Contents

YMG – Comment from your Chair December 2007.

Jon Traill – Chair

Welcome to another edition of our annual review of events for 2007. As with previous editions we hope you enjoy the articles and information in the following pages.

A huge thanks must, as always, go out to our small but dedicated team (both committee members and others) who have quietly got on with all those jobs that need doing, to keep things ticking along in the group.

Secondly thanks must go out to all our invited speakers who came along throughout the last year to inform and entertain. We have had a diverse mix of topics and geographical coverage, ranging from mink in the Western Isles of Scotland through to harvest mice re-introduction work in Chester.

Finally our thanks must also be given to the Yorkshire Wildlife Trust for the use of their office meeting room in York.

Here's looking forward to a busy and successful 2008.

I hope you all enjoy reading this issue of Imprint. And to all those who contributed articles and photos – thank you.

Mary Youngman - Editor

Preliminary mapping of mammals in North Yorkshire.

Geoff Oxford, Ann Hanson, James Mortimer, Simon Pickles and Michael Thompson

As YMG members will know, we have been systematically collecting records since 1996 with a view to producing an atlas of mammals in Yorkshire. This was to have been an update of Colin Howes' maps published in the *Naturalist* (1983), with augmented versions forming the backbone of Michael Delany's *Yorkshire Mammals* (1985). We had hoped to produce definitive maps after a decade of recording i.e. about 20 years on from Delany's book. However in 2006, on reviewing the database Michael Thompson and latterly James Mortimer had collated, we realized that coverage was not sufficient for us to make reliable inferences about distribution patterns. We therefore decided to (a) extend the recording period, (b) restrict the area we could reasonably target to the county of North Yorkshire and (c) collate a preliminary set of maps to publish in the *Naturalist*. We hoped that the preliminary maps would stimulate members of the YNU and other naturalists across North Yorkshire to begin mammal recording, particularly in the areas with fewest records (Fig. 1). This paper is now published (Oxford *et al*. 2007) and we await a flood of data.

As Fig 1 shows, the majority of data come from the Vale of York northwards to the southern edge of the North York Moors, reflecting the locations of the most active recorders. Small mammals in particular seem to be very poorly reported from the western half of North Yorkshire and yet even without trapping their presence can be ascertained in a number of ways – domestic cat kills, remains in discarded bottles and evidence from owl pellets. Bats, on the other hand, are well represented across the county as a result of the intensive studies of John Altringham (University of Leeds), work by staff at the Central Science Laboratory (Sand Hutton, York) and the monitoring of roost sites by John Drewett (North Yorkshire Bat Group).

In an attempt to recruit more recorders in the 'barren' regions of North Yorkshire, during 2007 we arranged to run three day-long mammal workshops: Pateley Bridge (5 May); Scarborough (10 June); Hawes (16 June). Sadly, none of them were held in the end because either too few people booked or travel was disrupted as a result of the summer flooding.

Finally, can we appeal to all YMG members to record mammals in their areas and to send them to James Mortimer? Currently only a handful of people are contributing data. For a recording form and explanatory covering sheet either contact Geoff Oxford or Ann Hanson or visit the YMG website http://www.raysolve.co.uk/ymg/ . If you would like a copy of the *Naturalist* paper in order to focus your recording efforts please contact Geoff Oxford (gso1@york.ac.uk).

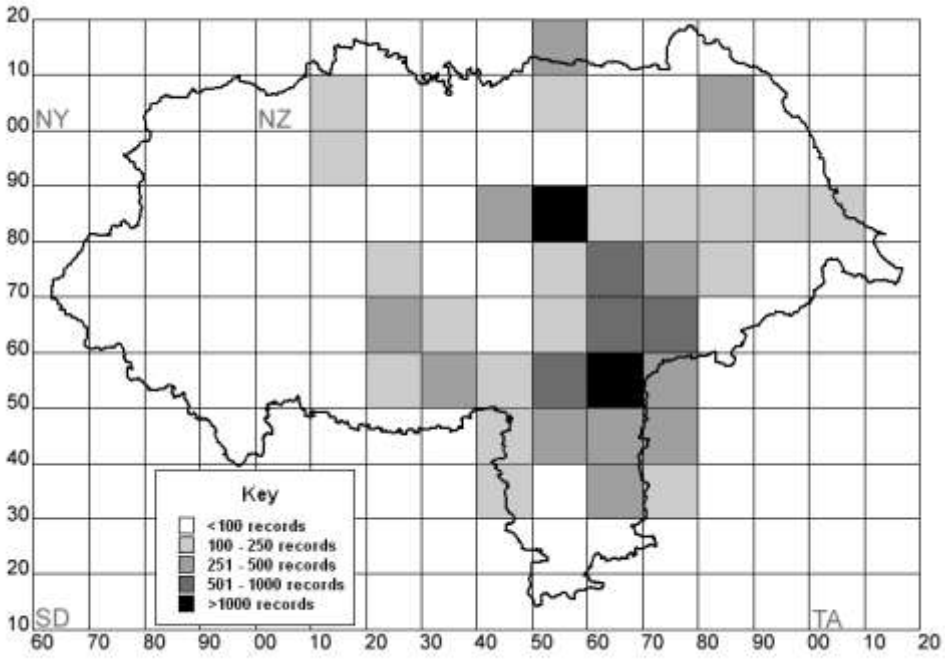

Figure 1. Map of North Yorkshire showing the number of mammal records from each 10 km grid square (reproduced, with permission, from Oxford *et al.* (2007)

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A small mammal survey with the Yorkshire Wildlife Trust at Tregonning, Ellerton.

Ann Hanson

Introduction

This survey was carried out as part of a Yorkshire Wildlife Trust open day at Tregonning, Ellerton, in East Yorkshire. Tregonning is the wonderful garden belonging to and cared for in an extremely wildlife friendly manner by Deirdre Falcon. The garden consists of large areas of herbaceous border, several small ponds, lawns, trees and a wildflower meadow. Grid reference SE 709399. The ponds and garden are a fantastic place for amphibians, containing numerous frogs, toads, smooth newts and great crested newts. Adjacent to the garden is Ellerton village pond, providing the amphibians with yet more suitable habitat. The small mammals of Tregonning have not been surveyed before, so we wanted to know if they could compete with the amphibians in terms of species diversity!

Methods

Twenty five Longworth traps were placed in a variety of habitats throughout the garden, baited with wheat, peanuts, sunflower seeds, carrots and blowfly pupae, and with a ball of hay for bedding.

Trap locations:

1. Patch of greater pond sedge adjacent to village pond (5 traps)
2. Overgrown hawthorn hedge next to wild flower meadow (10 traps)
3. Long grass in wild flower meadow (5 traps)
4. Herbaceous border next to old, overgrown hedge (5 traps)

Traps were set on the evening of Saturday 12 May and checked on Sunday 13 May from 10.30am onwards. They were them re-set and checked again on the afternoon of 13 May from 3.30pm onwards.

Results

Summary of small mammals captured at Tregonning.

	Morning			Afternoon	
	Site 1	Site 2	Site 4	Site 1	Site 2
Wood mouse		3	1		
Common shrew	1		1		1
Field vole				1	

Appendix I shows a comprehensive table of results for this trap.

Discussion and conclusions

Three different species of small mammal were caught in the garden at Tregonning, including four wood mice (*Apodemus sylvaticus*), three common shrews (*Sorex araneus*), and one field vole (*Microtus agrestis*). It was noticed that the wood mice were only captured overnight, confirming their nocturnal habits, with common shrews being caught both at night and during the day. The field vole was caught during the day, as the sedge bed provided it with plenty of cover for its diurnal activities. Small mammals were caught in all three habitats with good ground cover, including the sedge bed, hedge bottom and herbaceous border. The wild flower meadow provided us with no captures on this occasion, possibly because the habitat was not well enough developed this early in the year to be attractive to field voles – the main species to be expected in such grassy habitat.

Thanks are due to Deirdre for allowing us to enjoy her garden, small mammals, newts and cream teas, and to Rob Masheder for helping with this survey.

Appendix I

Table of results: small mammal survey at Tregonning, Ellerton, May 2007.

Weather: Wet previous day and overnight; warm, sunny morning and afternoon.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Results 10.30am				
Sedge bed (1)	Common shrew	?	A	10.0
Overgrown hedge (2)	Wood mouse	F	A	26.0
	Wood mouse	F	SA	16.0
	Wood mouse	M	A	25.0
Herbaceous border (5)	Wood mouse	M	A	32.0
	Common shrew	?	A	?
Results 3.30pm				
Sedge bed (1)	Field vole	M	A	26.0
Overgrown hedge (2)	Common shrew	?	A	9.0

* M = male; F = female; A= adult; SA = subadult; J = juvenile

A small mammal survey with the Yorkshire Wildlife Trust at Potteric Carr Nature Reserve, Doncaster.

The Dennis Aspinall Memorial Trap 2007

Ann Hanson

Introduction

This survey was carried out as part of an event run by the Yorkshire Mammal Group on behalf of the Yorkshire Wildlife Trust to introduce course participants to the small mammals found at Potteric Carr and to show them how to carry out a live trapping study. Potteric Carr is a large area of reed beds, ponds, wetlands and wet woodland, situated to the south east of Doncaster in South Yorkshire. Grid reference SE 593005. The site is a Site of Special Scientific Interest (SSSI), managed by the Yorkshire Wildlife Trust, and several different wetland habitats are available for small mammals on the reserve.

Methods

Fifty Longworth traps were placed in a variety of habitats throughout the reserve, baited with wheat, peanuts, sunflower seeds, carrots and blowfly pupae, and with a ball of hay for bedding.

Trap locations:

1. Reed bed edge (Old Eaa) along the main track to the visitor's centre (10 traps)
2. Steep flower-rich bank along the edge of the Mother Drain, near Willow Marsh (10 traps)
3. Woodland edge along Willow Marsh, with ground flora of bracken, fern, nettle and enchanter's nightshade (10 traps)
4. Wet ditch bank near bird hide, with common reed and great willowherb (5 traps)
5. Large logs near edge of reed bed behind visitor's centre (5 traps)

6. Waters edge on bund between reed beds behind visitor's centre (5 traps)
7. Woodland on Loversall Bank, with willow carr, birch and brambles (5 traps)

Traps were set on the evening of Friday 13 July and checked on Saturday 14 July from 9.30am onwards.

Results

Summary of small mammals captured at Potteric Carr.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7
Wood mouse	5	3	6	3	2	1	1
Bank vole	4	3	1		2	1	1
Common shrew	1	1					

Appendix I shows a comprehensive table of results for this trap.

Discussion and conclusions

Three different species of small mammal were caught in a variety of habitats at Potteric Carr, including wood mice (*Apodemus sylvaticus*), bank voles (*Clethrionomys glareolus*) and common shrews (*Sorex araneus*). Wood mice were caught in all the habitats sampled, and bank voles at all but one site. Common shrews were only caught in smaller numbers at two locations, the reedbed edge next to the Old Eaa and the steep bank alongside the Mother Drain. Less common small mammals, such as water shrews (*Neomys fodiens*) and harvest mice (*Micromys minutus*) are present on the reserve, but unfortunately were not caught on this occasion.

Thanks are due to Mary Youngman and Rob Masheder for helping with this survey, the YWT staff at Potteric Carr and to all the course participants for their enthusiasm and staying power.

Appendix I

Table of results: small mammal survey at Potteric Carr, July 2007.

Weather: Heavy rain overnight; morning overcast with sunshine later.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Reed bed edge (1)	Bank vole	M	A	22.0
	Bank vole	M	A	21.0
	Wood mouse	M	A	25.0
	Wood mouse	M	A	30.0
	Wood mouse	M	A	22.0
	Common shrew	?	A	8.0
	Wood mouse	M	A	27.0
	Bank vole	F	A	15.0
	Wood mouse	M	A	29.0
	Bank vole	F	SA	15.0
Drain bank (2)	Common shrew	?	A	8.0
	Wood mouse	M	A	20.0
	Wood mouse	M	J	11.0
	Wood mouse	M	J	12.0
	Bank vole	M	A	24.0
	Bank vole	F	A	26.0
	Bank vole	M	A	20.0
Woodland edge (3)	Bank vole	M	A	22.0
	Wood mouse	M	A	24.0
	Wood mouse	M	A	30.0
	Wood mouse	F	A	21.0
	Wood mouse	M	A	33.0
	Wood mouse	F	J	7.0
	Wood mouse	M	A	26.0
Ditch bank (4)	Wood mouse	M	A	27.0
	Wood mouse	M	A	31.0
	Wood mouse	M	A	26.0
Logs (5)	Bank vole	M	A	26.0
	Bank vole	M	A	23.0
	Wood mouse	F	SA	16.0
	Wood mouse	F	SA	14.0
Waters edge (6)	Wood mouse	F	A	25.0
	Bank vole	F	A	23.0
Wet woodland (7)	Bank vole	F	SA	17.0
	Wood mouse	F	SA	16.0

* M = male; F = female; A= adult; SA = subadult; J = juvenile

The small mammals of Dalby Forest, North York Moors National Park.

Ann Hanson

Introduction

A small mammal survey was carried out in Dalby Forest around the Community Resource Centre at Low Dalby, near Thornton-le-Dale. Grid reference: SE 856874. This survey was run as a training event by the Yorkshire Mammal Group on behalf of the Forestry Commission.

Methods

Fifty Longworth traps were placed in a variety of habitats within the forest, baited with wheat, peanuts, sunflower seeds, carrots and blowfly pupae, and with a ball of hay for bedding.

Trap locations:

1. Dalby Beck - bank adjacent to Community Resource Centre, with trees and dense cover of ground elder (8 traps)
2. Dalby Beck - stream edge/boggy patch, with poplar brash, rushes and watercress (7 traps)
3. Area of rough grassland above car-park, abundant cocksfoot (10 traps)
4. Track edge above Community Resource Centre, tall grass and thistles (10 traps)
5. Nut Wood - mixed deciduous/coniferous woodland above Community Resource Centre (15 traps)

Traps were set on the evening of Saturday 18 August and checked on Sunday 19 August from 9.45am onwards.

Results

Summary of small mammals captured in Dalby Forest.

	Site 1	Site 2	Site 3	Site 4	Site 5
Wood mouse	5	5		3	7
Bank vole	1	1	1	2	2
Common shrew	2	1		1	1
Field vole			1		
Common frog		1			

Appendix I shows a comprehensive table of results for this trap.

Discussion and conclusions

Four different species of small mammal were caught around the Community Resource Centre in Dalby Forest, including wood mice (*Apodemus sylvaticus*), bank voles (*Clethrionomys glareolus*), common shrews (*Sorex araneus*) and a field vole (*Microtus agrestis*). It was noticeable that the more open area of rough grass at site 3 yielded only a bank vole and a field vole, whereas wood mice, bank voles and common shrews were more evenly spread between the other habitats surveyed. This indicates a degree of habitat partitioning, with the largely nocturnal wood mice preferring more open wooded environments, whilst the voles appear to be more at home in areas with more dense, grassy ground cover. In addition, one trap in the boggy area next to Dalby Beck yielded a common frog (*Rana temporaria*), and mole (*Talpa europaea*) hills were recorded in the rough grassland above the car-park.

Thanks are due to Brian Walker (Forestry Commission), Rob Masheder and Mary Youngman (YMG) for helping with this survey, and to all the course participants for making the event so enjoyable.

Appendix I

Table of results: small mammal survey in Dalby Forest, August 2007.

Weather: overcast but dry morning, with rain overnight.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Stream bank (1)	Common shrew	?	A	7.0
	Wood mouse	M	SA	18.0
	Wood mouse	M	A	24.0
	Bank vole	F	A	26.0
	Common shrew	?	A	10.0
	Wood mouse	M	A	24.0
	Wood mouse	M	A	29.0
	Wood mouse	F	A	21.0
Stream edge/bog (2)	Common frog			
	Wood mouse	M	SA	18.0
	Wood mouse	M	J	13.0
	Wood mouse	F	A	31.0
	Wood mouse	M	SA	18.0
	Wood mouse **			
	Bank vole	F	A	18.0
	Common shrew	?	A	9.0
Rough grassland (3)	Bank vole	F	SA	14.0
	Field vole	F	A	33.0
Track edge (4)	Common shrew	?	A	7.5
	Wood mouse	M	A	22.5
	Wood mouse	M	SA	21.0
	Wood mouse	M	SA	20.0
	Bank vole	F	A	25.0
	Bank vole	F	SA	16.0
Mixed woodland (5)	Wood mouse	M	J	14.0
	Wood mouse	M	A	26.0
	Common shrew	?	A	7.0
	Wood mouse	M	A	28.0
	Wood mouse	F	SA	14.0
	Wood mouse	M	SA	17.0
	Wood mouse	F	J	13.0
	Bank vole	F	A	15.0
	Bank vole	F	A	20.0
	Wood mouse	M	J	13.0

* M = male; F = female; A= adult; SA = subadult; J = juvenile

** Escaped during handling

A small mammal survey at Rawcliffe Country Park, York.

Ann Hanson

Introduction

Rawcliffe Country Park is a relatively new development on the outskirts of York, next to Rawcliffe Park and Ride and adjacent to Rawcliffe Ings and the River Ouse. Grid reference: SE 577546. The Country Park contains some quite large areas of rough grass, young deciduous woodland, boundary hedges and a pond. This event was organised in conjunction with the Community Leisure Officers at York City Council in order to introduce the general public to the mammals present on the site.

Methods

Fifty Longworth traps were placed in a variety of habitats around the Country Park, baited with wheat, peanuts, sunflower seeds, carrots and blowfly pupae, and with a ball of hay for bedding.

Trap locations:

1. Pond edge - reeds, rushes and scrub at the pond edge (5 traps)
2. Pond bank - thick grassy bank around the pond (5 traps)
3. Deciduous woodland/scrub - hawthorn, field maple, cherry, grey willow, guelder rose and crab apple, with a grass and bramble ground cover (10 traps)
4. Woodland edge - grassy fence line alongside deciduous woodland/scrub (10 traps)
5. Rough grass - area of more open rough grass (10 traps)
6. Hedge - relatively new hedge between rough grass and arable, about 1m tall and quite bushy (10 traps)

Traps were set on the evening of Friday 19 October and checked on Saturday 20 October from 9.30am onwards.

Results

Summary of small mammals captured at Rawcliffe Country Park.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Wood mouse	1	1	6	1		3
Field vole		2		1		1
Common shrew					1	1

Appendix I shows a comprehensive table of results for this trap.

Discussion and conclusions

Three different species of small mammal were caught in Rawcliffe Country Park, including wood mice (*Apodemus sylvaticus*), field voles (*Microtus agrestis*) and common shrews (*Sorex araneus*). Wood mice were found at all locations, apart from the more open area of rough grass at site 5. Field voles were predictably found at locations with dense grass and shrews were only trapped at two sites. The hedge at site 6 was the only location where all three species were caught, although two other sites yielded both wood mice and field voles. As expected in the autumn, many of the animals caught were sub-adults that will probably not come into breeding condition until next spring.

Other mammals recorded on the site were rabbits, moles and foxes – the latter in the form of fox scats and hairs on wire fencing alongside one of the woodland areas. All in all, Rawcliffe Country Park is an excellent site for wildlife right on the edge of a major city.

Thanks are due to Stephen Whittaker (York Council Community Leisure Officer), Rob Masheder and Mary Youngman (YMG) for helping with this survey, and to several members of the public who joined in on the day.

Appendix I

Table of results: small mammal survey at Rawcliffe Country Park, October 2007.

Weather: Dry overnight and a sunny, cool morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Pond edge (1)	Wood mouse	F	A	22.0
Pond bank (2)	Field vole	F	SA	13.0
	Wood mouse	M	SA	15.0
	Field vole **	F	A	-
Woodland/scrub (3)	Wood mouse	M	SA	16.0
	Wood mouse	F	A	24.0
	Wood mouse	M	A	24.0
	Wood mouse	M	SA	19.0
	Wood mouse	M	SA	18.0
	Wood mouse	M	SA	20.0
Woodland edge (4)	Wood mouse	F	SA	19.0
	Field vole	F	A	21.0
Rough grass (5)	Common shrew	?	A	9.0
Hedge (6)	Wood mouse	M	SA	19.0
	Wood mouse	F	A	22.0
	Common shrew	?	A	8.0
	Wood mouse	F	J	13.0
	Field vole	F	SA	20.0

* M = male; F = female; A= adult; SA = subadult; J = juvenile
** Dead in trap

The Original Dormouse Re-introduction – update for 2007.

Geoff Oxford

Last year, my report on the fortunes of the Helmsley population of the common dormouse (*Muscardinus avellanarius*), re-introduced in 1999, was rather gloomy (Oxford 2006). Since 2004 the total number of animals found had been steadily decreasing, as had the number of nests (see Table 1 for information on the last four years – the full data up to 2006 were provided by Oxford (2006)). In 2006 no dormice were seen in October, which meant that the population index used by the National Dormouse Monitoring Programme was, necessarily, zero. However, four new nests had been built between the September and October box checks indicating that at least some dormice were around and active.

Monitoring in 2007 got off to a positive start with one female found in the most westerly box in the array of 142 spread across the wood. But through June to September no more animals or new nests were detected. In October one new nest was found containing what was probably a well-grown juvenile. Unfortunately it escaped, ran up the tree a short way and then down to ground level eventually disappearing into a hole between the roots. I have assumed, for the purposes of monitoring, that it weighed more than 7 g. So, for 2007, the population index is above zero (Figure 1), but only just.

Table 1. Numbers of nests and dormice found in box checks 2004 – 2007.

	2004		2005		2006		2007	
Month	**No. nests**	**No. mice**	**No. nests**	**No. mice**	**No. nests**	**No. mice**	**No. nests**	**No. mice**
April	-	-	14	1	-	-	-	-
May	8	2	10	3	3	2	5	1
June	9	3	6	0	3	0	5	0
July	9	2	-	-	3	1	4	0
August	12	4	-	-	3	0	4	0
September	18	20 inc.5P	8	2	3	0	3	0
October	17	15	4	2	6	0	4	1

P = pinkies (unfurred young in the nest).

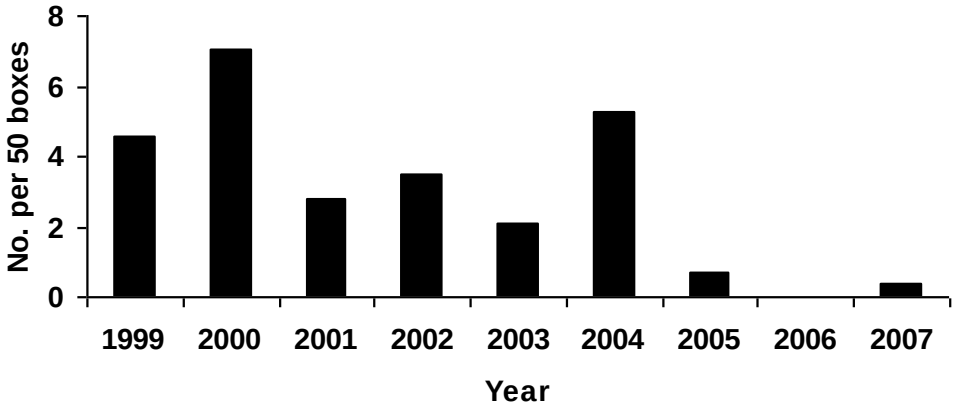

Figure 1. Average numbers of dormice weighing ≥7 g recorded per 50 boxes during the October check each year (1999 – 2007)

The virtual lack of animals in 2007 was disappointing for a different reason – my dormouse licence was extended this year to include fur-clipping. In the past, an inability to mark mice so that individuals could be distinguished and tracked through space and time was frustrating. However the primary objective for the enhanced licence was not marking, but the clipped fur itself. Some background information is necessary here. The received wisdom is that the dormouse has a specialised diet and that it relies on a succession of flowers and fruits through the year, augmented with insects in mid-summer when suitable plant foods are scarce (e.g. Bright & Morris, 2005). This picture may well be correct in what has come to be regarded as 'classical' dormouse habitat – rich, deciduous, coppiced woodland with a well developed herb layer and abundant hazel (*Corylus avellana*) to provide nuts for fattening up on prior to hibernation. However, work on populations in southern England has suggested that the dormouse may not always be such a food, or habitat, specialist. Eden & Eden (1999, 2001, 2003) found dormice in Dorset to be widespread and thriving in a variety of 'non-classical' habitats such as conifer plantations and coastal blackthorn (*Prunus spinosus*) scrub, often several kilometres from deciduous woodland. The conclusions from the Eden's long-term study are that (a) hazel is by no means an essential element in the dormouse diet, (b) populations living in coastal scrub cannot rely on a succession of plant food sources (after the blackthorn flowers are over there is a long wait for the fruits), and (c), as a consequence, dormice in such habitats almost certainly rely much more heavily on invertebrate food than has hitherto been recognized (Eden & Eden, 2001). Indeed they recorded well-grown young two months after the blackthorn had stopped flowering in a location where alternative flowers or fruits were not available. They also reported animals fattening up for hibernation at a time when virtually all the sloes had been stripped from the bushes by autumn winds (Eden & Eden, 2001).

If insects really are so important to dormice throughout their active period some of the conservation advice provided for countryside managers may not be wholly appropriate in that it is geared to maintaining what are thought to be essential components of the plant community, not insects (e.g. Bright, Morris & Mitchell-Jones, 2006). In non-classical habitats, managing the land to maximise

invertebrate, and particularly insect, densities may be of greater importance than the plants *per se*. How vital are insects to dormice? Examination of dormouse faeces has shown that they do indeed eat insects during mid-summer (Bright & Morris, 2005) but faecal analysis is a tedious process and does not provide a complete picture of the relative importance of invertebrate and plant foods over time. This is where stable isotopes come in.

Carbon occurs naturally as a radioactive isotope (^{14}C) – utilised in radio carbon dating – and two stable isotopes, the common ^{12}C and a rarer ^{13}C, which makes up about 1.1% of all carbon atoms. Nitrogen has just two stable isotopic forms, the common ^{14}N and ^{15}N, which comprises about 0.4% of all nitrogen atoms. During their incorporation into plant or animal tissues, the ratios of the stable isotopes, for example $^{13}C/^{12}C$ (designated $\delta^{13}C$), change in predictable ways. This means that insects end up with a different stable isotope 'signature' to plants (and that of plants varies depending on their precise metabolism, where in the world they grow etc.). If an animal, like a dormouse, eats only insects its tissues will take on a stable isotope signature close to that of insects. If it eats half plants and half insects, its tissues with have signatures roughly between those shown by these two food sources.

Stable isotope analysis has been widely used to determine the diets of a variety of species as well as, for example, pin-pointing the over-wintering grounds used by migratory birds and butterflies (as stable isotope signatures vary geographically). The tissues analysed may comprise whole animals (e.g. invertebrates) or particular internal organs, but the technique can also be used non-invasively on faeces or hair. Thus by taking hair samples from dormice in Yorkshire (Helmsley and West Tanfield populations) and in Dorset (collected by Sue and Roy Eden) we hope to ascertain the relative importance of insects to the animals' diet and whether it varies geographically. The hair will be dried, ground and burned and the resulting gas analysed in a mass spectrometer, which separates molecules according their size. In this way the dormouse values for both $\delta^{13}C$ and $\delta^{15}N$ can be obtained. We don't know exactly which insects or plants dormice might be utilising, so in the first instance we'll have to use generic 'insect' and 'plant' $\delta^{13}C$ and $\delta^{15}N$ values with which to compare the signatures from dormouse hair. Analyses this winter

will show if the amount of hair snipped is sufficient (denuding dormice would probably not be acceptable to Natural England) and indicate whether the dormouse populations in Dorset and Yorkshire differ in the proportion of insect material taken.

Acknowledgements: I am most grateful to Ann Hanson, Amy-Jane Beer and Sue and Roy Eden for help in collecting material, and to Professor Phil Ineson (University of York) for kindly offering to analyse the hair samples for this initial study. Roma Oxford commented on the text.

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West Tanfield Dormouse Report 2007.

Amy Beer

Three years in and the West Tanfield dormouse population is hanging in there, as are our trusty band of volunteers – so firstly a big thank you to everyone that has turned out to spend a few hours tramping around the woods with us on one of this years' next box checks.

This year we have had five regular leaders – Richard and Jenny both obtained dormouse handling licenses over the winter, which has taken the pressure off Ann, Rob and Amy a little.

At the end of last year we noticed that many of the nest boxes had become damp and unappealing. Volunteers were thus asked to bring along cordless drills so that drainage holes could be added as required. We used 5mm drill bits to make holes in the bottom of damp empty boxes, so it will be interesting to see if the dormice now find them more habitable.

The first record of the year was reported by the landowner, who told us he had seen a dormouse running along the ground from his horse in May. Received wisdom has it that dormice tend not to move over the ground, but it's certainly not impossible.

In May we were overwhelmed with volunteers – some 33 people turned up to help Richard, Jenny and Amy do the rounds. Also joining us was the journalist Roger Ratcliffe, who subsequently wrote two articles for the Yorkshire Post (see below).

The dormouse count however was somewhat lower. Just one individual, a healthy looking male, was found in Heslett Wood. He was awake and active (why are our dormice never torpid?) and we took the liberty of plucking a small quantity of fur from his right haunch to donate to a project coordinated by Geoff Oxford. Samples from dormice at various sites around the country will be subject to stable isotope analysis – a procedure that Geoff hopes will yield information about what our dormice are eating.

The July check, led by Ann and Rob, yielded seven records, five of them from one box. This box contained a wren's nest, which had been converted into a dormouse nursery. In residence were a single adult female and four pink babies. The female immediately burrowed to the bottom of the box and, as the litter was so young, it was decided not to disturb them further, so no more data was collected. Further on in Heslett Wood, Jenny found our first torpid Tanfield dormouse, who was quickly and quietly processed, so as not to wake him up. He did lose a bit of fur in his sleep for Geoff's project, so he might have woken up thinking he'd had a very strange dream! And finally, a dormouse in a box along the disused railway managed to out-manoeuvre Richard and escaped before any details could be collected. This one was deemed to be fit and well, due to the speed with which it disappeared up a nearby tree.

Dormouse nest Photo: Ann Hanson

September has traditionally been our best month for records, but this year we failed to find a single dormouse. Unlike previous years, the weeks preceding the September check had been abnormally dry, so there is good reason to suspect that the dormice were making use of alternative nesting sites. We did find a good number of nests and proto-nests – evidence of recent dormouse activity in the boxes.

What September lacked in dormouse records it made up for in pygmy shrews – five were recorded camping out in dormouse boxes. Clearly 2007 has been a good year for them. Wood mice were present in good numbers at all three box checks this year. Two hares and a tawny owl were sighted in July, and in the same month we also recorded our first amphibian in a nest box – a huge toad was found in a box in Heslett Wood! As usual the boxes proved popular with breeding birds – with complete or partial nests, often with eggs or nestlings and sitting parents recorded in over 140 boxes. Wren, blue

tit and great tit predominated, and some of our more ornithological minded volunteers also recorded willow tit and marsh tit nests. Wasps and bee nests were present in a good many boxes, and earwigs, woodlice and millipedes by the thousand.

Torpid dormouse
Photo: Jenny Davis

Unfortunately, the year was marred somewhat by some rather insensitive tree clearance works in Heslett Wood in the spring. Several boxes were damaged or dislodged from trees, one tree was felled with its box still attached and another was left standing in isolation, surrounded by an empty space, very unlikely to be crossed by dormice. This was in spite of advice sought by the contractor and provided by members of YMG and by the MTUK Dormouse Officer. Interestingly while the dormouse count was down in the area most affected by the clearance, more nests were found in a previously underused corner of Heslett Wood – possibly a result of animals attempting to disperse away from the centre of disturbance.

For more information on dormouse nest box checks at West Tanfield, please contact amyjane_beer@yahoo.co.uk or ann.hanson@fwag.org.uk

Return of the sleepy dormouse (2nd June 2007)

Reprinted from the Yorkshire Post

Roger Ratcliffe

The dormouse - famously sleepy in Alice and Wonderland - has been virtually wiped out in England. Roger Ratcliffe joined a group checking the success of efforts to re-establish it in Yorkshire.

It is a beautiful spring morning in North Yorkshire, and thirty volunteers are scouring a large woodland for one of Britain's rarest mammals. The woods are private, and there are few paths across the carpets of bluebells and pungent wild garlic. In many places a fairly dense under-storey of coppiced hazel, elm and sycamore makes it hard to walk without a pronounced stoop, but the volunteers progress quietly and methodically from one end of the wood to the other.

They are hoping to find the dormouse, a russet and gold-furred cutie with long bushy tail and large black eyes. It spends most of its life in trees, making it hard to spot, and since it's nocturnal anyway there's little chance of the volunteers seeing one in the open as sunlight filters through the wood's verdant canopy of branches.

But despite that - and despite, too, that dormice are only a few inches in size - the chances of encountering them here are actually rather better than finding the proverbial haystack needle. That's because in the summer of 2004 these woods near Ripon were selected for a programme to reintroduce dormice back into the English countryside after the rodent had become virtually extinct in most counties, including Yorkshire, throughout the last century. There are similar schemes in over a dozen other English locations.

Sixty dormice were bred in captivity and taken to the North Yorkshire woodland, where they were kept in small cages to get

used to their new surroundings while being fed on a mixture of apples, grapes, sunflower seeds, hazelnuts, peanuts and - how very English - rich tea biscuits. Then after a couple of weeks they were given their freedom and left with 380 specially made dormouse boxes. Three years on, members of the Yorkshire Mammal Group - who oversaw the release for the Mammals Trust UK - are back in the woods with volunteer helpers for their latest dormouse survey.

Amy checking Dormouse box
Photo: Roger Ratcliffe

The boxes provide the clearest evidence of the rodent's survival, and are loosely attached to trees at chest level to make them easy to check. They look similar to those put up in gardens for nesting blue tits but the hole faces the trunk, which is used by dormice to run up and down the tree. The "dormousekateers", as their leader Dr. Amy-Jane Beer calls them, will look in every one of the boxes for signs of dormice occupancy.

"The best way to check a box," she advises them at the start, "is to approach fairly quietly. Don't go gallumping up to it, shouting and laughing. Then before doing anything take a yellow duster and push it into the hole on the tree side to trap whatever's inside, and carefully unclip the hook at the front to lift up the lid." The volunteers take their dusters and split into groups, each allocated

some of the 40 rows in which the boxes have been arranged through the woods. Every box is pinpointed on maps but a piece of pink tape tied onto a nearby branch makes them easier to find. From the start, hopes of finding a lot of dormice are dashed as many of the boxes are empty. Others have been taken over by squatters in the shape of nesting wrens, great tits and even the less common marsh tit. "And they're all welcome," says Amy-Jane. In fact, many of the boxes won't be occupied by dormice until July, when the birds have finished nesting and dormice start to breed. It's a bit like timeshare. But on Amy-Jane's two-way radio she hears that another group has found a dormouse in one of the boxes and a rendezvous is fixed to see the tiny VIP.

It is a fluffy male. He's surprisingly red-coloured, and very cute. You can see why dormice don't have the PR problem suffered by just about every other rodent. The woods fill with "Oohs" and "aahs". He is weighed and found to be twenty grams, which Dr. Beer says is extremely healthy considering he's not long out of hibernation. Then he's put back in the box and everyone moves off to continue the hunt.

Dormice used to be common throughout much of Britain. Their most famous characteristic is a lengthy hibernation period, which lasts from October to April and can be longer when there's a cold spring. Being nocturnal, they also snooze through daylight hours and it's no surprise that their name comes from the Anglo-Norman word "dormous", meaning "sleeper." They were kept as pets by children in the 19th century, and for some reason they were particularly popular in the Hebden Bridge area of Yorkshire. Appropriately, the dormouse in *Alice's Adventures in Wonderland* was often slumbering, but when Lewis Carroll wrote his children's classic in the 1860s dormouse populations were already in virtual free-fall around Britain. Many broad-leaved woods - the dormouse's prime habitat - had disappeared to provide farmland that would feed the population explosion of Victorian times and allow the growth of towns and cities. Also, there was a reduction in the ancient practice of managing woodland by coppicing - cutting trees down to the stump every few years to promote new growth - and this left woods that had too much shade and not enough food for dormice. By the end of

World War Two dormice were mostly confined to Devon, Somerset, Sussex and Kent. In Yorkshire, they have been virtually extinct since the 1950s with just the odd unreliable record.

Close to the woods near Ripon dormice have also been reintroduced to a smaller woodland. Both are connected by an old railway line that has plenty of trees for the dormice to travel along. So far at least one individual has made the journey - this is known because each animal was fitted with a microchip not much larger than a grain of rice for identification. A male from one wood was found shacked up with a young female inside a box at the other. The hope is that dormice will eventually spread out from here, and also from a third reintroduction wood near Helmsley.

Back with Amy-Jane, after more than six hours of searching, the sum total of dormice found in the wood was - one. Last spring's check had yielded six healthy adults.

However, it is thought that as the dormice have established themselves they may have outgrown the need to use the boxes for their nests.
"In itself, one dormouse was enough," says Dr Beer. "Where there's one there are going to be others, and he was in good condition too. It would have been nice for the volunteers to see a few more, but that's the way it goes sometimes. The dormice don't sit there in the boxes waiting for us to come and find them."

Mixed picture for return of the dormouse (6th Oct 2007).

Reprinted from the Yorkshire Post

Roger Ratcliffe

The dormouse, Britain's cutest small mammal, is showing mixed signs of survival at two locations in North Yorkshire where it has been introduced.

Woodlands near Helmsley and another site outside Ripon were chosen as part of an England-wide programme to save the small russet-and gold furred rodent from near extinction.

The dormouse had been virtually wiped out in Britain during the 19th century as a result of habitat destruction – particularly the clearance of broad-leaved trees to create more farmland – and was said to be almost absent in North Yorkshire since the 1950s.

In 1999 a total of 27 adults were released at the Helmsley site and left with 140 special nest boxes, which provide a crude means of monitoring their survival.

But the Yorkshire Mammal Group has been able to find just one single dormouse this year, and that was in May. No further animals have been traced, despite monthly survey.

"I'm left feeling rather pessimistic" says the group's Geoff Oxford.

"Just one dormouse and no evidence of new nests. We had success with the nest boxes in the early years of the project, but now it doesn't look good."

The dormouse is famous for its lengthy hibernation period, which lasts from October to April, and the next survey will be in May 2008.

The National Dormouse Monitoring Scheme involves reintroduction of dormice at a dozen locations in England, and the general findings so far is that populations in the south of England are faring much better than those in the north.

But at Yorkshire's other reintroduction site – private woodland near Ripon – the news is more encouraging. Sixty dormice were released there in 2004, and provided with 380 nest boxes. But the final survey

of 2007 by the Yorkshire Mammal Group has shown that more than a dozen of the boxes have been used for breeding.
The boxes look similar to those put up in gardens for nesting blue tits but the hole faces the trunk, which is used by dormice to run up and down the tree.
And, says Amy-Jane Beer, one of the Ripon project leaders, the dormice appear to have moved to parts of the woodland they had not previously colonised.
"We also found other evidence of their presence, such as nibbled hazel nuts.
"We assume that when we discover nests we're only finding a very small percentage of the population, because they also nest in natural locations up in the trees.
"The nest boxes are provided to help us find some of those present, otherwise there'd be very little chance of ever seeing them. They're not only tiny but also nocturnal."
There are fears that climate change – especially the mild winters in the UK over the last few years – are having a detrimental effect on the dormouse, as they are with bats and hedgehogs. All of them hibernate, and if a mild or even warm spell interrupts their hibernation there is no food for them to eat.

A Dormouse in the hand
Photo: Rob Masheder

Water Shrews in Danby Dale, North Yorkshire, - Their Diet and Habitat.

Derek Capes

1 Local Survey for Water Shrews, Danby Dale, 2006

1.1 Introduction

Regular readers of Imprint may recall an account of my contribution to the Mammal Society National Water Shrew Survey of 2004/5, reported in Imprint No. 32, 2005 (1).

As a result of questions arising from this work, it was considered that further surveying work might provide more information on the distribution of water shrews within a single stream system and over a longer time period. The choice of Danby Beck was made because it offered a range of differing sites in a reasonably compact area.

1.2 Description of Sites

Danby Dale is a valley in the North York Moors formed by glacial action on Jurassic sandstone and shales. The source of the Beck is at an altitude of 400m draining the peat moorland soil of the surrounding Danby High Moor, and flowing north to join the Yorkshire Esk, approximately 4 miles away at Castleton, 130m above sea level.

Initially 6 sites were selected although one, Site A furthest downstream, was soon abandoned due to summer growth of vegetation making access very difficult. The remaining 5 were used throughout the survey period of 7 visits at fortnightly intervals from mid-July until mid-October. Sites C, D and F were on the beck itself at altitudes of 170, 210 and 290 m respectively. Site B was on a tributary of the beck at 165m altitude and was the same site used the in previous year for the National Survey. Site E at an altitude of 300m was a large pond with water flowing through it, close to the adjacent Site F on the Beck

From its source the beck falls approximately 100m in about half a mile of open moorland to the head of the dale where Sites E and F were located. The pond has some emergent aquatic vegetation and bordered by a grassy margin, is almost surrounded by coniferous woodland. From Site F the stream tumbles steeply over rocks and boulders, with coniferous and mixed woodlands on the steep sides of a ravine, dropping 50m in less than a quarter of a mile.

From this point on the stream flows along the bottom of the dale on a substrate of rocks, sand, and gravel past sites D and C, bordered by several varieties of trees and shrubs including alder, ash, birch, oak, hazel, holly, and sycamore, all of various ages.
At these lower levels, the land is cultivated with "improved" grassland and dairy farming is practiced.

Site B is a tributary of the beck in which the stream flows over boulders and rocks on a gravel bed in a steeply sided ghyll shaded by a conifer plantation also containing a few deciduous trees.

1.3 Method

The method was exactly the same as in the previous year, except that scats were not sent to the Mammal Society for confirmation of identity (although verification was forthcoming as described later in Section 2.2).

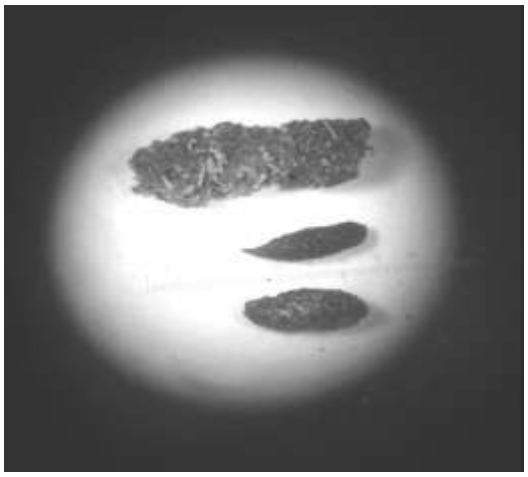

Fig 1: Illustration of Scats :

Top : Water Shrew
Middle : Rodent
Bottom : Terrestrial Shrew

1.4 Results of Survey

The results of the survey are given in Table 1.

The presence of water shrews was detected by scat deposition in the tubes at all 5 survey sites; indeed at 6, because they were also found at Site A which was subsequently abandoned.

In terms of the numbers of scats generated, the results are complicated to some extent because there were times when rainy conditions caused water levels to rise and some bait tubes were lost or inundated. However, Site B, the tributary, which had produced an exceptionally high number of scats in 2005, had consistent activity, generating scats in all 7 periods, and in this survey, the highest total from all sites of 11 scats for a single fortnightly period. High levels of activity were also evident at Site F, the beck at the head of the dale with a positive result in all 7 periods, but not in the same numbers as Site B.

The least productive site was the pond at the head of the dale and next to Site F, where the maximum number of scats in any one period was 4, with 3 single scat periods and two negative ones.

Sites C and D appeared to be intermediate between the highest and lowest activity levels, but also suffered more than the other sites from high water levels leading to loss of tubes.

There was some tentative evidence to indicate that the numbers of scats being deposited were higher towards the end of September and early October, which could correlate to a higher shrew population at the end of the breeding season

1.5 Discussion

Six sites with differing characteristics were initially selected for the survey, and at all 6 sites some evidence of water shrew activity was found. If the animal were to live in separate discreet pockets, it would be most unlikely to have randomly located 6 such groups at the first attempt, and would therefore indicate that the water shrew

was far from uncommon in the survey area, and may have a wide distribution along the surveyed length of the beck.

The values for the number of scats obtained cannot be taken as any other than broadly indicative of activity because the quantity of casters used for bait was not precisely measured and scatting activity is unlikely to be consistent. In any event it is clear that traffic in and out of the tubes results in scats being crushed and fragmented, and possibly being displaced from the tube.

It is interesting to consider how this small mammal can survive in what would appear to be quite a physically hostile environment. Although the higher parts of the North York Moors have a relatively low rainfall (1000 – 1,200mm/annum) compared with other upland areas in Britain, persistent wet winter weather and summer storms can both lead to swollen turbulent streams and flooding. All shrews have to eat very frequently to sustain their high metabolic rate, and it has been calculated that a water shrew needs to eat approximately half its body weight in food every 24 hours (2). Under such adverse conditions the water shrew will presumably consume a lower proportion of aquatic prey and rely more on terrestrial invertebrates.

2. Diet

During the microscopic examination of scats to determine their providers identity, it was noted that the exoskeletal remains of one particular prey item, characterised by parallel fluting perpendicular to the circular cross section of the exoskeleton, was regularly encountered, but its identification was beyond the skill of the writer. So frequently did it occur that it was considered to be the principal prey item.

2.1 Scat examination and freshwater invertebrate survey

To assist in the task of prey identification, contact was established with Mr Leslie Magee of the Freshwater Ecology Section of the Yorkshire Naturalists Union, who most kindly offered his services and the benefit of his long experience in the field.

Several samples of water shrew scats were sent to him for examination.

Among the prey items he identified from the scats were empty caddis cases of several species, terrestrial beetle chitin, aquatic helminthid beetles, a large millipede, several woodlice, a large spider, summer mayfly larvae, fragments of small black riffle beetles, a terrestrial black beetle and small orange coloured beetle.

It has to be appreciated that it can be difficult enough to make an accurate identification when the specimen being examined is intact and in good condition, but when the sample has been killed, chewed and passed through the digestive system of a water shrew, then a different approach may be required.

In 2006 therefore, 8 surveys were carried out by Mr. Magee at several of the sites in late Spring and Summer to determine the species of freshwater invertebrates present and potentially available as water shrew prey items. These surveys identified :-

6 species of Trichoptera,
4 species of Ephemeroptera,
3 species of Plecoptera,
3 species of Coleoptera,
and unidentifiable larvae of Chironomids.

His report (3) however, noted that "the populations were sparse both in the numbers of species and the populations, although the latter vary at different seasons."

These comments refer to the fact that a complete assessment of the freshwater invertebrates would require sampling to be extended over a much longer period of time to accommodate the various stages in the life cycle of certain species. However, the results obtained would be pertinent to the period during which the water shrew work was carried out.

The identity of the principal prey item was still unknown and yet it was clearly abundant enough to sustain many animals over at least the 3 month period of the survey.

2.2 Further scat examination

During the course of the survey, the writer had been in contact with Dr Churchfield about some aspects of the work, and she too kindly offered to look at some of the scats and give an opinion on their content.

A total of 22 water shrew scats were examined by her, with a minimum of 3 samples from each site, and from these, 76 prey items were identified. A broad division of the prey items showed that 64 were terrestrial, 6 were aquatic and 6 contained snail shell remains but it was not possible to determine whether these were of terrestrial or aquatic origin.

Of the 22 scats examined, 17 contained Diplopoda (millipede) remains, and in 10 of these scats they were present in large amounts and represented a high proportion of the scat content. Isopoda (woodlice) were present in 10 scats, 4 of which also showed high numbers. The next most populous orders were Coleoptera (beetles) and Araneae (spiders) found in 10 and 9 scats respectively.

The only aquatic prey remains found were from Trichoptera larvae (caddis) in 2 scats and Asellus (water slater) found in 4 scats. A total of 17 scats contained no aquatic prey at all, and a further 4 contained just one order. Although the sample is too small to draw conclusions, it is of interest that none of the scats obtained at the head of the dale from the pond or the beck nearby contained any aquatic prey.

The full results of the examination by Dr Churchfield are given in Table 2.

Comments accompanying the results (4) referred to the incidence of aquatic prey being very low and that the water shrews appeared to be subsisting largely on a poor quality prey (millipedes) with lots of indigestible exoskeleton and low energy value. These prey are mostly rejected by Common and Pygmy Shrews, presumably because millipedes have the ability to discharge distasteful fluids to deter predators, and terrestrial shrews only eat them as a last resort in cold winters when other prey is in short supply. Millipede remains however, were not uncommon in water shrew scats.

3 Rainfall & Water Quality

In order to provide supporting information, data on rainfall and pH values during the period of the survey were obtained from Mr Tom Chadwick. The data were the results of a local monitoring group, Environet which has been recording the pH of rainfall, and in Danby Beck and Brown Hill Spring, as well as the pond at the head of the dale since 1990 (5).

By chance, two of the stations used for these recordings were the sites E, the pond, and F, Danby Beck close to it at the head of the dale, used in the water shrew survey.

Figures relating to rainfall, and pH at these sites in the months leading up to and including the water shrew survey period are given in Table 3.

The table shows the wide range of rainfall in this upland area, and also the low pH values which can be experienced in Danby Beck. On face value the high acidity may not seem surprising given the peat beds and underlying sandstone on the moor catchment area. The data recorded by Environet show that the pH recorded in the headwaters of Danby Beck has been less than 4.0 for 75% of the time since 1990, rising perhaps to between 5 and 6 during the summer months.

In March 2005 the Centre for Ecology and Hydrology also surveyed the water quality of Danby Beck as part of a larger survey of the North York Moors (6). They measured low pH (4.08), and a strongly negative acid neutralizing capacity. It would appear that the high acidification is probably derived from a combination of the naturally occurring acidic nature of the surface peat layer and the sandstone rock strata below, and additionally, a high concentration of airborne sulphate deposits. In forested streams, nitrate leaching and aluminium concentrations were at higher levels than considered compatible with sustainable populations of fish and invertebrate life.

The causes given for the highly acidic airborne deposits affecting Danby Beck (and many other becks rising on the North York Moors) were in the location of the Moors in relation to the relative close

proximity of several large coal-fired power stations along the River Ouse to the South West, the steel and chemical industries to the North, all with their associated airborne sulphur emissions, coupled with the prevailing wind directions.

4 Concluding Comments

The work has shown that water shrews are present and widespread along Danby Beck. This is despite a physically demanding environment of fast flowing, turbulent water and periodic flood conditions. Under favourable conditions their diet might comprise 50% to 67% of freshwater invertebrate prey (2). The evidence here however, would suggest that the underlying acid nature of the terrain, exacerbated by very high levels of atmospheric acid deposition, create a poor quality of surface water draining into the Beck, and may be a significant factor in reducing the amount of freshwater invertebrate life available for the water shrews consumption. Micro-examination of the scats showed that a high proportion contained little or no aquatic prey at all.

The shrews appear to have adapted to a diet of largely terrestrial prey, which although plentiful, is of low nutritional value. This would imply that the volume of food taken would need to increase markedly to compensate for additional foraging energy requirements.

References:-

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(5) Evans C., *et a*l, (2005), Evidence of severe surface water acidification in the North York Moors National Park.
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Table 1 - Numbers of Water Shrew Scats taken at five Sites in Danby Dale, North Yorkshire 2006.

Site B: Between Church House & Lumley House NZ 693 060

Position	1	2	3	4	Total
3)12 July - 26 July	1	F	3 & F	4 & F	8 & F
4) 26 July – 8 Aug	3 & F	F	1 & F	0	4 & F
5) 8 Aug – 26 Aug	2	2 & F	1	0	5 & F
6) 26 Aug – 7 Sept	1	2	F	F	3 & F
7) 7 Sept – 19 Sept	2 & F	1 & F	1 & F	0	4 & F
8) 19 Sept – 1 Oct	0	3 & F	1 & F	2 & F	6 & F
9) 1 Oct – 15 Oct	2	5 & F	3 & F	1	11 & F
					41 & F

Site C: Stormy Hall Bridge NZ 693 045

Position	1	2	3	4	Total
3) 12 July - 26 July	0	0	0	0	0
4) 26 July – 8 Aug	X	1	X	0	1
5) 8 Aug – 26 Aug	0	X	X	X	0
6) 26 Aug – 7 Sept	3	X	5	X	8
7) 7 Sept – 19 Sept	0	2	3	0	5
8) 19 Sept – 1 Oct	5 & F	0	2 & F	1	7 & F
9) 1 Oct – 15 Oct	0	F	1 & F	2 & F	3 & F
					24 & F

Site D: Honey Bee Nest Farm NZ 690 034

Position	1	2	3	4	Total
3) 12 July - 26 July	0	0	F	F	F
4) 26 July – 8 Aug	X	0	0	0	0
5) 8 Aug – 26 Aug	F	X	X	0	F
6) 26 Aug – 7 Sept	X	X	X	0	0
7) 7 Sept – 19 Sept	1 & F	2 & F	2 & F	3 & F	8 & F
8) 19 Sept – 1 Oct	2 & F	1 & F	1 & F	1 & F	5 & F
9) 1 Oct – 15 Oct	3 & F	2 & F	3 & F	2 & F	10 & F
					23 & F

Site E: Pond – Head of Dale NZ 692 025

Position	1	2	3	4	Total
3) 12 July - 26 July	0	0	X	0	0
4) 26 July – 8 Aug	F	F	0	0	F
5) 8 Aug – 26 Aug	1	0	F	0	1 & F
6) 26Aug – 7 Sept	F	0	1	0	1 & F
7) 7 Sept – 19 Sept	0	0	0	0	0
8) 19 Sept – 1 Oct	3 & F	F	F	1 & F	4 & F
9) 1 Oct – 15 Oct	F	0	0	1	1 & F
					7 & F

Site F : Beck– Head of Dale NZ 693 025

Position	1	2	3	4	Total
3) 12 July - 26 July	0	1	0	0	1
4) 26 July – 8 Aug	1	X	F	0	1
5) 8 Aug – 26 Aug	1	X	F	1 & F	2 & F
6) 26 Aug – 7 Sept	X	0	X	3 & F	3 & F
7) 7 Sept – 19 Sept	1	0	F	1	2 & F
8) 19 Sept – 1 Oct	3 & F	2	3	1	9 & F
9) 1 Oct – 15 Oct	3 & F	0	F	0	3 & F
					21 & F

Key : F – Significant Fragment
X - Tubes Lost/Inundated

Table 2: Water Shrew Scat Analysis – Danby Dale – 2006. **Key:** X – present, XX – present in large quantities.

Site/Sample No.	B/5	B/6	B1/7	B2/7	B3/7	B8	B9	B9	C/6	C/7	C/8	C/9	D4/5	D/8	D/9	E/6	E/8	E/9	F1/5	F/6	F/7	F/8
Terrestrial Prey																						
Coleoptera adults (beetles)	x					x	x	x	x		x				x	x	x			x		
Coleoptera larvae (beetles)											x											
Formicidae (ants)									x													
Other Hymenoptera	x	x							x													
Heteroptera (bugs)												x										
Lithobiomorpha (centipedes)	x																					
Diplopoda (millipedes)	xx	x					x	x	xx	xx		x	x	xx	xx	x	xx	xx	xx	x	xx	xx
Isopoda (woodlice)		xx	x	xx	xx	xx	x	x		x		x								x		
Araneae (spiders)	x				x	x										x	x		x	x	x	x
Opiliones (harvestmen)	x										x				x	x			x			
Acarina (mites)	x																					
Lumbricidae (earthworms)	x	x		x										x	x							
Terrestrial/Aquatic Prey?																						
Gastropoda (snails)	x				x	x		x								x	x					
Aquatic Prey																						
Trichoptera larvae (caddis)	x														x							
Asellus (water slaters)	x		x					x			x											

	Rainfall mm	pH	Site E pH Mean range	Site F pH Mean range
March	115	5.1	6.0	3.9
		3.7-6.6	5.3-6.7	3.7-4.2
April	51	5.7	6.3	3.8
		5.1-6.9	6.0-6.6	3.8-3.9
May	126	5.0	6.5	4.0
		4.0-6.4	6.1-6.7	3.9-4.2
June	20	6.3	6.6	4.7
		5.9-6.6	6.6-6.7	4.5-4.9
July	39	6.3	6.9	5.4
		5.8-6.9	6.9-6.7	5.2-5.5
August	173	5.4	6.7	3.9
		4.1-6.4	6.2-7.1	3.6-4.1
September	55	5.5	6.2	3.9
		4.8-6.1	5.4-6.7	3.4-4.2
October	73	6.0	6.5	4.0
		5.4-6.3	6.1-6.8	3.9-4.1

Table 3: Rainfall and pH Values Measured at the Pond (Site E) and Danby Beck (Site F) at the Head of Danby Dale, 2006

Acknowledgements

The report would amount to little were it not for the very significant contributions made to the investigation by the work of Mr Leslie Magee, Dr Sara Churchfield and Mr Tom Chadwick which has added much to the interest and value of the work. I really am most grateful for their assistance.

Other people to whom I give thanks are Rob Masheder, Dr. Geoff Oxford, Liz Chalk and Sam Watson of the Environment Agency, and the residents of Danby Dale who kindly gave permission for access to the survey sites

Mammals don't always read the handbook …..

Jon Traill
(YMG chair and Yorkshire Wildlife Trust wetlands officer)

If you refer to any text about mammal species (or other animal species for that matter) there will quite often be general information about habits and behaviour for the species, followed by more in depth information (dependent on the text) to inform and entertain.
For one such species, the stoat, the information in several text books I own suggests that they don't like water and will not swim unless they really have to. An encounter I had with a stoat last year (spring 2007) reminds us all that we can write page after page about the animal in question, but remember the animal hasn't read the book.

I was carrying out a spring survey for water voles and otter along one of the River Hull headwater chalk streams, near Driffield in East Yorkshire and had had a successful morning with two positive otter signs and sightings of three water voles busily going about their work amongst the reeds. I then became aware of something working its way towards me along the opposite bank. The movement of the creature through the reeds and reaction of two mallards and a coot nearby fixed my attention. Was I about to witness an otter or more likely, my thoughts turned to the fact that a mink had turned up on the patch.
I stood still and waited to see what would happen. I caught a glimpse of the animal and immediately ruled out otter – it was far too small. I then got a better view as it came closer and I was puzzled. It wasn't right to be a mink. The way it swam and moved along through the water's edge and then the colour, a reddish brown with a black tail tip. I had to take a second look to be sure, but yes it was indeed a stoat and it was not in the water by accident. For the next two or three minutes I watched as the stoat actively searched the reeds for food. It then climbed a nearby coppiced willow and into a moorhen nest, with the moorhen quickly making an exit, alarm calling and flicking its white tail in its hasty retreat. No eggs yet laid the stoat left nest and deliberately climbed back into the water and swam across the stream fighting hard against the current. It was no more than 15 feet away and climbed out on the bank near me, skipped across the open grass and down into the adjacent drainage ditch. It swam across the ditch and up the other side where it proceeded to hunt the dry ground on the bank side amongst the hawthorn bushes, looking for its more usual prey items such as mice and young rabbits.

The whole event took no more than 5 minutes, but fortunately I was armed with my camera and took some photos. I spoke to a friend about the incident about a week later and he had photographed a stoat in the same area, again working the water's edge. It turned out to be the same animal as on inspection of the photos there was a tell tale black mark under its eye.

It just goes to show that the animals we write about don't often read the books themselves and will always surprise us with their behaviour.

Swimming Stoat
Photos: Jon Traill

The Dinnet Lochs.

Gordon L. Woodroffe

The autumn colours surrounding Loch Davan in Aberdeenshire were magnificent in the last week of October. The backdrop of the surrounding hills, the rich colours of the silver birches and the reed beds surrounding parts of the loch were artistically reflected in the still waters of the loch. The peace was occasionally broken as the first whooper swans (*Cygnus cygnus*) appeared and the cries of the pink footed geese (*Anser brachyrhynchus*) as formations of them banked above us before landing in the loch. A heron cautiously settled in a tree above the reed beds and then a flotilla of goldeneye ducks (*Bucephala clangula*) and teal (*Anas crecca*) hugged the shore before venturing into the middle of the loch. While high above the loch a buzzard (*Buteo buteo*) was being mobbed by a carrion crow completed this rich tapestry.

Loch Davan and Loch Kinord comprise the Dinnet Lochs and are part of the river Dee catchment. It was in rivers near these lochs, and on them, that three otters *Lutra lutra* were radio-tracked over many kilometres by Professor Hans Kruuk and his co-workers during their 20 years intensive research programme on mainland Scotland. This was the first otter research project in Britain to use small internal transmitters, implanting them intraperitoneally as pioneered in the USA. In freshwater areas, where otters are largely nocturnal and cover such large ranges radio-tracking is the only way to follow the animals, to discover with whom they associate, where they fish and which habitats they use. One of the many interesting findings of this work was that one of the these otters on Loch Kinord had constructed a ‘natal’ couch, which was an elaborate structure of reeds, collected by the female and fashioned into a large, dome-shaped nest, with an entrance in the sides. This, as found with other natal holts, was well away from open water.

While that research programme finished many years ago Hans has been continually surveying and watching the otters on the lochs which are only a few miles from his home. As we walked around Loch Davan that October morning Hans pointed out that most of the spraints he was now finding contained the remains of mammals and birds. In the past eels made up a high proportion of the diet but there are now very few eels in the lochs; the principal fish being perch and pike but the latter species are only occasionally taken. Whereas the otters used to raise their cubs on the lochs they had not bred in the last eight years. It would seem that they are living rather close to the limits of their possible existence in these freshwater lochs. As Hans

emphasised: only now are we learning to see otters as just one aspect of much larger ecosystems. Their livelihood is closely dependent on what happens to fish and other prey populations, and therefore to the insects in the streams and to the kelp beds in the sea*. In addition, one of the results of his elegant research is that otters show themselves to be highly vulnerable; in many ways it is surprising that they are still present at all along banks and coasts.

Finally, if readers are at all interested in otters and want to learn how meaningful research is planned they can do no better than to refer to Hans Kruuk's most readable book: *Otters: ecology, behaviour and conservation.* Published by Oxford University Press.

* Detailed research on Shetland's coastal otters was carried out over the same period.

Pine Martens in North East Yorkshire – an Update.

Derek Capes

Some three or four years ago there was an increased interest in establishing the status of the pine marten in and around the North York Moors which because of the publicity given to it, resulted in many claimed sightings of the animal. These and others going back some forty years were compiled in an article in 'Imprint' No.31 (2004). Differing degrees of confidence were attached to these sightings by the Vincent Wildlife Trust, depending on the conditions at the time of the sighting. There was however, only one item of indisputable recent evidence – that of the skull found by Charles Critchley in 1993.

In an attempt to seek new hard evidence of any possible pine marten activity, an opportunity to have DNA analysis carried out on hairs was taken up and it was decided to construct a number of hair-grabbing bait tubes. The bait tubes were made from wood to a design recommended by the Vincent Wildlife Trust and used with some success in Wales. They were basically a square cross section tube closed at one end with wire mesh. Halfway up one side at the open end an extending steel spring was attached. This stretched to engage with a hook on the opposite side in such a way that a creature the size of a pine marten after entering the box would be likely to dislodge the extended spring on exit, and so trapping hairs between the coils. Two baits were used in each box – cat or dog food and a chicken egg.

The boxes were positioned in trees at a height of about five feet so that they could be secured and subsequently rebaited without the use of ladders or steps.

Sites were chosen in coniferous, deciduous and mixed woodland along the north-western escarpment of the North York Moors from Ingleby Arncliffe to Kildale, except one which was set up near Chop Gate in Bilsdale. Some of the sites were in areas from which high confidence sightings had been made. The distance between sites ranged between 1.5 and 3.5 miles. The tubes were first examined in early March 2006, and then monitored on an approximately monthly basis.

Results

Ingleby Arncliffe (SE 45 99) 13 visits – 3 hairs samples obtained in April, May, November. – Egg gone on 2 of these 3 occasions and 1 other time Also egg eaten in tube and on ground.

Swainby (NZ 49 01) 13 visits – 1 hair sample obtained in July, although the egg remained intact. At other times the egg was consumed in the tube or fragments of shell were found below it

Carlton in Cleveland (NZ 51 03) 13 visits – 1 hair sample obtained in November, but the egg was not disturbed. On one other visit the egg had been moved within the tube

Great Broughton/Ingleby Greenhow (NZ 57 03) 12 visits – 1 hair sample obtained in November, the egg remained untouched. The egg had been moved in October.

Battersby (NZ 58 08) 12 visits - No hairs obtained but on 5 visits the egg had been removed without any remains and without triggering the spring. Once the shell was found below.

Kildale (NZ 60 10) 8 visits - No hairs obtained. On the first visit in March 2006, the egg was taken, the spring detached but no hair. In September the whole tube was cleanly removed.

Chop Gate (NZ 57 00) 5 visits – 1 hair sample obtained in October.

Discussion

Obtaining hairs turned out to be the easy bit. Extricating them from the coils of the spring on a windy hillside and transferring them into a sample tube was really quite difficult because they were short and fine like those from the underside of an animal. None were the long thick guard hairs. Three samples were lost in this way and clearly for any future work using this technique, it is an area which needs more thought.

The first two hair samples were submitted for DNA analysis as arranged. After a reasonable period of time queries were made about any results and further delay was encountered, until it was learned that DNA analysis on hairs had fallen out of favour in the establishment concerned, and DNA analysis of scats was now considered to be the way forward.

Clearly mammals other than pine martens are just as likely to be attracted to the baits. These might include stoat, polecat and their hybrids, mink, weasel, feral cat, grey squirrel and brown rat. Not many of these however, would have a sufficiently large jaw gape to carry a hen egg down a tree and away without trace which occurred three times at Ingleby Arncliffe and five times at the Battersby site. Such was the consistency of this pattern at Battersby that it raised the possibility of human intervention, especially as the tube at the next site at Kildale 1.5 miles away was removed in such a way as to leave not a trace eg, of the wire used to secure it to the tree. A disadvantage to the use of this method would be that for anyone who considered any of the above list of mammals to be vermin, the opportunity to substitute the bait for one containing poison, could be attractive.

The work has demonstrated that the technique can be used successfully to collect hairs from mammals, but until the author can learn of a relatively simple means of identifying any hairs obtained the work will not be continued.

An interesting new initiative has recently been announced by the Vincent Wildlife Trust and partners to be based on scat searches, followed up by some recently developed DNA analytical techniques. The work will be conducted through 2008 and 2009 and cover areas of England and Wales which have had a high number of good sightings. North Yorkshire is one of them.

"Mammal meanders" – a report of YMG mammal recording walks 2007.

Ann Hanson (Expedition Leader) and ***Rob Masheder*** (Navigator)

Pine marten hunting in Wykeham Forest, the North York Moors – 10th December 2006

First records of the day were two roe deer bouncing across Moor Road in the centre of Wykeham Forest, swiftly followed by some mole hills in the grass beside the car park. A good start without even getting out of the car! But get out we did, and after plodding along several forest tracks, carefully searching for pine marten scats along the track edges, we were rewarded with a few more mammal records. Sadly, no pine martens, although there have been a smattering of likely sightings in the locality over the years. What we did find were yet more mole hills, some roe deer tracks and droppings, grey squirrel nibbled pine cones, rabbit droppings, and finally a speedy field vole running across the track (not so speedy that we couldn't get a quick look at it's body to tail ratio and identify it down to species after a bit of a "discussion"). Last stop outside the forest was a tea shop in Pickering – a fitting end to a successful days recording, if a bit slim on pine martens…

Up the Ure at Masham, North Yorkshire – 20th January 2007

The main features of this New Year walk seemed to be wobbly stiles and small pushy ponies, neither of which were appreciated by the expedition leader's rapidly deteriorating back! The River Ure was quite impressive after recent heavy rain and we found ourselves doing a bit of wading across small tributaries just to add to the excitement. As for mammals, first records were some grey squirrel footprints on a muddy track just north of Masham, followed by rabbits in the fields near Nunnery Nook. Heading towards Marfield Pit, a mainly bird reserve with several flooded gravel pits, we found mole hills and yet more rabbits. Beyond Marfield Pit we headed for the river and, after a good deal of searching, Rob the human otter hound found some fairly fresh otter spraint on a moss-covered tree trunk next to the river, in a small patch of woodland below an old lime kiln. Following the river back down towards Masham, we found more mole hills in wet grassland near Jockey Well and a fox scat neatly deposited on a mole hill a bit further along

the footpath. One last stream to ford and we fell into a much appreciated tea shop in Masham market square to compare mammal notes and minor medical complaints.

A stroll around Swinsty Reservoir, near Harrogate – 25th March 2007

First records of the day were grey squirrel nibbled fir cones in the car park at Swinsty Moor Plantation, followed by a rather macabre rabbit skin and some mole hills on the footpath heading towards the reservoir. We crossed Fewston Embankment and picked up a few more mole hills in the woods to the north of the reservoir, followed by two grey squirrel dreys and one noisy squirrel. A quick lunch stop revealed some rabbits munching in a meadow, and post-lunch records included several grey squirrel dreys and some roe deer slots in the woodland north of Swinsty Hall. The last record of the day was unusual to say the least, as our return to the cars found a small bat happily hunting midges in the car park, quite undeterred by numerous delighted onlookers. The bat appeared to be a pipistrelle, but as no-one had thought to bring a bat detector along, it was impossible to say which species!

The River Wharfe at Grassington and Grass Wood Nature Reserve – 22nd April 2007

A spring walk in the Yorkshire Dales found us walking up river from Grassington and round and back via Grass Wood Nature Reserve. Our first records of the day were some interesting riverine birds at Linton Falls, with grey wagtails hopping around on the mid-stream boulders and dippers nesting in the remains of an old mill. A female goosander was also recorded a bit further up the river and bull finches in Grass Wood. But enough of birds, and back to the mammals. First mammal records of the day were rabbit holes and droppings in a grass field just beyond the bridge over the river at Grassington. The area around the bridge was thoroughly searched for signs of otter spraint, but none could be found. Mole hills were recorded in the fields near Ghaistrill's Strid and then we carried on up into Grass Wood. Squirreled hazelnuts and pine cones were everywhere in Grass Wood and a dead grey squirrel confirmed that the wood is no longer home to native red squirrels. Mole hills and rabbit droppings were also quite frequent within the wood, as were flowering dog violets. A small patch of a less common ancient woodland indicator, herb paris, was another interesting botanical find. Back to mammals, and a YWT Warden we met along the way informed us that he regularly sees roe deer and stoats in Grass Wood. Just to prove him right, a

perfectly formed stoat scat was found on a mossy rock near Gregory Scar, along with yet more squirreled nuts and cones! The end of the day found us recording another fine tea-shop in Grassington town centre.

Stoat Scat, Grass Wood
Photo: Ann Hanson

Wandering along the Wharfe (again), near Harewood – 17th November 2007

Once again the moles were in there first, with a smattering of mole hills next to the car park near East Keswick. Following a footpath through fields down to the river we recorded more mole hills, rabbit latrines and numerous rabbit burrows along the ancient hedgerows. Fox scat was evident as the footpath reached the river and a dead fox was found in the undergrowth a bit further along (a victim of gunshot wounds). Woodland alongside the river revealed both grey squirrel and wood mouse nibbled hazelnuts, then Rob's otter detector system went onto alert again. In a fairly short space of time he found three otter spraints, including a couple of fresh ones, on rocks in the edge of

the river. Carrying on up river we found more rabbit burrows and fur, mole hills and a couple of herons, who viewed us with suspicion. A lunch stop in Carthick Wood gave us excellent views of several red kites and a couple of common buzzards – the kites looking especially fine with the winter sun glinting off their feathers. A couple of kites, and a couple of mammalogists, also spent some time watching a man doing a spot of ferreting for rabbits on Bank Hill at the other side of the river, where a huge rabbit warren was quite visible even without binoculars!

Otter Spraint
River Wharfe,East Keswick Fitts
Photo: Rob Masheder

Carthick Wood yielded more grey squirrel and wood mouse nibbled hazelnuts, and a short walk further up the river found another otter spraint on a tree on the south bank of the Wharfe at Netherby Deep. A toasted teacake in Wetherby rounded the day, and this year's walks, off nicely!

Squirrel feeding station, Grass Wood
Photo Ann Hanson

Many thanks to those of you who came along on this year's mammal walks – perhaps our aim to produce a North Yorkshire Mammal Atlas will spur some of you into coming along on the YMG walks in 2008 or even to head off into the countryside on your own expeditions. Just remember to take along a mammal recording form and arm yourselves with a good knowledge of local tea shops!