

Carsington Mammal Project – 2004

By Derbyshire Mammal Group in partnership with Derbyshire Wildlife
Trust and the Derbyshire Bat Group and supported by Severn Trent
Water

Severn Trent Water



Carsington Mammal Project 2004

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Further information about the Derbyshire Mammal Group and further copies of this report can be downloaded from the DMG website:

www.derbyshiremammalgroup.com

Introduction

The Carsington Mammal project is a joint initiative between Derbyshire Mammal Group and Severn Trent Water. The project aims to collect data on all mammal species around Carsington Water. Data will increase our information on mammals in Derbyshire and help STW to manage the site to benefit native mammal species. All events are open to Derbyshire Mammal Group members.

Ben Young, Ranger at Carsington Water says :

"Carsington Water is Severn Trent Water's flagship visitor site and a haven for biodiversity. However, relatively little is known about its mammal populations. Even a question as simple as 'what mammals are found at Carsington Water?' cannot be answered with accuracy as few historical records exist and no co-ordinated surveying, monitoring or recording has been carried out since the site opened. This poses a number of questions for Severn Trent Water in terms of habitat creation, development and ongoing management for mammals, which the Carsington Mammal project is looking to answer. It is intended that the project be wide-ranging and comprehensive and thus it has several aims. The initial aim is to confirm what mammal species are present and where.

This information will then be used in the long-term to:

- Inform and tailor ongoing management, both to benefit existing mammal populations and to encourage colonisation by mammal species not yet present;
- Act as a baseline from which to monitor the impacts of specific management practices on mammal populations.

This project ties in with and complements other mammal related studies and work being carried out at Carsington Water, for example with the Derbyshire Bat Group as well as tying in with national studies being undertaken by The Mammal Society, for example, the Water Shrew survey. It is also using a number of innovative techniques for trapping and monitoring mammals, including mink rafts and baited water shrew tubes, as well as the more traditional Longworth Traps."

During 2004 a number of surveys and studies were undertaken at Carsington Water by the Derbyshire Mammal Group. This report includes information from the Derbyshire Bat Group and Derbyshire Wildlife Trust on the various mammal related studies and surveys that have been carried out at Carsington during 2004.

The findings are recorded below. A total of 28 species of mammals were confirmed by sightings or signs, these are listed in the appendix at the back of this report.

Training

Derbyshire Mammal Group held an introductory session to the Project and surveys on 24th April. This session was both intended as an opportunity to talk about up and coming surveys and as a training event for DMG members, Severn Trent Rangers and volunteers.

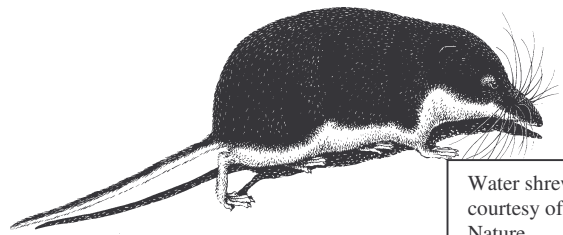
A number of short talks were given and there was a large display of mammal bits and pieces including skulls, droppings and nests.



Water shrew by Helen Perkins

The water shrew is the largest of UK shrew species. It has black upper parts and silvery-grey beneath. It has distinct small tuft white hairs on ears and round its eyes. Its tail is dark brown above and white below.

It favours vegetated banks of shallow, unpolluted watercourses, so it is *usually* found close to water. It swims and dives to catch its food. It eats freshwater invertebrates. It creates burrow systems in stream and river banks. Water shrews have 2-3 litters of young born April-September.



Water shrew
courtesy of English
Nature

We surveyed for them using the baited tube survey method as developed by Dr Sarah Churchfield. Plastic tubes are baited with prey and set at suitable sites. They are left for 10-14 days then collected for analysis.



Baited plastic tube



Baited plastic tube in suitable location, near water.



The scats (droppings) deposited by animals visiting tubes are then analysed. Water shrews, unlike other species of shrews eat freshwater invertebrates so droppings are examined under microscope for remains of aquatic invertebrates.

The Mammal Society's Water Shrew Survey – Field Form

RECORDER'S NAME: _____ SITE NAME: _____ DATE TUBES LAID DOWN: _____
 RECORDER'S ADDRESS: _____ SITE NUMBER: _____ DATE TUBES COLLECTED: _____
 GRID REFERENCE: _____
 NUMBER OF BAITED TUBES USED AT SITE: _____

River <input type="radio"/>		Stream <input type="radio"/>		Canal <input type="radio"/>		Pond/Lake <input type="radio"/>		Ditch <input type="radio"/>		Habitat type		Bog <input type="radio"/>		Fen/Marsh <input type="radio"/>		Reedbed <input type="radio"/>		Crested bed <input type="radio"/>		Other <input type="radio"/>	
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	
Water depth		Width of water body		Current																	
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	
Substrate type		Bank type		Bank incline		Bank height		Bankside management													
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	
Aquatic vegetation		Bankside vegetation		Human use																	
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	
Adjacent land use																					
<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	

Water shrews? (based on scat analysis) ☐ Present ☐ Absent

All of the results, positive and negative were sent to the Mammal Society as part of their national water shrew survey.

2 of the 5 sites at Carsington sampled positive (Hopton Pond & Fishtail Creek stream). These scats contained freshwater shrimp and water louse

However there are other suitable sites still to be sampled. The water shrew population may expand in response to new wetland creation around the reservoir.

Water Voles by Helen Perkins

Previous survey work has recorded water vole at 7 locations around Carsington Reservoir, including Fishtail Creek, Hopton ponds and ponds below the dam wall.

Recent survey work at the northern part of the reservoir has revealed many positive water vole signs associated with the habitat creation work and reedbed creation.

The Rangers and fisherman at Carsington have sighted mink at various locations around the reservoir. The presence of mink threaten the current water vole populations. It was therefore decided to try and control the mink population. Several mink control rafts, based on a design by the Game Conservancy Trust, were constructed and placed around the reservoir.



Raft construction with Derbyshire Wildlife Trusts midweek team



Raft in place



The idea of the raft is that the clay pad will record footprints of the visiting mammals. Once mink tracks have been recorded trapping can begin. However, one of the pads also recorded water vole droppings!!

Further recent management work around the site has also improved the situation for water vole. Work includes coppicing of scrub along streams to increase light levels, pond creation around reservoir edges/inlets and a new reedbed area in NE corner of the reservoir.



Water Vole
by Julian Jones

Brown Hares by Debbie Court

The brown hare census around Carsington Reservoir on the evening of Friday 7th May found 7 brown hares, all around the eastern side of the Reservoir. Other notable sightings included water vole droppings in the southern part of the site (below the dam wall), bats, and a redstart. Thanks to the 18 members of DMG who took part.

In addition to the records from the census records of brown hare have also been collected from around Sheepwash car park and in the fields between Sheepwash car park and the look out tower.

Bats by Tony Taylor

Eighteen species of bat have been recorded in Britain in recent years, of which ten species have been identified in Derbyshire.

Few surveys have been conducted around Carsington, this is due mainly to the size of Derbyshire County and the number of bat workers available, but six species of bat have been positively identified and others detected during bat walks and surveys.

The six species identified at Carsington so far are:

Pipistrelle (*Pipistrellus pipistrellus*)



A small species with slightly rounded medium length ears. The upper fur is quite sleek, dark brown to reddish orange, the under fur is not very differentiated from upper fur but generally a little paler. The face ears and flight membranes are generally dark. Found in most habitats, particularly woodland edge, hedgerow, garden and around water. Roosts usually in crevices around buildings, also frequently in tree holes and bat boxes. The pipistrelle is the commonest bat found on bat walks and surveys around Carsington

Brown Long-eared bat (*Plecotus auritus*)

A medium sized species with ears extremely long and broad. Wings broad. Upper fur brownish buff tipped, under fur pale buff. Face usually pinkish brown. Feeds in woodland, parkland and gardens, generally in and around trees and large bushes. This is the most common species roosting in large open roof spaces of older buildings. Also roosts in tree holes and bat boxes. Frequently uses out buildings as regular night time feeding roosts. The Brown long-eared bat is very difficult to detect on bat walks due to its very quiet echolocation but has been found every year during bat box surveys.

Noctule (*Nyctalus noctula*)

A large species with short, broad rounded ears. Upper fur uniform golden brown, very short and sleek, under fur very similar in colour to upper. Face, ears and flight membranes dark, wings narrow and pointed. Feeds over woodland and pasture, generally flying fast, high and straight in the open, but making steep dives to chase

insects. Roosts in trees using old woodpecker or natural holes. One of the species regularly found in bat boxes and has been found in the bat boxes at Carsington.

Daubenton's bat (*Myotis daubentonii*)

Medium sized species with ears short and rounded. Face blunt, pinkish but well haired. Upper fur even length tight and woolly, uniformly coloured reddish brown, under fur dingy white, wings dark brown. Feeds mainly over open water on small insects with prey often taken from the surface as the bat makes low, steady flights close to the water surface. Roosts in tree holes buildings and underground sites, with a preference for older stone buildings. Often seen over the water at Carsington on calm, still evenings.

Whiskered bat (*Myotis mystacinus*)

A small species with medium length ears. Face rather pointed, very dark, well haired. Upper fur long and shaggy, dark grey brown, ventral fur dingy white, wing bones and membranes dark often quite black. Feeds in woodland and along woodland edge often near water, but sometimes preferring more open parks and gardens. Most known roosts are in buildings, but probably also in trees. The Whiskered bat is often detected feeding alongside pipistrelles at Carsington, which is very useful for demonstrating the difference in echolocation between the species.

Natterer's bat (*Myotis nattereri*)

A medium sized species with quite long ears. Face long, bare and pink. Upper fur rather woolly sandy grey contrasting strongly with extremely white tipped under fur. Pinkish forearms and rest of wings. Feeds in mainly deciduous woodland and parkland, hedgerows and well vegetated waterside. Roosts in older, usually stone built buildings, also in trees, stone walls and churches. Natterer's bat has been found at Carsington during surveys and has also been found roosting in an ice house in woodland close to the waters edge.

Bat box scheme

A bat box scheme with 36 bat boxes was set up in mature woodland at Carsington a number of years ago by the Derbyshire Bat Group. The boxes are checked annually to see how many of them are occupied and which species are using them.

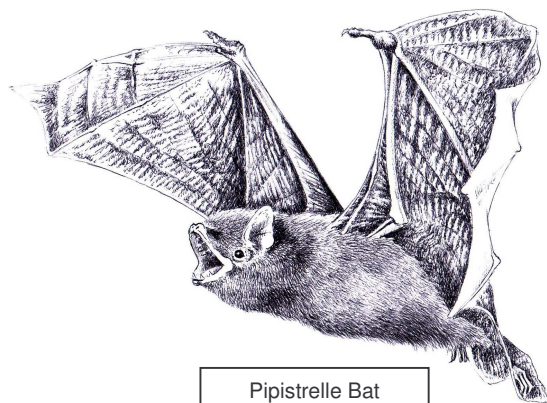
March 1998 – Evidence of bats in 10 boxes, including live brown long eared bat. . 4 Natterers bats found in ice house

March 1999 – Evidence of bats in 10 boxes.

March 2000 – Evidence of bats in 13 boxes. Natterers bats found in ice house

November 2001 – Evidence of bats in 17 boxes, 2 live brown long eared bats. One Brown long eared bat in the ice house.

March 2004 - Evidence of bats in 7 boxes . No bats found in ice house.



Harvest Mouse Survey at Carsington Water by Anna Evans

It was decided to undertake a harvest mouse survey at Carsington as no previous records exist, despite the presence of areas of suitable habitat, including reedbed, rough grassland and marshy grassland. Furthermore knowledge of their distribution across the county is limited and led Derbyshire Wildlife Trust to initiate a county-wide survey during the winter of 2004-05.

The survey method employed was to search for abandoned summer nests as this is an easy way of determining the presence of mice on site and hopefully avoids disturbance to the mice themselves. 2 surveys were undertaken, one with the DMG on 28th November and one with Derbyshire Wildlife Trust's volunteer harvest mouse surveyors, as part of a training day held at Carsington on 29th November.

The sites searched were:

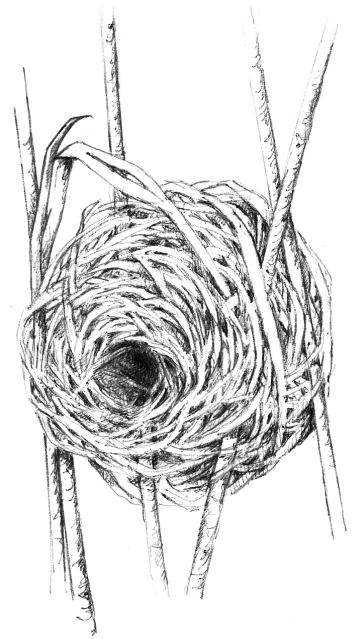
- 1) Hopton Pond
- 2) Green Pond
- 3) Field opposite North Gate, on Hopton village side of bypass
- 4) Reedbeds at north end of Reservoir
- 5) Area of rough grassland adjacent to reservoir, in between Sheepwash car park and North Gate

Positive results were found at sites 3 and 5, as follows:

Site 3 - one small non-breeding nest found

Site 5 - one small non-breeding nest found, followed by two larger nests (likely to be breeding nests)

These records are important, not only because they are the first known records for Carsington Water, but also because they are the first known records from this part of county. Further searches are therefore planned for 2005 onwards to monitor their presence on-site over time.



Harvest Mouse Nest by Laura Berkeley



A non-breeding harvest mice found at Carsington



Harvest Mouse by Laura Berkeley

Small Mammals By Liz and Steve Lonsdale.

A number of small mammal trapping sessions were planned in 2004 to look at small mammal populations at various locations around the reservoir. This information will help inform the Rangers about the current and future management of the site. We held 6 Trapping Sessions at Carsington during 2004:

May: Fishing Bay

June: Hall Bank

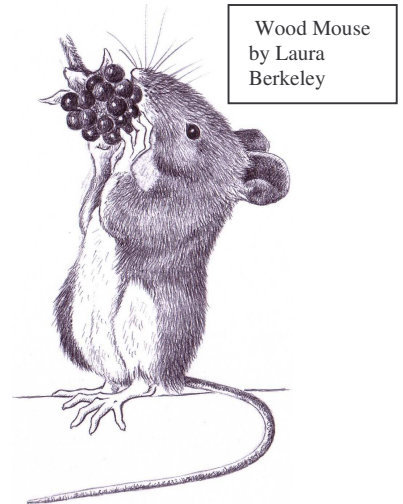
July: Sith Coppice and Rough Grassland

August: Tail Bay

August: Horseshoe Island

September: Fishtail Creek

Longworth traps were baited and set in suitable locations on Friday evening. Standard small mammal trapping practice was followed including placing food and nest material in the traps so that any caught animal would be comfortable and fed until they were released. Traps were opened early Saturday morning. Any animals caught were identified, sexed, aged, weighed and marked then released near the trap they were caught in. The traps were then reset and left until Saturday evening where the process was repeated and again on Sunday morning. The following tables detail the number of species recorded in the traps. Figures in brackets indicate the number of recaptures.



May: Fishing Bay

101 traps set in mixed habitat - scrub, deciduous trees, bramble, bluebells, gorse.

	Sat AM	Sat PM	Sun AM
Wood Mouse	10		14 (8)
Common Shrew	1	1	
Bank Vole	1	5	3 (1)

June - Hall Bank

98 traps set in deciduous woodland, including bare areas, some cover, walls, ditches.

	Sat AM	Sat PM	Sun AM
Wood Mouse	7	3 (2)	12 (2)
Common Shrew	1		
Bank Vole	4	7 (2)	11 (1)

July: Sith Coppice

98 traps set in young deciduous plantation and nearby rough grassland.

	Sat AM	Sat PM	Sun AM
Wood Mouse	8	1 (1)	17 (6)
Common Shrew	1	1	3
Pygmy Shrew			1
Bank Vole	5	4	11 (1)
Field Vole		1	1

August: Tail Bay

98 traps set in hedgerow, scrub, rough grassland, pond margins.

	Sat AM	Sat PM	Sun AM
Wood Mouse	9	1	12 (3)
Common Shrew		1	4
Pygmy Shrew	1		1
Bank Vole	6	15 (3)	11 (6)
Field Vole	2	5	2 (1)

August: Horseshoe Island

80 traps set in rushes, rough grassland, reservoir shore, areas of sparse vegetation.

	Sat AM	Sat PM	Sun AM
Wood Mouse	19	8 (6)	24 (18)
Common Shrew		2	2 (2)
Field Vole	1	2 (1)	2

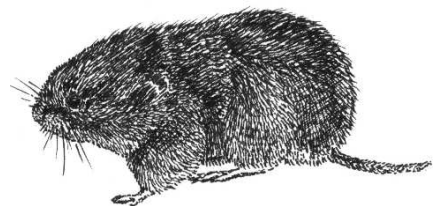
September: Fishtail Creek

98 traps set in woodland, rough grassland, scrub, stream banks, bramble, bracken.

	Sat AM	Sat PM	Sun AM
Wood Mouse	23		18 (9)
Common Shrew	1		2
Pygmy Shrew			1
Bank Vole	14	22 (4)	22 (10)
Field Vole	1		1 (1)



Field vole by
Julian Jones



“Prize winning” small mammal trapper Anna Evans empties, yet another, tripped Longworth Trap!

Results Summary

- 1146 trap nights: 289 catches (25%)
- 573 trap days: 80 catches (14%)
- No fatalities
- The trap rate increased as the season progressed due to:
 - Better technique
 - More animals present
 - Better habitat

In total 5 species of small mammal were caught:

	Total	Night	Day
Wood Mouse	186 (50%)	173 (60%)	13 (16%)
Common Shrew	16 (4%)	13 (4%)	3 (4%)
Pygmy Shrew	4 (1%)	3 (1%)	1 (1%)
Bank Vole	145 (39%)	90 (31%)	55 (69%)
Field Vole	18 (5%)	10 (3%)	8 (10%)

(40% of 'night' animals caught on first morning, 60% on second morning)



Hedgehog Courtesy of
English Nature

Conclusions

The 2004 Carsington Mammal project has raised the profile of mammals on the site. Before the survey work began little was known about the species of mammal that were found at Carsington. The project has provided training in mammal identification for Derbyshire Mammal Group members and Severn Trent Water rangers and volunteers.

The project has confirmed the presence of 28 species of mammal including the following UK Priority Biodiversity Action Plan species: Brown hare, water vole and pipistrelle bat. In addition water shrew and harvest mouse have been recorded and are considered uncommon species in Derbyshire. The presence and locations of these mammals have fed into the site management allowing management to be tailored as appropriate to their needs.

The small mammal trapping gave confirmation of presence of five species of small mammal at specific sites at Carsington Reservoir. Although none of the small mammal species are particularly uncommon their presence and estimated population sizes are a good indication of habitat and habitat condition. For example greater wood mice numbers will be found in woodland with a higher proportion of dead wood habitat. The records from 2004 provide a baseline of information to monitor populations from in the future to see whether habitat management is having any effect on the population or range of species found.

The list of mammals found at Carsington throughout 2004 can be found in the Appendix. This includes records from specific surveys and casual records from Derbyshire Mammal group members, Severn Trent staff and members of the public.



Badger courtesy of English Nature

Acknowledgements

The Carsington Mammal Project could not have been completed without the effort of a number of individuals.

We wish to acknowledge the support of Severn Trent Water through the loan of 40 longworth traps that were bought specifically for the Project and loan of rooms etc. Specifically we wish to thank Ben Young and his colleagues at Carsington for their unfaltering support with boundless enthusiasm, transport, gallons of tea and lovely biscuits.

We also wish to thank the members of the Derbyshire Mammal Group who took part and organised the surveys and events and the partnership of support from Derbyshire Wildlife Trust associated with the harvest mice and water vole surveys. Thanks also to the Derbyshire Bat Group for the bat information.



Otter courtesy of English Nature

Appendix

Carsington Mammal List 2004

Insectivora - Erinaceidae

Hedgehog - *Erinaceus europaeus* – seen

Insectivora – Talpidae

Mole – *Talpa europaea* – sign (molehills)

Indsectivora - Soricidae

Common Shrew – *Sorex araneus* – live trapped

Pygmy Shrew – *Sorex minutes* – live trapped

Water Shrew – *Neomys fodiens* – sign (scats)

Lagomorpha - Leporidae

Rabbit – *Oryctolagus cuniculus* – seen

Brown Hare – *Lepus europaeus* - seen

Rodentia - Sciuridae

Grey Squirrel – *Sciurus carolinensis* - seen

Rodentia - Arvicolinae

Bank Vole – *Clethrionomys glareolus* – live trapped

Field Vole – *Microtus agrestis* – live trapped

Water Vole – *Arvicola terrestris* – seen

Rodentia - Murinae

Wood Mouse – *Apodemus sylvaticus* – live trapped

Harvest Mouse – *Micromys minutes* – sign (nests)

Common (Brown) Rat – *Rattus norvegicus* – seen

Carnivora - Canidae

Fox – *Vulpes vulpes* - seen

Carnivo- Mustela vira - Mustelidae

Stoat – *Mustela erminea* - seen

Weasel – *Mustela nivalis* – seen

Polecat – *Mustela putorius* – possible ??

Mink – *Mustela vison* – seen

Badger – *Meles meles* – sign (sett, latrines)

Artiodactyla - Cervidae

Red Deer – *Cervus elaphus* - seen

Fallow Deer – *Dama dama* – sign (droppings)

Roe Deer – *Capreolus capreolus* – seen

Muntjac – *Muntiacus reevesi* – possible sign ??

Chiroptera - Vespertilionidae

Whiskered Bat – *Myotis mystacinus* – seen

Daubenton's Bat – *Myotis daubentonii* – seen

Natterer's Bat *Myotis nattereri* – seen

Noctule – *Nyctalus noctula* – seen

Pipistrelle – *Pipistrellus pipistrellus* – seen

Brown Long-eared Bat – *Plecotus auritus* - seen