing land some of which is now unused.

Bankside vegetation includes alder (*Alnus glutinosa*) and willow (crack willow - *Salix fragilis* and Sallow – *S. cinerea*), lesser pond sedge (*Carex acutiformis*), reed canary grass (*Phalaris arundinacea*), reed sweet-grass (*Glyceria maxima*), greater tussock sedge (*Carex paniculata*), common reed (*Phragmitis australis*) and bulrush (*Typha latifolia*). Where present, these species provide an appropriate habitat for water voles.

The water vole (*Arvicola terrestris*) was once regarded as abundant within the area but is now thought to have declined significantly.

Object of Survey

The object of this survey was to examine the entire length of the River Test within Overton parish searching for signs of the presence of water voles by looking for evidence of water vole activity such as feeding sites, latrines, burrows or pathways. The survey would also form the basis for making suggestions on how riverside habitats could be maintained or improved for water voles.

Techniques

An on-site initial training session was run by Dr Jon Benge of Sparsholt College to familiarise volunteer surveyors with survey techniques and recording. Volunteers working in pairs then examined the river banks and associated ditches for signs of the presence of water voles (sightings, latrines, burrows, feeding sites and passageways – appendix 1).

The survey took place between October and December 2006 and the results were recorded on a standard survey form (appendix 2).

Illustration 2: Burrow

Illustration 3: Latrine

Illustration 4: Signs of Feeding

Results

Table 1: Survey Results

Section number	Grid Reference (SU) Start	Finish	Distance (m)	Sightings	Paths	Latrines	Burrows	Feeding Sites
1	49824940	50204946	300	1	0	1	4	13
2	50204946	50334959	300	0	0	3	1	8
3	50334959	50684973	300	0	0	1	5	4
4	50684973	51104988	200	0	0	0	0	0
5	51104988	51364979	400	0	1	1	14	9
6	51364979	51534975	150	0	4	1	0	1
7	51534975	51654990	200	0	2	12	8	12
8	51654990	51615000	100	0	1	8	3	10
9	51615000	51565030	300	0	1	8	6	11
10	51565030	51785029	300	0	0	1	2	1
11	52045024	52135028	150	0	0	0	2	3
12	52135028	52245035	150	0	4	9	0	21
13	52245035	52355050	150	0	0	1	8	12
14	52355050	52785051	500	0	0	1	2	1
15	52785051	53424990	600	0	0	0	0	0

Figure 1: Overton Water Vole Survey

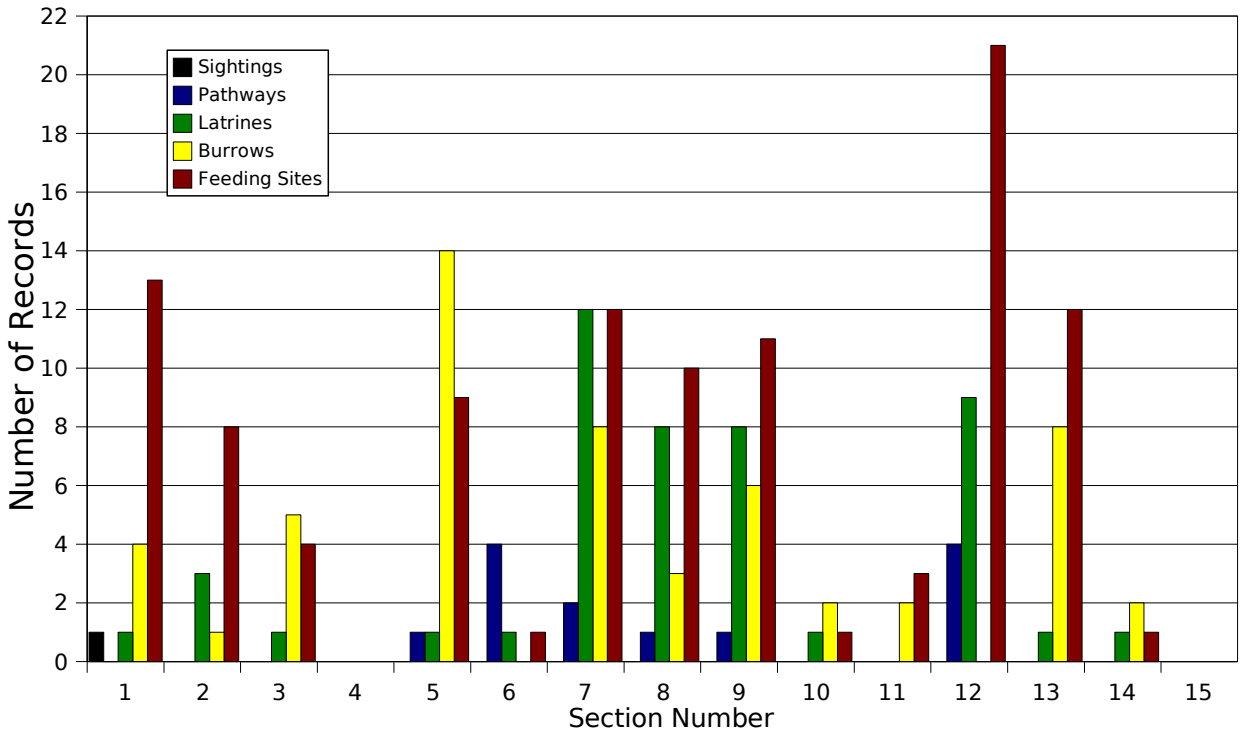

Table 2: Comments

Section Number	OS Grid Reference. (Sheet SU)	Comments
1	49824940 50204946	Laverstoke Park. Upstream from parish boundary (old water mill) to below Northington Farm. 1 sighting of water vole. Numerous feeding sites including fresh feeding. Fresh droppings.
2	50204946 50334959	Laverstoke Park. Below Northington Farm to Boundary with Southington Mill. Numerous feeding sites and 3 latrines.
3	50334959 50684973	Southington Mill. 1 latrine south bank opposite mill. Burrows and feeding sites around lakes and upstream of mill.
4	50684973 51104988	Southington Lane up to footbridge and weir below Southington House. No signs of water-vole presence. Woodland and trimmed banks. Areas of sedge recently cut.
5	51104988 51364979	Southington House to Bridge Street. Numerous burrows on south side. Feeding sites associated with sedge clumps.
6	51364979 51534975	Bridge Street – Kingsclere Road. River banks steep and lined with brick and stone. 1 latrine and 1 feeding site.
7	51534975 51654990	Kingsclere Road – Station Road (section 1). Good conditions for water-voles along south bank with widespread evidence of presence. Also present on north bank but limited by habitat damage, disturbance and less suitable vegetation.
8	51654990 51615000	Kingsclere Road – Station Road (section 2) - As for 7.
9	51615000 51565030	Kingsclere Road – Station Road (section 3). Woodland on north bank restricting suitable sites, sedges on south bank encourage feeding and latrine sites
10	51565030 51785029	Kingsclere Road – Station Road (section 4). Limited signs of presence due to shade from woodland and lack of suitable bank side vegetation. Burrows and feeding site on adjacent ditch close to Station Road.
11	52045024 52135028	Woodland to east of Station Road. Lack of suitable vegetation limiting number of sites.
12	52135028 52245035	End of woodland to east of Station Road to point opposite woodland boundary north of road. Suitable conditions on both banks with extensive feeding sites. Ditch running south of section 2 along fence line. Very overgrown with watercress and reeds with good numbers of latrines and feeding sites.
13	52245035 52355050	Continuation from 12 to Straight Lane. Conditions as for 12 but no evidence of latrines by main river (one latrine in side ditch). Good evidence of feeding.
14	52355050 52785051	Straight Lane to ford at Polhampton. Limited numbers of sites in overgrown river and adjacent abandoned watercress bed.
15	52355050 53424990	Polhampton ford to source of River Test. Dry riverbed. No signs of presence.

A formula has been developed which allows the number of water voles to be estimated from the number of latrines found. ($y = 1.48 + 0.683x$ where x = latrines counted and y = water voles) (Morris *et al.*, 1998).

Using this formula an estimate can be made of the number of water voles present in the different survey areas.

Table 3 shows the estimated numbers of water voles, based on this formula, found in specific stretches of the river. For clarity, survey stretches have been amalgamated to show clearly identifiable stretches of the river e.g. between Kingsclere Road and Station Road.

Table 3: Estimated Water Vole Numbers

Location	Number of latrines	Number of water voles
Parish Boundary (Laverstoke) – Southington Lane	5	4 - 5
Southington Lane – Bridge Street	1	1 - 2
Bridge Street – Kingsclere Road	1	1 - 2
Kingsclere Road – Station Road	29	21 - 22
Station Road – Straight Lane	10	8 - 9
Straight Lane – Ashe (source of Test)	1	1 - 2

On this basis a sizeable water vole population exists on the stretch of the river between Kingsclere Road and Station Road with smaller colonies on the stretches of the river between Station Road and Straight Lane and from the parish boundary at Laverstoke to Southington Lane.

Discussion

The population of water voles in the U.K. has been declining throughout the 20th century and has undergone a particularly severe decline over the last 20 years. (Strachan R. 1998). Two national surveys carried out in 1989-90 and 1996–98 indicated that there had been a decline in water vole numbers of 88% in seven years (Strachan, R. & Jefferies D. J. 1993).

This makes the water vole Britain’s most rapidly declining mammal and it has now been protected under the Wildlife and Countryside Act 1981. It is an offence to:

- Damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection.
- Disturb water voles while they are using such a place.

Schedule 5 of the Wildlife and Countryside Act is being reviewed with conservation organisations recommending that it should be an offence to directly kill, injure or take a water vole.

Water voles are listed as a priority species in both the U.K. National Biodiversity Action Plan and the Hampshire Biodiversity Action Plan (Hampshire Biodiversity Partnership website).

The cause of the decline in water vole numbers is attributed to the loss of suitable habitats, changes in land use associated with intensified agriculture, fragmentation and isolation of individual populations and predation by American mink (*Mustela vison*) which have escaped from fur farms.

Exact figures are not available for the population decline within Overton parish but comments from local people who have had a long association with the area indicate that water voles were formerly abundant and are now rarely seen.

Brian and Margaret Wheeler: *"Over 40 years ago we remember taking the children down to the Lynch and regularly seeing water voles in the run just past Southington Mill. It was a virtual certainty that you would see one"*

Vivienne Brown: *Over 60 years ago, as a little girl, I remember playing along the Lynch and seeing the holes and often hearing the plops as they dived in"*

During our survey we found that water voles were almost entirely absent from certain stretches of the river (e.g. survey section 4) but comparatively plentiful in others (e.g. survey sections 7, 8, 9).

Sections where signs of water voles were found were almost invariably associated with the presence of steep earth banks which had not been reinforced and thick bank side vegetation composed of sedges, reeds and tall grasses. (Illustration 5)

Water voles were absent from areas where the banks were densely shaded by trees, where bank side grasses, reeds and sedges were missing or where banks had been reinforced with hard materials (Illustrations 6, 7, 8).

Illustration 5: Suitable Bank Side Vegetation

Illustration 6: Unsuitable Habitat - shading and low water levels

Conclusions

Water voles are protected under the Wildlife and Countryside Act and they have been identified as a priority species in the Hampshire Biodiversity Action Plan. Their main habitat within the parish – the River Test – is designated as a Site of Special Scientific Interest.

Overton is fortunate in retaining water voles in contrast to other areas where they have died out.

Overton Biodiversity Society would like to work with local landowners, Hampshire Wildlife Trust, the Environment Agency, Overton Parish Council and Basingstoke and Deane Borough Council to raise awareness of the status of water voles within the parish and to encourage their conservation particularly in areas where water voles are present but in low numbers.

Specific areas where advice could be given include:

- **Appropriate bank management** especially involving preserving soft earth banks and avoiding hard revetments.

Illustration 7: Hard Revetments Along Tributary Channel

- **Appropriate management of bank side vegetation.** Landowners should be encouraged to follow good practice in maintaining appropriate bank side vegetation for water voles especially bank side tussock grasses, sedges and reeds.
  If cutting is essential it should be done in the autumn and sections of vegetation should be cut in rotation so that cover always remains. Leaving an uncut fringe of marginal plants along the bank edge will provide a refuge until regrowth occurs.

- **Water Abstraction**. Recent dry summers have highlighted the need to maintain water levels within the river. Housing developments within the village are likely to lead to greater amounts of water being abstracted from the aquifer and a lowering of the water table and river levels. New housing developments should minimise water requirements and use sustainable drainage techniques to minimise their impact.

- **Predation by mink**. Healthy water vole populations depend on landowners being vigilant in monitoring the river for the presence of mink (*Mustela vison*) and taking action to control them if present. Game Conservancy mink rafts could be introduced to monitor mink numbers and assist with mink control (Game Conservancy Trust website).

Illustration 8: Close Cutting of Bankside Vegetation

References

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Appendix 1: Survey Techniques

Teams of surveyors working in pairs surveyed the banks of the river for characteristic signs of water vole activity.

Direct Sightings. Only one direct sighting was recorded although on several occasions the characteristic “plop” of a water vole diving into the water was heard.

Latrines: Water vole latrines are sites where droppings and scent are deposited to mark territory. The number of water vole latrines counted gives a good indication of the number of voles present. (Morris *et al.,* 1998). (Illustration 3)

Burrows: Water voles produce a system of burrows along the water’s edge often extending back into the bank for several metres. (Illustration 2)

Pathways: Water voles will produce pathways in vegetation close to the water’s edge leading to burrow entrances and feeding sites.

Feeding sites: Along with latrines, feeding sites are one of the most distinctive signs of water vole presence. Plant material is brought back to favoured feeding stations at the water’s edge. Small piles of feeding remains are found, typically up to 10cm long with a distinctive angled cut at the end. (Illustration 4)

Cropped grass “lawns”: Areas of short cropped grass called lawns are often found near water vole holes. This is where female water voles with young in the burrow feed without leaving the immediate area of their nest.

Footprints: Water vole footprints are difficult to distinguish from rats and no clear water vole footprints were recorded.

General information about the river, the river bank and bank side vegetation was also recorded.

Appendix 2. Survey Form

Overton Biodiversity Society

River Test Water Vole Survey Form.

Recorder Name **Date** **Grid Reference of site**	**Site description** (including adjacent land use).
Location - sketch map	

Evidence of presence of water voles	
Sightings (number of individuals)	
Latrines (number)	
Burrows (number)	
Pathways (number)	
Feeding sites (number)	
Cropped grass areas (number)	
Footprints.	

Photo Evidence (attached) - photo number and description.	
1	
2	
3	
4	
5	

Habitat Information

Type of water body		Bank type		Bankside vegetation	
River/stream		Grass		Trees	
Ditch		Stone		Bushes	
Pond/Lake		Gravel		Herbs	
Marsh/Bog		Earth		Tall grass	
		Canalised		Short grass	

River Characteristics							
Bank profile		**River depth**		**River width**		**Current**	
Flat < 10˚		< 0.5 m		< 2.0 m		0-3 kmh^{-1}	
Shallow < 45˚		0.5-1.0 m		2.0-5.0 m		3-5 kmh^{-1}	
Steep > 45˚		1.0-2.0 m		5.0-10.0 m		5-8 kmh^{-1}	
Vertical/undercut		> 2.0 m		> 10.0 m		> 8 kmh^{-1}	

General comments: (Water level management, signs of drying out, evidence of pollution or disturbance)