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## Editor's Report

*Geoff Oxford*

This issue of *IMPRINT* is tinged with sadness as we report the death of Edna Shann, one of the founder members of the bat section of the Yorkshire Mammal Group. Michael Thompson's obituary on page one has already appeared in *Plecotus*, the newsletter of the North Yorkshire Bat Group, but it is reproduced here as a more permanent tribute together with four of Edna's delightful water colours of bats, generously sponsored by the Bat Group.

Earlier this year I took over the editorship of *IMPRINT* as a temporary arrangement when illness prevented Beryl Cronin from completing her final year in this role. I am extremely grateful to Beryl for her help with the present issue. 'Yet knowing how way leads on to way', alert readers will notice in the list of 1999 Committee members on page 45, that this 'temporary arrangement' has become permanent! Consequently, brace yourself for entreaties and cajoling in the new-year as I gather material for the 1999 volume. Beryl took over *IMPRINT* in 1993 and immediately set an extremely high standard of production that I am struggling to emulate. On behalf of the YMG I would like to thank her very much indeed for all the dedicated work she has put in during the past five years.

In her editorial last year, Beryl remarked that it seemed to be the 'Year of the Water Vole' judging by the number of articles on this species in *IMPRINT*. This year carries on the theme with two reports of surveys of water voles along the River Foss, and I'm happy to say that here they seem to be thriving. This time we also have a number of reports and articles on Pipistrelle bats. Many members of the Yorkshire Mammal Group will remember completing some time ago a questionnaire devised by Professor Mark Williamson (University of York) to determine which mammalian species we (and many other people) felt were pests. In this issue, Mark reports for the first time his analyses of the results of this fascinating survey.

I hope you enjoy the varied contents of *IMPRINT* 1998, and its slightly altered style. If you have any comments on the substance and/or layout I shall be pleased to hear them.

## Obituary: Edna Shann

*Michael Thompson*

Edna Shann, 75, who died recently after a short but distressing illness, will be much missed by her many friends. She devoted herself to many voluntary organisations during her very active and full life, as well as being Personal Assistant to a number of Generals at the Northern Command Headquarters at Fulford, York, where she worked as a civilian.

Edna, who lived in Tadcaster, never married. For many years she was a Samaritan, answering calls for help at the York branch. It was here that she met a fellow Samaritan, Sheila Stebbings (then Walsh) who, in the late 1970s, encouraged her to come along to meetings of the Yorkshire Mammal Group.

From the time she joined the Group, she came faithfully to many of the evening and field meetings, and played a major part in the activities. By the beginning of the 1980s her interest turned to bats. Together with Lesley Helliwell, she helped in the long-term pipistrelle bat nursery colony study around York. Although Edna never obtained a ringing licence, she wrote on the recording sheets, in beautifully clear handwriting, the ring numbers of bats newly ringed or recaptured. Her contribution to the whole survey was invaluable. She soon became familiar with bat morphology and was able to identify many of the more common species around York. Eventually, together with Lesley, Edna became the leader of the York-based North Yorkshire Bat Group which was, and still is, part of the Yorkshire Mammal Group. Between them they organised many bat activities and responded, when possible, to requests for roost visits in the York area on behalf of English Nature.



Watercolour paintings by the late Edna Shann:  
Whiskered/Brandt's bat (above), Pipistrelle bat (below)



Edna will be remembered by the general public for her appearances at many county and wildlife shows where she presented the Bat Group's exhibition. As well as manning the exhibition, Edna would demonstrate injured captive bats. She also gave talks on bats to various other groups. As a result of all this activity, Edna raised a considerable amount of money for the North Yorkshire Bat Group for equipment and for bat conservation. Although clearly ill, she still attended York City Council's Environment Day at the end of May, on behalf of the Bat Group.

It is not possible to measure the contribution Edna Shann made to the conservation of bats in and around York. Rest in peace, Edna.

## Cutting Edge - Mammal Snippets

Compiled by Geoff Oxford

### Factors Affecting Emergence Time in 45 kHz Pipistrelles

Ian Adamson recently completed an undergraduate research project at the University of York which set out to examine ecological differences between the 45 kHz and 55 kHz species of *Pipistrellus* in the Vale of York. He reinvestigated 41 of the colonies originally studied by Michael Thompson in the 1980s, but of these only 28 were at their 'correct' address, three a few hundred metres away and 10 could not be located at all. Frustratingly, all appeared to be of the 45 kHz species. Abandoning his original plan, he looked at roost emergence behaviour and roost utilization of one colony in Acomb, York. The bats used three house roosts during late July to early September and little pattern could be discerned in which roost was used when. Time of emergence was monitored in relation to sunset and temperature, wind speed and direction, barometric pressure, rainfall and cloud cover just before emergence. Times were taken for both the initial bat out (the 'scout') and the first bat of the first main pulse. Pipistrelle bats often emerge in a series of pulses, which has been suggested to act as an anti-predator device. Adamson found that the scout bat emerged 25-35 minutes after sunset and the first bat of the first pulse emerged 8-15 minutes later.

Day-to-day variation in the emergence delay (relative to sunset) was correlated with the climatic variables measured. Rainfall, wind speed and wind direction had no apparent effect on emergence times. Bats tended to emerge significantly later as both cloud cover and temperature increased, and significantly earlier as barometric pressure increased. These relationships applied equally to both scout and first pulse bats. Climatic conditions are, of course, interrelated to some extent. High pressure in summer tends to produce low cloud cover, both of which decreased emergence delay. Temperature was enigmatic in that high atmospheric pressure is usually associated with high temperatures - in this study high temperatures increased emergence delay but high pressure reduced it! Adamson speculated that bats may be able to detect barometric pressure within the roost and use this as an indication of conditions outside. Previous work has shown that insect abundance is relatively lower at high barometric pressures and so, under these conditions, bats may have to emerge earlier to increase their foraging time.

Reference:

Adamson, I. M. (1998) *The distribution and temporal emergence patterns of the Pipistrelle bat (Pipistrellus pipistrellus) in the Vale of York*. Unpublished B.Sc. honours project, University of York

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### Roads as Barriers to Small Mammals

The increasing density of the road network in Britain raises the question of whether roads act as significant barriers to the movement of small mammals. One of the problems here is to determine whether it is the width of the road that is most important in impeding movement, or the volume of traffic - the two are usually highly correlated because wide roads are built in places where traffic volume is expected to be high. To circumvent this confounding effect, Richardson *et al.* (1997) studied small mammal movements along and across the busy A14 in north Cambridgeshire (20-30 m wide, including sightlines, and with up to 5000 vehicles per hour) and compared them with those across a vehicle testing track (30 to 60 m wide, including sightlines, and with up to 60 vehicles per hour). They showed that c.50% of marked rodents (field voles, bank voles and wood mice) spontaneously moved at least 28 m along the side of the A14 from their original trap site, and therefore were quite capable of moving across the width of the road. None was recorded as crossing the A14 spontaneously. A small percentage of animals translocated to the other side of the A14

from their original site of capture did recross the road (33% of voles) but far fewer than recrossed the less busy testing track after translocation (71% of voles). The study indicated, for the first time, that traffic intensity itself is a potent barrier to small mammals, as well as road width.

Reference:

Richardson, J.H., Shore, R. F., Treweek, J. R. & Larkin, S. B. C. (1997) Are major roads a barrier to small mammals? *J. Zool., Lond.*, **243**: 840-846

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### Habitat Preference in 55 kHz Pipistrelles

Determining the behavioural and ecological differences between the recently separated 45 kHz and 55 kHz phonic species of pipistrelle bats is very much a vogue activity at present. In a recent paper Oakeley & Jones (1998) quantified habitat features within two kilometres of eleven 55 kHz pipistrelle colonies in south-west England, and compared them with eleven similar areas around points picked entirely at random. They found significantly more water, especially water edge with woodland/hedgerows on the banks, and continuous hedgerows with emergent trees round the bat roosts compared with within the randomly chosen areas. The authors suggest that the presence of water might be linked with a good food supply, and the continuous hedgerows with the linear features often used by bats while moving from the roost site to their feeding grounds. The take-home message is that conservation of these aspects of the environment are important (and not just for bats!).

Reference:

Oakeley, S. F. & Jones, G. (1998) Habitat around maternity roosts of the 55 kHz phonic type of pipistrelle bat (*Pipistrellus pipistrellus*). *J. Zool. Lond.*, **245**: 222-228

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## Field Studies Reports

### Ashberry Pastures, near Helmsley

*Ann Hanson*

Ashberry Pastures is a Yorkshire Wildlife Trust nature reserve near Helmsley and has been trapped for small mammals on two previous occasions by the Yorkshire Mammal Group. The reserve is a south facing valley with wooded slopes and has a stream with wet meadows and boggy areas in the bottom. The trap was carried out on 26 -27 September, 1997.

Two different sites were trapped, with 25 Longworth traps being placed in each area. The two sites were a woodland edge above wet grazed grassland (trap site 1) and an area of mixed deciduous woodland alongside a public right of way (trap site 2). Traps were set on Saturday evening and checked on Sunday morning by members of the Yorkshire Mammal Group and Helmsley Wildlife Watch Group.

**Results: 27.09.97**

**Participants:** Ann Hanson, Rob Caton, Robert Masheder, Helmsley Wildlife Watch Group.

**Weather:** Cool night. Warm, dry and cloudy morning.

Site	Species	Sex (M/F)	Age (J/A)	Weight (g)	Notes
1	<i>Apodemus sylvaticus</i>	F	A	21	
	<i>Apodemus sylvaticus</i>	M	J	23	
	<i>Apodemus sylvaticus</i>	F	J	17	
	<i>Apodemus sylvaticus</i>	F	J	19	
	<i>Apodemus sylvaticus</i>				Escaped
2	<i>Clethrionomys glareolus</i>	F	J	14	
	<i>Clethrionomys glareolus</i>	F	A	18	
	<i>Apodemus sylvaticus</i>	F	A	19	
	<i>Clethrionomys glareolus</i>	F	A	15	
	<i>Clethrionomys glareolus</i>	M	A	14	Ticks

<i>Clethrionomys glareolus</i>	M	A	16	
<i>Clethrionomys glareolus</i>	F	A	24	Growth on stomach
<i>Clethrionomys glareolus</i>	F	A	14	

#### **Comments:**

Only two small mammal species were captured on this trap, wood mice (*Apodemus sylvaticus*) and bank voles (*Clethrionomys glareolus*). Wood mice were mainly trapped in the woodland edge habitat and bank voles mostly within the mature woodland. Adults and juveniles of both species were present, indicating healthy populations.

This reserve has been trapped for small mammals in the past. In September 1992 (see *IMPRINT* No.20) only eight wood mice were captured in the grassy area which had been heavily grazed by sheep at the time. In September 1993 (see *IMPRINT* No.21) three wood mice and two common shrews were captured. This low number could have resulted from the fact that the area was extremely wet at the time due to heavy rain, so animals may have moved up to the drier wooded slopes.

The number of small mammals trapped on the current occasion was quite reasonable for the time of year and the number of traps laid.

Many thanks to Rob Caton and Helmsley Wildlife Watch Group for their help with this trap.

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### Water Vole Survey of the River Foss - I

*Ann Hanson*

The River Foss, from Old Earswick to the outskirts of Strensall, was surveyed for water voles by the Yorkshire Mammal Group on Sunday 7 September, 1997. This was carried out as part of the National Water Vole Survey 1996-1998 using data collection sheets produced for this survey.

The survey sheets required such information as the site being surveyed, the habitat type, bordering vegetation and land use, any disturbance in the area, water vole sightings and signs and also signs of other wildlife present (Fig.1).

We surveyed five 500 m stretches of the Foss from Old Earswick to Strensall and filled a separate sheet in for each stretch of the river. One of the areas ran alongside Fosslands Nature Reserve, other areas were close to the villages and the rest in open farmland. The Foss in this area is a fairly narrow, shallow, slow moving river, with steep banks and dense riparian vegetation, ideal habitat for water voles.

Disturbance in the area was generally in the form of river banks being cut and signs that the river itself had been dredged fairly regularly. Wildlife other than water voles which were sighted included moles, moorhens, ducks, housemartins and various species of dragonflies and butterflies.

Water voles and their signs were searched for by walking along the river banks and also wading in the river in more shallow areas with a stable bottom. This latter method seemed to temporarily drive water voles out of their burrows, so they were more easily spotted.

Water voles were actually seen in two of the five areas surveyed, including sightings of them swimming and peering out of their burrows. Signs in the form of burrows, latrines, footprints and pathways in the vegetation were found in all five areas surveyed, indicating a healthy population along this particular stretch of the river. One area of riverbank even had a small grazed area adjacent to some burrows, commonly known as a water vole lawn.

Thanks to everyone who turned out and took part in this survey, for once we were actually lucky enough to see the animals we were surveying for, instead of just the normal tantalizing paw prints and droppings. The results will form part of a national survey, which will hopefully help produce a conservation strategy to protect the future of the water vole in Britain.

Figure 1. Sample sheet from the River Foss water vole survey

Site Number 3  
10 km square SE65

**WATER VOLE SURVEY 1996-1998**

**GENERAL**

Recorder YORKSHIRE MAMMAL GROUP Date 7/9/1997  
Water Authority YORKSHIRE WATER Grid ref 617582  
County YORKSHIRE

**SITE NAME / RIVER** River Foss

<b>HABITAT</b>	<b>SHORE / BANK</b>	<b>BORDERING LAND USE</b>	<b>BANK PROFILE</b>
Ditch <input type="checkbox"/>	Boulders <input type="checkbox"/>	Upland grass <input type="checkbox"/>	flat < 10 <input type="checkbox"/>
Dyke <input type="checkbox"/>	Stones <input type="checkbox"/>	Permanent / temp grass <input type="checkbox"/>	shallow < 45 <input type="checkbox"/>
Gravel Pit <input type="checkbox"/>	Gravel <input type="checkbox"/>	Mix broadleaf woodland <input type="checkbox"/>	steep > 45 <input checked="" type="checkbox"/>
Sludge Pond <input type="checkbox"/>	Sand <input type="checkbox"/>	Conifer wood <input type="checkbox"/>	vertical / undercut <input type="checkbox"/>
Lowland Lake <input type="checkbox"/>	Silt <input type="checkbox"/>	Peat bog <input type="checkbox"/>	
Upland Loch <input type="checkbox"/>	Earth <input checked="" type="checkbox"/>	Arable crop <input type="checkbox"/>	<b>Depth</b>
Reservoir <input type="checkbox"/>	Rock Cliffs <input type="checkbox"/>	Salt Marsh <input type="checkbox"/>	< 0.5m <input type="checkbox"/>
Running Water <input checked="" type="checkbox"/>	Earth Cliffs <input type="checkbox"/>	Urban / Industrial <input type="checkbox"/>	0.5 - 1m <input checked="" type="checkbox"/>
Marsh / Bog <input type="checkbox"/>	Canalised <input type="checkbox"/>	Park / Garden <input type="checkbox"/>	1.0 - 2m <input type="checkbox"/>
Canal <input type="checkbox"/>	Reinforced (man-made) <input type="checkbox"/>	Heath <input type="checkbox"/>	> 2m <input type="checkbox"/>
	Poached <input type="checkbox"/>	Fen <input type="checkbox"/>	
		Cattle / Grazing <input type="checkbox"/>	
		Bank fenced <input type="checkbox"/> yes <input type="checkbox"/> no <input checked="" type="checkbox"/>	

**VEGETATION (DAFORN)**

Bankside trees  Bushes  Herbs  Submerged weed   
Reeds / sedges  Tall grass  Short grass

**WIDTH**

1m  1 - 2m  2 - 5m  5 - 10m  10 - 20m  20 - 40m  > 40m

**CURRENT**

Rapid  Fast  Slow  Sluggish  Static

**SURVEY DISTANCE**  km **DISTURBANCE** BANKS CUT REGULARLY. RIVER DREDGED IN PLACES.

**WILDLIFE**

<b>WATER VOLE</b>	<b>RAT</b>	<b>OTTER</b>
Sightings <input checked="" type="checkbox"/> <u>2</u>	Sightings <input type="checkbox"/>	Sightings <input type="checkbox"/>
Latrines <input type="checkbox"/>	Droppings <input type="checkbox"/>	Spraints <input type="checkbox"/>
Burrows <input checked="" type="checkbox"/>	Footprints / runs <input type="checkbox"/>	Footprints <input type="checkbox"/>
Footprints <input type="checkbox"/>		
Pathway in vegetation <input checked="" type="checkbox"/>	<b>MINK</b>	
Feeding remains <input type="checkbox"/>	Sightings <input type="checkbox"/>	
Cropped grass around tunnel entrance <input type="checkbox"/>	Scats <input type="checkbox"/>	
Colour (black / brown) <input type="checkbox"/> <u>Brown</u>	Footprints <input type="checkbox"/>	

**IDENTIFIED PLANTS FROM FEEDING REMAINS:**

**OTHER WILDLIFE** Common Noddy? Brown Noddy? Mole

Coot  Moorhen  Kingfisher  Heron  Waterfowl  Dipper

## Water Vole Survey of the River Foss - II

*Geoff Oxford*

The recent decline in the fortunes of the water vole (*Arvicola terrestris*) has prompted a number of local and national surveys designed to monitor future population trends in greater detail. A previous YMG field meeting had walked one bank of the River Foss from Old Earswick (SE 616572) upstream to the railway bridge at Strensall (SE 625600) (see previous article) and found evidence of a thriving water vole population along most of this 4 km stretch, including the sighting of several animals. I thought it would be a good idea for the YMG to take a section of the River Foss and try to semi-quantify its water vole population over a number of years in order to detect population changes. The section chosen for the meeting on 19 April, 1998 was from Huntington Church bridge (SE 615561) upstream to the bridge carrying the York ring road (SE 617569), a distance of c.1 km.

Both sides of the river were slowly walked, noting signs of water voles: (i) holes in the bank, (ii) footprints, (iii) droppings and (iv) sightings. Holes were abundant in both banks throughout the surveyed stretch. On the eastern side of the river, where the bank was slightly higher, several holes led vertically down from the bank top within the layer of tussocky grass. Around these holes there were clear signs of grazing, producing circular mini-lawns - a classic water vole sign (Woodroffe, 1996). One or two feeding stations, with bitten off grass blades were found on the western bank. Footprints were very evident on the sloping mud along the west bank of the river. They were, however, sporadic in that there were stretches of mud without prints and then regions where the mud was covered with them. Some were extremely clear and illustrated the fact that in water voles toes 1 and 5 of the hind foot are at almost 180° to each other (Woodroffe, 1996), unlike those of the brown rat (*Rattus norvegicus*) in which the angle is considerable less. Droppings were seen along both banks but they were relatively uncommon, possibly because of recent floods. It might also have been too early in the season for latrines, which are used at territorial markers, to be well established. In terms of sightings we spotted just one (virtual) animal; in other words, we heard a 'plop' and saw a trail of mud kicked up from the bottom!

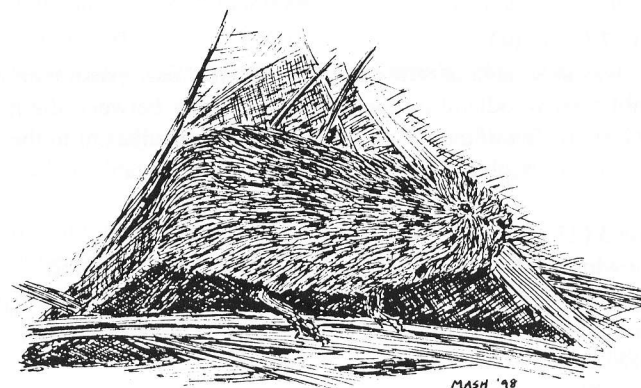
It is obvious that there is a good water vole population along this stretch of river, but it wasn't at all clear on the ground in what way 'good' could be quantified, even crudely, for comparison with future surveys. Perhaps a better way forward would be for the YMG to take a number of likely water vole habitats and monitor the presence and absence of animals in them over time. This would at least give an indication of extinction and re-colonisation events.

Finally, a thought about conservation. Some weeks before this meeting, Roma and I had walked the same stretch and spent a good 10 minutes watching a water vole feeding on the bank about 100m upstream of the church bridge. The riverside vegetation was then relatively long and lush and the vole was obviously unperturbed by people and dogs walking along a path only 15-20 m away. During the YMG visit, the bank vegetation along this stretch was very short as a result of sheep grazing. Short vegetation is not favoured by water voles and a sheep-proof fence one to two metres in from the river bank could easily have protected the vole habitat.

Many thanks to Mary Youngman and John Drewitt for joining me in this survey.

Reference:

Woodroffe, G. (1996) *The Water Vole*. The Mammal Society, London



**Rievaulx Terraces and Temples: The Dennis Aspinall Memorial Trap  
1997**

*Ann Hanson*

The Dennis Aspinall Memorial Trap for 1997 was carried out at Rievaulx Terraces and Temples on 19 - 21 September, 1997. Rievaulx Terraces and Temples is a National Trust property near Helmsley, North Yorkshire. Several trap sites were chosen to provide a sample of the small mammal species, population numbers and habitat preferences in this area.

Several different areas were trapped, including woodland, rough grassland and riparian habitats. The riparian habitats were along an old canal, associated with the nearby abbey. This had been covered over by vegetation, but is in the process of being gradually cleaned out and opened up. One hundred Longworth traps were set on Friday and Saturday evenings, and checked on Saturday and Sunday mornings, by members of the Yorkshire Mammal Group and Norton Watch Group.

**Habitat notes and trap positions.**

**Trap site 1 (25 traps).**

This site was just inside the gateway to the Temples and Terraces, and consisted of new tree planting adjacent to an established woodland, with long, rough grass between the trees. Traps were placed in two lines of 10 traps and one line of five traps.

**Trap site 2 (25 traps).**

This site was in an area of new tree planting, with farm pasture on one side and established woodland on the other. The grass between the new trees was quite short. Two lines of 10 traps were placed adjacent to the pasture, and five traps were placed randomly adjacent to the established woodland.

**Trap site 3 (25 traps).**

The following sites were all within an area of mature woodland.

**3a)** This site was a grassy glade surrounded by mature woodland, with long, rough grass and scattered log piles. Five traps were placed randomly.

**3b)** This site was a rocky/grassy bank alongside the woodland track. The

slope above the bank contained a coppiced area and patches of brambles. Five traps were placed randomly.

**3c)** This site had been recently coppiced, and consisted of very young coppice and log piles. Five traps were placed randomly.

**3d)** This site was a dense bramble patch alongside the woodland track, surrounded by mature woodland and hazel coppice. Three traps were placed in the bramble patch, and two traps were placed above ground in the hazel coppice.

**3e)** This site was a rocky bank, surrounded by mature woodland and hazel coppice. Three traps were placed on the bank, and two traps were placed above ground in the hazel coppice.

**Trap site 4 (25 traps).**

The following sites were alongside the disused canal.

**4a)** This site was a steep grassy bank, sloping down towards open water and a reed bed. Five traps were spaced out up the bank.

**4b)** This site was a rocky/grassy bank alongside a dry stone wall, above the canal. Five traps were spaced out along the bottom of the wall.

**4c)** This site was a bramble patch on a slope above the canal, adjacent to an area of mature woodland. Five traps were placed in the brambles.

**4d)** This site was an area of reed canary grass, alongside a track above the canal. Five traps were spaced out in the patch.

**4e)** This site was alongside a recently cleared area of open water. Five traps were spaced out along the water's edge.

**Results: 20.9.97.**

**Participants:** Rob Caton, Ann Hanson, Robert Mashedor, Marion Shorter, Paul Robinson, Mary Youngman, Denise Ray, Geoff Oxford, Lesley Helliwell and Norton Watch Group.

**Weather:** Dry, cold night. Warm, sunny morning. No wind.

Site	Species	Sex (M/F)	Age (J/A)	Weight (g)	Notes
1	<i>Clethrionomys glareolus</i>	F	A	18	
	<i>Clethrionomys glareolus</i>	M	A	18	
	<i>Clethrionomys glareolus</i>	M	A	15	
	<i>Clethrionomys glareolus</i>	M	A	18	
	<i>Sorex araneus</i>		A	9	White ear tufts
	<i>Apodemus sylvaticus</i>	M	J	18	

	<i>Apodemus sylvaticus</i>	M	J	17	Escaped
	<i>Apodemus sylvaticus</i>		J	16	
	<i>Clethrionomys glareolus</i>	M	A	14	
	<i>Clethrionomys glareolus</i>	F	A	17	
	<i>Apodemus sylvaticus</i>	M	J	16	
2	<i>Sorex araneus</i>		A	9	
	<i>Sorex araneus</i>		A		
	<i>Clethrionomys glareolus</i>	M	A	25	
3a	<i>Clethrionomys glareolus</i>	M	A	14	
	<i>Clethrionomys glareolus</i>	F	A		
3c	<i>Apodemus sylvaticus</i>	M	A	25	
	<i>Clethrionomys glareolus</i>	F	A	19	
	<i>Clethrionomys glareolus</i>	F	A	15	
3d	<i>Apodemus sylvaticus</i>	F	A	20	
	<i>Apodemus sylvaticus</i>	M	A	20	
	<i>Clethrionomys glareolus</i>		A		
3e	<i>Clethrionomys glareolus</i>	M	A	21	
	<i>Apodemus sylvaticus</i>	M	A	22	
4a	<i>Clethrionomys glareolus</i>	M	A	14	
	<i>Clethrionomys glareolus</i>	M	A	14	
4b	<i>Apodemus sylvaticus</i>	M	A	20	
4c	<i>Clethrionomys glareolus</i>	F	A		
	<i>Clethrionomys glareolus</i>	F	A	15	
	<i>Apodemus sylvaticus</i>	M	J	13	
4d	<i>Sorex araneus</i>		A	9	

**Results: 21.9.97.**

**Weather:** Dry, cold night. Warm, sunny morning. No wind.

Site	Species	Sex (M/F)	Age (J/A)	Weight (g)	Notes
1	<i>Clethrionomys glareolus</i>	F	A	17	White ear tufts
	<i>Sorex araneus</i>		A		
	<i>Apodemus sylvaticus</i>	F	J	16	
	<i>Clethrionomys glareolus</i>	M	A	17	
	<i>Apodemus sylvaticus</i>	F	A	21	

	<i>Sorex araneus</i>		A		White ear tufts
	<i>Clethrionomys glareolus</i>	F	A	18	
	<i>Apodemus sylvaticus</i>	F	J	16	
	<i>Apodemus sylvaticus</i>	M	J	17	
2	<i>Sorex araneus</i>		A		
3a	<i>Clethrionomys glareolus</i>	M	A	17	
	<i>Apodemus sylvaticus</i>	M	J	18	
3b	<i>Clethrionomys glareolus</i>	F	A	16	Escaped
	<i>Apodemus sylvaticus</i>				
	<i>Clethrionomys glareolus</i>	F	A	18	
3c	<i>Apodemus sylvaticus</i>	M	A	23	
	<i>Clethrionomys glareolus</i>	F	A	16	
3d	<i>Apodemus sylvaticus</i>	M	A	21	
	<i>Apodemus sylvaticus</i>	F	J	19	
	<i>Apodemus sylvaticus</i>	F	J	19	
3e	<i>Apodemus sylvaticus</i>	M	A	25	Caught up a tree
	<i>Clethrionomys glareolus</i>	M	A	19	
4a	<i>Clethrionomys glareolus</i>	F	A	19	Two animals in one trap
	<i>Clethrionomys glareolus</i>	M	J	17	
	<i>Clethrionomys glareolus</i>	F	A	18	
	<i>Clethrionomys glareolus</i>	F	A	20	
4b	<i>Apodemus sylvaticus</i>	F	J	16	
4c	<i>Clethrionomys glareolus</i>	F	A	17	
	<i>Apodemus sylvaticus</i>	M	J	16	
4d	<i>Sorex araneus</i>		A		
	<i>Sorex araneus</i>		A		
4e	<i>Sorex araneus</i>		A	9	White ear tufts

**Comments:**

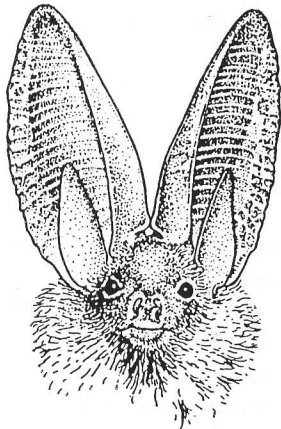
Three species of small mammal were trapped at Rievaulx: wood mice (*Apodemus sylvaticus*), bank voles (*Clethrionomys glareolus*) and common shrews (*Sorex araneus*). The populations seemed healthy as juveniles as well as adults were caught. All three species seemed equally prevalent in all habitats trapped, although areas with more ground vegetation were favoured. Also areas containing suitable food supplies such as bramble patches were obviously more attractive to small mammals. Interestingly,

several of the common shrews captured during this trap had obvious white ear tufts, a characteristic occasionally noted in shrew populations.

Many thanks to Rob Caton, the National Trust warden for this site and Norton Wildlife Watch Group for all their help and enthusiasm during the trap.

## North Yorkshire Bat Group Report

*John Drewett*



A new innovation for this year has been the production of a combined membership form and events leaflet, which has been made widely available across the county. As a result, we have not only enjoyed a slow but steady increase in membership, but also healthy attendances at most events. These have included a wide selection of indoor and outdoor events at venues stretching from Fairburn Ings in the south to Whitby in the north.

We have also established an ongoing programme for training new bat workers following my licensing as a trainer. This takes the form of a rolling programme of indoor lectures, supplemented by practical visits to real roost situations. The number of participants quickly grew to 17, including several from West Yorkshire. This unprecedented demand is good news for bat conservation and by the time you read this, several trainees should have their new licences.

One consequence of the Group becoming better known is the increasing number of calls from householders with bats seeking advice. Often they now find it easier to track us down rather than English Nature, although all responses are coordinated with that organisation. On some summer days it is not unusual to receive more than a dozen calls for help, leading to a backlog in response times which should be eased as new license holders come on stream.

Increasingly developers are being required to have bat surveys carried out before being granted planning permission. This is a welcome move which has revealed several new bat roosts and has clear benefits for bat conservation. However, such surveys are time consuming and are normally outside the current capabilities of active bat workers. These surveys are generally carried out by suitably qualified consultants, but require information about known past bat use of the site from the Group. A small charge is made for this information and so is a useful source of funds for the Group.

Almost 1000 records are now held on computer using Biobase and plans are in hand to substantially increase this number over the coming winter once I have upgraded my computer. This will also allow the Group to analyse bat calls recorded using the Group's new Tranquility bat detector, which will allow more accurate identification of flying bats.

Some efforts were made over the summer to launch a detailed study of noctule bats in the Vale of York. Some work has been carried out in this respect, but progress has been somewhat hampered by the unprecedented level of routine bat work. Other work has involved liaising with North Yorkshire County Council over proposed bridge strengthening works to ensure that bat conservation is taken fully into account.

The Group was very sad to learn of the death in July of Edna Shann who had been the Co-ordinator of the Group until recent times. Edna's involvement goes back to the earliest days of the Bat Section of the Yorkshire Mammal Group and she was a familiar figure to thousands across the county. A fuller obituary is included elsewhere in this issue of *IMPRINT* (p. 1)

Thanks to the involvement of the many licensed bat workers, speakers and other volunteers across North Yorkshire, the Group continues to go from strength to strength. Over the coming year we will be introducing more innovations to further bat conservation upon which we shall no doubt report next year.

## Back to the Future - A Return to Hopewell House Farm

Geoff Oxford

COUNTRYSIDE  
COMMISSION



As a result of the findings of its *New Agricultural Landscape Study* published in 1974, the Countryside Commission decided to establish ten 'Demonstration Farms' in England and Wales to show that it is possible to combine commercial farming with wildlife conservation. The specific aim was 'to develop practical and inexpensive solutions to counter the decline in the quality of lowland farm landscapes of England and Wales'. Hopewell House Farm, to the east of Knaresborough (SE 3557), was one of the ten and entered the Demonstration Farms Project in 1979.

Support from the Countryside Commission continued until 1991, and the project now receives financial backing from the Yorkshire Agricultural Society.

At the start of the project a Management Plan was created with the aim of managing unproductive land alongside the cultivated, in ways that would conserve wildlife and improve the landscape while at the same time ensuring the commercial viability of the farm. A base-line survey of the wildlife on the farm was published in November 1979 and surveys of the fauna and flora have been made at various intervals since. Changes to the established agricultural practices on the farm included a more sensitive approach to hedge management. Internal hedges were allowed to grow into a broad-based A-shape and were cut in winter, thus allowing the fruits and berries to benefit wildlife. North-south hedges were allowed to grow taller and hedgerow trees were encouraged (north-south hedges do not shade adjacent crops). Existing wetland areas were improved and new ones developed. The single established woodland was managed more proactively and new copses were planted in unproductive field corners. One unremarkable horse field was managed as a traditional hay meadow, the success of which can be judged by the spectacular increase in its floral diversity - 17 species in the 1979 survey, 45 species in 1984 and 65 species in 1992.

As part of the monitoring scheme, the Yorkshire Mammal Group undertook twice-yearly small mammal trapping at Hopewell House between 1981 and 1987, inclusive. Our main study site was an open, southeast-facing slope (SE 374577) cleared and replanted in 1981-82 with a mixture of coniferous and deciduous trees. The site was bordered at its lower end by a wide ditch and Howgates pond. This wet area, and hedgerow sites (one at least 600 years old), were also trapped at various times. The aim of the survey was to identify trends in composition of the small mammal population as the tree cover on the bank developed. Over the period of the survey, a total of eight small mammal species were trapped (*Sorex araneus*, *Sorex minutus*, *Neomys fodiens*, *Apodemus sylvaticus*, *Clethrionomys glareolus*, *Microtus agrestis*, *Micromys minutus*, *Mus musculus*) and one sighted (*Arvicola terrestris*). A full report of this long-term study was written by Carolyne Fraser (1988).

It was interesting, therefore, to return to Hopewell House Farm for the YMG's evening field meeting on Thursday 4 June, 1998, to see how the landscape had developed over the years. It was of particular interest to Roma and me as the only 'old timers' in the party who remembered trapping the farm in our youth (!). We were extremely fortunate to have as our guides Simon Webster, who now runs the farm with his brother, and Phil Lythe from FWAG (Farming and Wildlife Advisory Group). They led us around the farm, stopping at intervals to explain with the help of illustrated boards how the different management regimes (some of which are touched on above) have led to the current landscape features, and how the species diversity has improved as a result. We were, of course, keen to see what our old trapping site looked like now. If anything can reinforce ones appreciation of the passage of time, it is the growth of trees. The once open, newly planted bank is now a veritable forest and the ditch at the bottom seemed dry and was heavily overshadowed by trees. It was here, and round Howgates pond, that Canary Grass (*Phalaris canariensis*) grew in abundance in the early 1980s and provided ideal conditions for the harvest mice. Much of this habitat has been lost but harvest mice still occur at other wetland locations on the farm. This example illustrates the fact that landscape modifications may favour some species at the expense of others, and that variety in habitat features is the key to maintaining the maximum species diversity. As well as the small mammals, foxes, badgers and deer are all thriving on the farm.

After our tour, we returned to the education room for coffee, informal discussions with our guides and a chance to see the excellent posters that

chart the history of the Demonstration Farm Project at Hopewell House. It was interesting to go back, but the real importance of Hopewell House Farm lies in its implications for the future. No amount of talk and theory will persuade the hard-nosed farming community that combining their agriculture business with habitat and wildlife conservation is a good idea unless they see it in practice on a working, commercial farm. These messages are getting through as a result of education, demonstration and, of course, government subsidies. This is a trend from which we will surely all benefit.

Reference:

Fraser, C. (1988) Hopewell House Farm study. *IMPRINT*, 11: 2-11

## Otters, and Much More

*Mary Youngman*

On Sunday 24 May the YMG turned out for a visit to the North Pennine Otter Trust, located just into County Durham off the A66. One of the aims of the Otter Trust is to breed European otters (*Lutra lutra*) in captivity for eventual release into the wild.

We were given a guided tour by Mark Bailey, which started with the Asian short-clawed otter (*Aonyx cinerea*). Asian otters, as a non-native species, are obviously not bred or released into the wild. These animals are active and vociferous, and their responsiveness to the public make them most entertaining. The Asian otters are kept in a pen half enclosure within a barn; the indoor section is a necessity as they are not well adapted to the winter climate of northern Britain. Also residing in the barn were an assortment of sheep, pygmy goats, rabbits and guinea pigs.

Proceeding outside we passed by enclosures containing native species of deer, before finally arriving at one housing reindeer. Here we were introduced to Boris, a large male who was an instant favourite with certain members of our group.

Moving on we reached the highlight of our visit - the European otters. At the time we were there, the Trust had two breeding pairs and one young held in two enclosures with pools. We had much pleasure watching at close quarters the otters' agility in the water. Mark explained to us the problems associated with maintaining the otters in captivity, including the procedure for changing the pool water and the fencing requirements to keep the otters in and human fingers out! He also entertained us with anecdotes, such as the otters' ability to dig out any moles unfortunate enough to venture into the enclosures.

To complete the day we were able to enjoy some birdwatching from two hides overlooking the nearby river. Among the birds we saw were whooper swans, lapwings, common sandpiper and ringed plover.

A very enjoyable visit, and many thanks to Gordon for organizing it.

## Wild Link Environment Day - 1998

*Michael Thompson*

For the second year running, I manned the Yorkshire Mammal Group's display at Rowntree Park in York on 30 May. The weather was cloudy with sunny periods, which meant that the general public visiting the Park were out in good numbers. Having set up the Group's exhibition boards in the same tent as the Yorkshire Wildlife Trust's Watch group stand, I talked to numerous people of all ages. There was an almost continuous stream of visitors. Many children came to the tent, because of the Watch exhibition and activities arranged by the adult staff and helpers. Some of those children, together with their parents, showed considerable interest in the mammal photographs and one or two other small exhibits I'd brought along with me. Compared with last year, I seemed to hand out more YMG leaflets and circulars about the coming Regional Mammal Symposium to be held at The University of York on 24 October. John Drewett and Edna Shann manned the North Yorkshire Bat Group's exhibit in a neighbouring tent and, like YMG's exhibit, there appeared to be a lot going on. We hope, as the result of our efforts, the profile of mammals in Yorkshire is higher now than it was before.

## Estimates of Flying Speeds for Commuting Pipistrelles (*Pipistrellus pipistrellus*) Suggest an Ability for 'Super-Sprinting'

*Tony Lane (East Yorkshire Bat Group)*

The behaviour of the pipistrelle (*Pipistrellus pipistrellus*) cohort in my home village of Skidby, East Yorkshire (TA 0133) has been studied since 1988 when I became 'batty'. Skidby lies on the southern part of the Yorkshire Wolds, an area which is extensively used for arable farming. During the summer months females gather together forming a maternity roost and the single pup is usually born between the last week in June and the first week in July. Many of the bats choose to feed in the nearby Fishpond Wood at Risby (TA 0135) involving a journey of about 1500 m. Fishpond Wood consists mainly of mature broadleaved deciduous woodland with some coniferous plantation plus several medium-sized ponds providing an insect-rich feeding area. Bats leave their roost(s) in the village converging onto a well-defined commuting route closely following a bridleway northwards. This initially follows a wooded farm track and then becomes more exposed between arable fields which lack a continuous hedgerow. It is relatively easy to watch the bats commuting along the track in the arable section, where they keep within a few feet of the most direct route, not stopping or deviating to feed. A frequently encountered question posed to batworkers is 'How fast do bats fly?'. It occurred to me that the highly predictable route followed by the Skidby bats provided an ideal opportunity to try and estimate pipistrelle flying speed.

It was decided to attempt timing bats flying along a measured straight of 100 yards (TA 014346) where there was no hedgerow and bat behaviour could be closely followed in a non-invasive manner. Nothing more sophisticated than two bat detectors, two white handkerchiefs, two observers and a stop-watch were employed. Bat detectors were tuned to 45 kHz. The observer nearest the village looked and listened for approaching bats and when a bat passed a signal was made using the handkerchief. The second observer, nearer the feeding area, on seeing the signal, set the stopwatch in motion and when the bat passed the elapsed time was noted. Once the time was recorded the second recorder then signalled that all was set for the next bat pass and so on. The simple routine was repeated

several times in order to get sufficient data to assess the method's reproducibility. Bat flying speeds were estimated on two separate dates when wind conditions could be safely ignored. On relatively few occasions were observations declared void due to either an observer 'missing a bat pass' or two bats flying too close together to separate them adequately.

On 6 May, 1988, the observed mean and standard deviation was  $9.45 \pm 0.78$  m/sec ( $n = 7$ ), equivalent to a flying speed of 21.15 mph. On 8 May, 1994, the result was  $9.71 \pm 0.70$  m/sec ( $n = 9$ ), equivalent to 21.73 mph. It was apparent that the estimates were highly reproducible on both dates. A comparison with data obtained for the pipistrelle by Baagoe (1987) using multiflash photography suggested a mean speed of 4.9 m/sec and an upper limit of about 7.1 m/sec. Therefore a significantly lower estimate was obtained for Scandinavian pipistrelles flying in straight lines or in large curves ( $>5$  m diameter). A more recent study by Jones and Rayner (1989), who also used the multiflash technique, explains the apparent discrepancy between the two studies in terms of the ecological consequences of bat physiology and behaviour. In order to forage for food in an energetically economical fashion over an extended period, bats adopt a flight strategy as close as possible to their maximum range speed (the most economical foraging speed allowing maximal distance for a given energy expenditure). The estimate for optimal foraging speed of pipistrelles by Jones and Rayner (1989) was about 4.5 m/sec (range 1.5 - 6.6 m/sec) which was in close agreement with the figure obtained by Baagoe (1987). In contrast, the estimate for commuting bats was significantly higher at 7.5 m/sec (range 5.5 - 9.5 m/sec). It can be seen that the upper range estimate for commuting bats was in close agreement with the data obtained in this study.

It was clear from the study by Jones and Rayner (1989), and the present one, that bats can leave their roost and travel to their chosen feeding area at a sprinting pace. An obvious advantage gained by minimising the commuting time would be the ability to make maximal use of the natural peak in insect abundance at dusk. It was not possible from this study to ascertain whether or not the consistently high commuting speeds recorded were due to either the characteristics of the experimental conditions or to the bats' physiological status. On the outward journey the bats would be lighter, not having a meal payload. Also, in early May, any females would be in the earliest stages of pregnancy and not carrying a heavy foetus. This study suggests that there may be evidence for 'super sprinting' by pipistrelles under appropriate conditions.

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## A Brush with Urban Foxes

*Kate Fuller*

In recent years, foxes have come to symbolize urban wildlife - but did you know that urban foxes are on the YMG's doorstep (quite literally, on occasions) in Clifton, York? According to local people they have been seen in gardens in the area for a number of years, and since moving there two years ago we have spotted at least two different individuals in our own back garden. Regular sightings are made in Homestead Park, and foxes have also been reported on Shipton Road and in the Rawcliffe Lane area.

After a period when their population size had reached a low point, British foxes began to colonize towns in the 1920s and 30s (Shirley, 1996). This coincided with the advent of a new type of suburban planning and the building of semi-detached houses with relatively large gardens. Clifton contains just such an area of housing, and it is easy to see why the foxes have moved in. A ready source of food in the form of domestic rubbish, coupled with plenty of shelter in outbuildings and well established planting, make it ideal. In addition, it is close to undeveloped land adjoining the River Ouse. Indeed, it is quite possible that the Clifton foxes are 'commuters', returning to relatively wild areas after foraging in the suburbs.

Further evidence of fox activity in the area is provided by the presence of scats (Kolb, 1996). I have found a number of these in my garden,

particularly on a prominent tree stump. Foxes use scat to mark their territories, which tend to be smaller in urban environments compared with rural ones (sometimes only 0.26 km<sup>2</sup>). However, urban territories are not necessarily fixed. Doncaster & Macdonald (1996) described 'drifting territoriality' from their studies of foxes in Oxford. They linked this phenomenon to high mortality rates and variable food availability, and found that it was more pronounced in the city than in the suburbs. White *et al.* (1996) reported that in Bristol, where they studied suburban foxes, 36% of residents in the study area put out food for foxes at least once a week!

Most of the sightings of foxes in Clifton have been in the evening or early morning. In a recent study of fox activity patterns and interactions in Oxford, Doncaster & Macdonald (1997) found that the animals were nocturnal. Other studies have shown that they are sometimes active during the day, and that the timing of their activity can be affected by prey behaviour and human disturbance. I have been given one remarkable report of a fox seen around office buildings on the edge of Homestead Park. The animal was initially spotted crossing a car park in broad daylight; it later appeared outside the office window where it curled up and slept for the entire afternoon! Clearly the foxes of Clifton are becoming quite relaxed in the company of humans.

References:

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- Doncaster, C. P. & Macdonald, D. W. (1997) Activity patterns and interactions in red foxes (*Vulpes vulpes* L.) in Oxford city. *J. Zool. Lond.*, **241**: 73-87.
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## Which Mammals are Pests ?

Mark Williamson

Department of Biology, University of York

Last year, many members of the Yorkshire Mammal Group kindly returned questionnaires about which species of British mammal they thought of as pests. To remind you, you were asked to score 2 for normally a pest, 1 for occasionally a pest, 0 for not a pest. The list had 43 species, all the mammals that have had established populations on mainland Britain this century, apart from bats and seals (Table 1).

Table 1. The average score for each species

Common rat	1.670	Feral goat	0.396
Rabbit	1.637	Polecat	0.374
Mink	1.440	Pine marten	0.291
Grey squirrel	1.412	Red squirrel	0.275
House mouse	1.351	Feral sheep	0.275
Mole	1.110	Hedgehog	0.253
Coypu	1.066	Wood mouse	0.253
Fox	1.066	Field vole	0.242
Feral cat	0.989	Otter	0.242
Ship rat	0.912	Harvest mouse	0.187
Roe deer	0.835	Wild cat	0.187
Muntjac	0.687	Water deer	0.187
Red deer	0.659	Bank vole	0.154
Fallow deer	0.659	Yellow-necked mouse	0.143
Sika deer	0.604	Mountain hare	0.099
Ferret	0.593	Water vole	0.099
Brown hare	0.538	Common dormouse	0.099
Badger	0.484	Red-necked wallaby	0.088
Muskrat	0.473	Common shrew	0.044
Stoat	0.461	Pygmy shrew	0.044
Fat dormouse	0.418	Water shrew	0.011
Weasel	0.396		

This survey followed the pattern of an earlier one I was involved in (Perrins, Williamson & Fitter, 1992), where we asked more or less the same question about 49 species of annual plants. Then we had 65 replies, not one the same, and no species regarded universally either as a weed or not as a weed. For this mammal survey, I had, as well as the Yorkshire Mammal Group, many other replies from Yorkshire, quite a few from Scotland, and a scattering from other parts, 91 in all. Once again, all the returns were different. This is surprising. Most people filling in the form would think their views natural and normal, and would be matched by other people with similar views. In the event, everyone had at least a slightly different view than everybody else.

The main sets of people replying were amateur naturalists, professional mammal people, other professional biologists, conservationists, farmers and game keepers. There was considerable variation within each class, but nevertheless, statistically significant differences between classes, which I describe below.

Two aspects of the question caused difficulties. The first was the interaction between perceived pestiness and population size, the second the balance of cost and benefit. On the second, while most people saw rabbits as normally a pest, some wanted to balance that with their benefit in managing certain types of habitats. That led to a few scores of 1½, which I left. The first problem is shown by the ship rat. Were it to be on their property, many people would regard it a pest. However, it is now confined, as permanent populations in the British isles, to a few islands. So some scored it as 2, because they think of it as a pest, some as 0, because it is not now a pest on the mainland, some compromised with 1. Coypu and muskrat, which have been exterminated because of their harm, are two other such examples. But the different scores for mountain and brown hare seem to reflect the effect of population size on perception too.

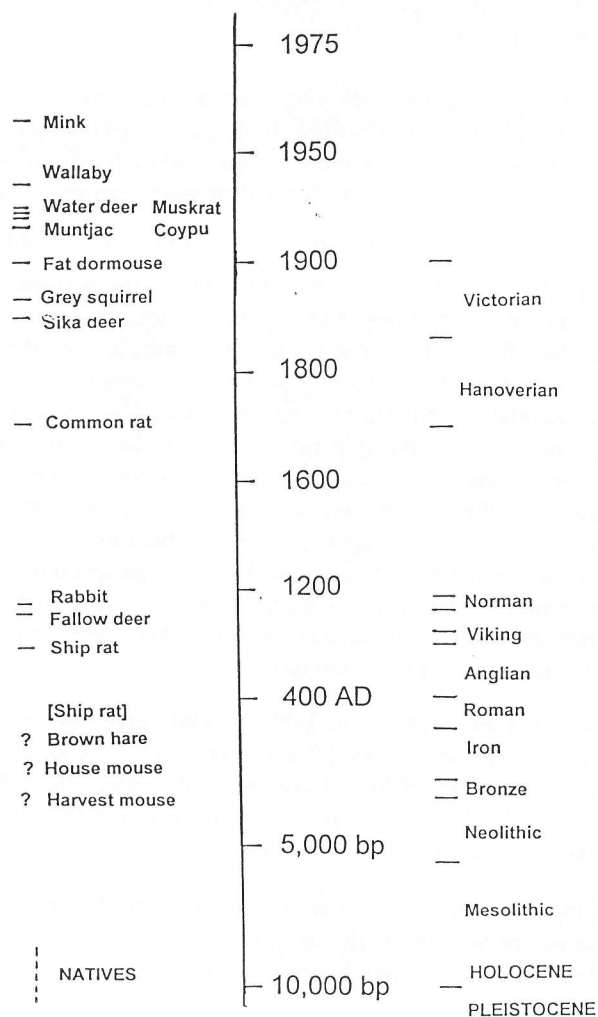
The overall result is shown in Table 1. Only eight species average more than 1.0, no species scores 2.0 and none 0.0. The eight most pesty are clearly all pesty for different reasons and usually in different habitats. About the only thing they have in common is that they do things people don't like. Which in a sense defines pestiness.

Six of those top eight species are introduced, only fox and mole are native. Introduced species can be divided into modern ones, from the Hanoverian period on, and ancient ones, Norman or earlier (Fig. 1). But statistically, the

**Figure 1. A diagram showing the date of introduction of all introduced mammals.**

Note that the time scale is logarithmic and backwards.

British mammals: first dates (logarithmic scale)



only significant difference is between natives and all introduced and feral species. Ancient and modern introductions are equally pesty (strictly, not significantly unequally pesty). That is very different from plants, where there are almost no differences in the impact of introduced and native species (Williamson, in press).

Based on the plant survey, my expectation was that amateurs and conservationists would see mammals as less pesty than others. Conversely, I expected farmers and gamekeepers to see species as more pesty. I was partly right and partly wrong (Table 2). In that Table, I have classified the

**Table 2. Average scores of sets of respondents**

Set	Number in set	Score
1. Mammal professionals	14	0.723
2. Game keepers etc.	9	0.633
3. Biological professional amateurs	13	0.592
4. Conservationists	13	0.547
5. Farmers	15	0.488
6. Biologists	9	0.472
7. Amateurs	16	0.392

**Notes:**

Set 1 are professional mammalogists including those who are farmers but excluding those who are also amateurs. Set 2 are estate managers, game keepers and foresters. Set 3 are those professional biologists and mammalogists who said they were also amateurs. Set 4 are all conservationists. Set 5 are farmers excluding those in sets 1 and 7. Set 6 are professional biologists who are not also amateurs and palaeo-archaeologists. Set 7 are amateurs including farmers who are amateurs but excluding amateurs in set 3.

returns into reasonably homogeneous groups, and put them in rank order of average score. As there are different numbers in the different groups, the difference that leads to a significant one varies, but very roughly any difference of average less than 0.15 is unlikely to be statistically significant.

Being an amateur, or declaring yourself to be an amateur as well as some other category, leads to a lower score. Game keepers, foresters and estate managers score relatively highly. Conservationists, though, come in the middle, and farmers in general score towards the low end. There are also differences in the spectra of the different groups. Foresters and professional mammalogists see more problems with deer, farmers and game keepers with the smaller carnivores. There is though, a lot of variation in the views within each group, so all such generalisations are weak.

The differences between the groups mean that the overall averages (Table 1) depend on the mix of returns. Nevertheless the pattern there is robust and shows, unequivocally, that introduced mammals are seen as more pesty than native ones.

#### Acknowledgements:

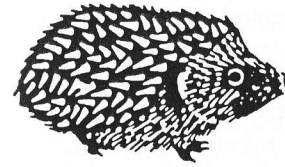
I wish to thank again most warmly all those who returned questionnaires and particularly to thank Dr Geoff Oxford for circulating the Yorkshire Mammal Group.

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## Susceptibility of Juvenile Hedgehogs to Disease: Some Observations

Toni Bunnell



The following observations are based on captive hedgehogs obtained from York RSPCA animal home, where they are taken by members of the public who have found them injured or collapsed. Since the public became more aware that hedgehogs found wandering about during daylight hours are not generally in the best of health, the number of animals taken to the RSPCA has escalated. The animals that come into my care are initially placed in sterile conditions in a brick-built unit, then transferred to my enclosed garden. They are monitored and weighed at regular intervals until they reach an appropriate weight, then released to one of a number of hedgehog-friendly sites.

The sites are all as far away from traffic as is possible in the countryside surrounding York, as far away from badger setts as possible, and consist of organic, non-pesticide-sprayed terrain. One site offers extra support for youngsters who might have struggled to gain their adult weight, by providing food and shelter on a continual basis. This is very useful as studies have shown that providing food following initial release increases long-term survival by up to 20%.

When releasing young animals (hand-reared or otherwise) into my garden it has become obvious that youngsters who were deprived of food very early in life (orphaned babies not found for several days after the mother has gone, or removed from their nest by cats or dogs) succumb much more readily to disease. Hand-reared youngsters with a body weight of 8 oz, that never suffered a period of starvation, coped well with the transition to the garden, continued to gain weight, and were released into the wild on achieving their target weight of 1 lb. Hand-reared youngsters with an uncertain start in life, and those who arrived already weaned but malnourished, succumbed to an assortment of ailments, suggesting a more poorly developed immune system than their stronger peers. The illnesses included:

- Trematode infestation (*Brachylaemus erinacei*), the infective stages of which are carried by snails, and which presents as hyperactivity, loss of appetite and consequent loss of weight. The cure for this is Praziquantel, a drug effective in the treatment of fluke and tapeworm infestation. Panacur is apparently much less effective than in previous times due to its plentiful use with sheep and its resultant entry into the soil, leading to a strong resistance on the part of the pathogens it is intended to treat.
- *Clostridium perfringens* (a potentially fatal bacterium), the symptoms of which are virtually non-existent; the first signs generally being a dead hedgehog. With my animals, the two individuals that fell prey to this bacterium were youngsters recovering from demodectic and sarcoptic mange, isolated (but obviously not enough) in a hutch, and who had presumably made contact with an infected animal through the mesh front of the hutch. The infected animals were collapsed, very cold to the touch (indicating peripheral shut-down), severely dehydrated and haemorrhaging from the mouth and anus. Treatment of the remaining youngsters (which was successful) consisted of an initial injection of baytril followed by 0.2 ml orally, twice a day for five days. Recent studies have shown that as smaller animals metabolise drugs very quickly it is necessary to administer baytril twice a day, rather than once daily, as was previously recommended.
- Meningitis (caused by a potentially fatal bacterium), with animals displaying poor co-ordination, loss of appetite and weight loss. Caught early, this can be cured with a steroid injection followed by an antibiotic, as steroids are known to reduce immune status when administered alone.

In conclusion, those animals with a good nutritional start in life seem to have much greater immune status than malnourished ones, which prevent bacteria/flukes etc. from taking a hold on the animal to the extent that they affect their physiology.

The rule of thumb, then, is to only release animals into an environment where slugs/snails are present (or where they will come into contact with other hedgehogs of unknown background) when they have reached a body weight of at least 11 oz, and have been given a vitamin supplement during the preceding days/weeks. Regular monitoring of their weight until they reach the recommended 1 lb, should ensure a good outcome.

## The Arabian Oryx

*Michael Thompson*

Stretching for mile upon mile, the eastern Jordanian desert is bewildering in its size and relentless in its climate. It consists of surfaced basalt rocks, intermingled with sands. Nowadays, a modern tarmac road traverses the desert, making its way towards Saudi Arabia. In former times the only way across was by camel, and some travellers still do use that form of transport. I was travelling with a party of keen amateur naturalists. We were, however, travelling east towards Azraq, the scene of many of Lawrence of Arabia's exploits, in an air-conditioned bus. Our objective was Shaumari Wildlife Reserve, created in the desert in 1975, some seven miles south of Azraq. The Reserve, which is eight square miles, is completely surrounded by a mesh fence. The main objective of the fence is to keep the goat out and to allow what spare desert vegetation there is to regenerate.

At the time of its inception, Shaumari was a going concern with a wide variety of plants and animals but, nowadays, due to a chronic shortage of water, the habitat is beginning to deteriorate. To reach the main gate, the bus travelled away from the main road along a dust track, throwing up clouds of dust behind it as it did so. We were made very welcome by the warden who, in spite of falling income due to reduced visitor numbers, was trying to do his best for the Reserve. Passing through the entrance gate, the party made for a three-storey observation tower that overlooks the whole Reserve. Viewing the scene from the top storey of the tower, I soon became aware that there was much more vegetation around, especially in the large enclosure. We soon became aware of the Arabian oryx (*Oryx leucoryx*), for there, in the distance, was small herd. Feeding along side these noble antelopes were three Syrian onagers or Asian asses (*Equus hemionus*), which, like the oryx, were part of a captive-release programme.

Apart from the camel, the Arabian oryx is the largest ruminant in the area. It is particularly well adapted to living in arid conditions and can go for long periods of time without water. The oryx feeds on succulent plants and a variety of grasses, from which it acquires some of its water needs. The oryx is predominantly white with thin long, black, straight, corrugated horns, black to dark brown markings around its face and dark legs. Its hooves are large and broad to help it to travel at speed in soft sand. For an antelope,

the oryx is heavily built, and its overall white appearance makes it a very conspicuous mammal in its desert habitat. Because the oryx is so easy to see, it is particularly vulnerable to being hunted by humans, especially as it is often found in large herds.

With the advent of the modern four-wheeled drive vehicle capable of travelling over desert sands, and the development of automatic weapons, the Arabian oryx was hunted to the point of extinction. Among the Arabian nomadic tribes, the oryx was, and still is, a traditional hunting trophy, as well as being palatable meat and having blood with medicinal properties. By the early 1960s, only a small number of Arabian oryx remained in the wild.

It was then that the Fauna & Flora International launched its Operation Oryx, taking from the wild Arabian oryx from Aden, to which captive animals from Saudi Arabia and Kuwait were added. This herd, known as the World Herd, was shipped to Arizona's Phoenix Zoo and, in similar habitat conditions from whence it came, encouraged to breed. This proved to be very successful. Eventually, as numbers began to build up, these antelopes were released back into their country of origin, the first releases occurring in Oman in 1982. It was to Shaumari that Jordan received its first batch of captive-bred oryx around the same time. Since then the herd has built up to over 200 animals, but, because the Syrians started a similar programme, the numbers at Shaumari were reduced when some oryx were sent to Syria. The Reserve authorities are concerned that the number of oryx at Shaumari are reaching the carrying capacity of the Reserve. According to the warden, the authorities would like to release some of the animals to roam free, but attitudes have not yet changed and they will still be hunted in a similar manner. Thus, one of the main aims at Shaumari is education, with an extensive display of materials in the visitor centre. The intention is to make the Arabian oryx a symbol of a dignified desert life, in which the nomadic peoples will own and protect them.

Besides the Arabian oryx and onager captive-release programmes, other desert mammals and birds, such as the Dorcas gazelle (*Gazella dorcas*) and the ostrich (*Struthio camelus*), are being bred with the intention of releasing them back into the wild.

I came away from Shaumari well pleased with what I saw and experienced, and felt there was hope that much can still be saved of the desert fauna and flora. For the Fauna and Flora International, the oldest conservation body in

the world founded in 1903, the oryx story has been counted as one of their earliest successes. To this day, the Arabian oryx remains the logo of FFI.

## Mammal Watching in Poland

*David Laughton*

Don Malam's recent article in *IMPRINT* (Malam, 1997) concerned a visit to the Polish Bialowieza Primeval Forest to undertake research work on badgers. His description of the forest as the jewel in the crown of Poland's nature reserves and national parks tempted me to sign up for a visit there (and other Polish reserves) with a party organised by the Field Studies Council.

The trip took place in mid-February, 1998, and as well as spending time in Bialowieza we also visited other parts of N. E. Poland - the Mazurian Lakes and, briefly, the Biebrza Marsh. On first meeting our local guide, Marek Borkowski, we were disappointed (but perhaps secretly relieved) to hear that, instead of the -20 °C temperatures and deep snow we had been warned to expect, the month had so far been unseasonably warm and this was not expected to change in the near future. From a mammal point of view the Lakes area (and surrounding forests), visited first, were much the most productive; the other two being better for our other interest - birds.

Arriving late at our lakeside hotel after a long journey from England, we were informed that we had been 'volunteered' to assist the Forestry Department in carrying out a census of mammals in a sample area the next day. Unfortunately this was to commence at 7 am in a forest area some 80km away! Getting up at 4.15 am we were glad that the temperature was 6 °C although most of the lakes we passed *en route* were still partly frozen, and later in the day had men fishing through holes in the ice. After our rendezvous with the Head Forester and 30 or so locals, we were split into teams and dropped off at 50 m intervals along a boundary track running along one edge of the sample area. A group of the locals then advanced through the forest towards us, acting as beaters. This was later repeated in two other areas. Most of us saw at least one mammal fleeing past us across our baseline, including red deer (*Cervus elaphus*), red fox (*Vulpes vulpes*),

wild boar (*Sus scrofa*) and brown hare (*Lepus europaeus*). The foresters seemed happy with our contribution and invited us to share their outdoor lunch of tripe soup and very strong coffee.

Whilst in the Lakes area we also visited a couple of beaver (*Castor fiber*) sites with dams, lodges and burrows but despite a long cold wait in the gloaming no beaver appeared. Eventually it got too dark so for an hour or more we drove along miles of forest tracks lamping all the rides and clearings and managed to see red and roe (*Capreolus capreolus*) deer but no wild boar, despite much evidence of their rooting. Two late afternoons were spent in 'high seats' overlooking forest clearings, in some cases using bait to attract wolves, but only deer and wild boar were seen. Marek, our leader, breeds Tarpan European wild horses and we paid several visits to groups of these friendly, quiet animals in various locations.

Little time was spent in the Biebrza Marshes as they were virtually unfrozen making our planned exploration by horse-drawn sledge impracticable. We did however get distant views of grazing elk (*Alces alces*) and lots of birds.

Our final location was the Bialowieza forest. The main object was to see wolves (*Canis lupus*) but we were warned that the lack of snow greatly reduced our chances of finding them. Before a serious attempt was made on wolves we spent a pleasant morning in forest clearings viewing a herd of some 50 bison/wisent (*Bison bonasus*) which, although wild, are fed by the foresters in winter. We also saw elk and red squirrels (*Sciurus vulgaris*) at fairly close quarters.

On our last day we concentrated on wolves. We were in the woods early accompanied by the Chief Forester. While we covered several miles of forest paths, Marek went off to find some students who were carrying out wolf research; *en route* he saw a lone wolf! Meanwhile, our hopes were raised by finding two lots of very fresh droppings, definitely confirmed as wolf. Eventually we found the students who were tracking a pack of five or six wolves, one of which had been fitted with a radio collar. The pack was very close but was moving around. The Forest rules prohibit any interference with wolves (or any other wildlife) so no attempts could be made to encourage them to move in our direction. However the students thought they knew the direction the wolves would take at dusk so, as before, we spread out along an appropriate forest ride and sat for two hours in the hope that one of us would be lucky. Unfortunately no-one was and the darkness eventually forced us to abandon the attempt and start the long trek back to our hotel, and home the next day. A good holiday.

Reference:

Malam, D. (1997) Research visit to Bialowieza Primeval Forest, Poland.  
*IMPRINT*, 24: 37-40.

## Thank Heavens for the Week-End

*Roma Oxford*

A typical week in the life of the *Mobile mini-beasts* service (see **Editor's Note** below), visiting Yorkshire Primary schools with hedgehogs, bats and other assorted animals.

**MONDAY** We're well into the Autumn term and Year 2 (6 year olds) at Thorpe Willoughby school are studying hibernating animals. One of my injured hedgehogs with a permanent home in the garden has been invited to demonstrate what a live hedgehog looks like as opposed to the squashed ones the children are all so keen to tell me about! 'Miss, my Dad found one an' he picked it up with a shovel an' moved it to the other side of the road, Miss'. The tales of hedgehogs found, hedgehogs as pets in the bedroom (!) and so on abound, but eventually we get to talk about the daily life of the hedgehog. All is hush as Holly is gently lifted from her nest, but the silence breaks with a resounding 'aaah' as she uncurls and looks round at the sea of ecstatic faces. The children watch as she raises her snout and tests the air. From now on, Holly is the star and all the eagerly discussed hedgehog facts and details are absorbed with knobs on! Someone offers to save her a playtime biscuit.

**TUESDAY** The car is already packed for an early start at Brompton school, Northallerton, where top Juniors (Years 5 & 6) are studying animal comparisons and where the morning nursery children are interested in what animals do in the Winter. Holly has her day off, so it's Hobble's turn to meet the nursery. The teachers are very organised and everyone is sitting in a circle, on very small chairs. The teachers are excited, but the children are not so sure. However, once Hobble's pretty face with her black eyes and

twitching snout are revealed the children are very sure - they love hedgehogs. Jamie is so keen, he offers to stroke her, but thinks again when her prickles bristle. Instead he looks a little closer and delightedly chuckles 'She's got toenails'. After break and it's the first of the Junior classes. We're comparing the life processes of amphibians with those of mammals (bats), so we start by observing a frog and toad. After a few minutes the children have already noticed visible differences, but then learn of their different habitat requirements and breeding strategies. Jaws drop at the thought of 2 or 3 thousand tadpoles hatching from a mass of spawn and the daily slaughter of them in the jaws of predators. Now the bats come out - this is the moment they've all been waiting for. I introduce Nelson the Noctule and tell of his near drowning in the Ouse, and brave rescue by the children who found him. As I look up, a couple of chins wobble with emotion, but all sadness is soon forgotten as Nelson begins to look around and then echo-locate in his new surroundings. I encourage the children to listen - not a sound can be heard either from children or bat. The rhythmic clicking when the bat detector is switched on changes all that! Faces light up and questions come tumbling out, including 'Can anyone have one of those machines, Miss?' 'Oh yes' I reply 'they're much more fun than a Nintendo machine!' At lunch-time the teacher has real trouble getting the girls to leave the room - they are all gazing longingly at Nelson. After lunch the session is repeated and then it's home time.

**WEDNESDAY** Last night the car was filled with all the resources needed for today's session on 'Animals of the Woodland' at a Harrogate Infant school. Stuffed animals like a badger (legally obtained!), mole and tawny owl are already under wraps as surprises, so now to collect a toad, a hand-reared and exceptionally tame bank vole, Holly hedgehog and Napoleon the Noctule, but not forgetting a caterpillar, spider or two and several other 'creepy-crawlies' or mini-beasts (as the children know them). Make school just in time to meet the teacher in the staffroom and grab a sip of coffee. Other members of staff have been warned I'd be in school and cast suspicious glances at my bum bag!

**THURSDAY** After an evening spent collecting together even more mini-beasts and putting them into their individual containers, I'm ready for the trip to Scunthorpe and Foxhills Comprehensive school. The art teacher is having trouble inspiring some of the more recalcitrant students, so she hit on the bright idea of having some live animals to sketch. Some very doubtful glances at what is laid out on the table, followed by a rush to the door by Kirsty who's decided she's not staying. She comes back when one

of the lads spots the Giant African Land snail coming out of its shell and can't believe it's REAL! Poor art teacher - the children hardly put pencil to paper - they just want to talk about bugs and beasties and to know whether they'll be coming back next week.

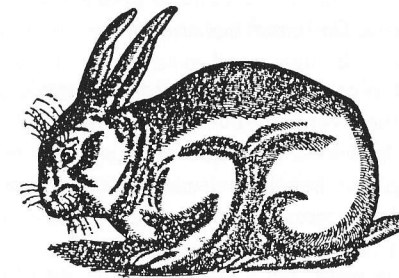
**FRIDAY** No school today - we all need breathing space and some need cleaning out. However, mustn't forget I have an assignation with a Beaver colony in Easingwold at 6.15. They're keen to smash all the myths that surround bats around Hallow'een. I'm only too pleased to oblige. They meet Nelson and a couple of Pipistrelles permanently damaged by cats, and can't believe how tiny the Pips are. Again, I'm treated to stories about pet bats in the loft fed a nightly diet of peanuts and coke!

I've heard it said that one should never work with children and animals, but have never understood why. The combination is awe inspiring, always interesting and there's never a dull moment. I commend it to the House!

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**Editor's note:** *Mobile mini-beasts* is an environmental education service operating in Primary schools in North and East Yorkshire and North Lincolnshire. Live invertebrates, and vertebrates rescued from trauma and unable to be released into the wild, are used to discuss adaptations, lifestyles, simple classification, ecological principles and conservation issues. In the twelve years since the service began over 60,000 children have enjoyed the '*Mobile mini-beasts* experience'.

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Topsell's (1607) woodcut of the cony - one of the 'pests' identified in Mark Williamson's article on p.26.

## Mammals have Right of Way

*Lorna Woodroffe*

Following a disappointing day in the field, a comment sometimes heard in our house is that certain mammals have not read the literature. However, I'm beginning to think that the local wildlife has heard about *The Garden Mammal Survey*. This was recently launched as a joint venture by The Mammal Society and the People's Trust for Endangered Species.

Our garden is now over 21 years old and we've looked after it for 14 of those years. Although we took over a well planned plot we have made many alterations especially in the provision of areas to encourage a wide range of wildlife.

In a quiet spot, there is an old garden frame full of twigs and leaves which is used by hedgehogs. One has been with us for some years now and is huge, hopefully because he keeps down the population of slugs. He also gets an occasional treat of cat food as winter approaches and there is always water available at several places in the garden.

A small pond is home to frogs, toads and newts and is visited by dragonflies and damselflies. There is a range of trees, shrubs and hedges which provide shelter and nesting sites as well as food. Bird and bat boxes abound and piles of sticks and twigs are left around to give shelter to insects. A variety of plants provides food for butterflies and moths.

Perhaps our greatest pleasure is in observing mammals. Grey squirrels have always been along the river bank but it is only in the last two years that they ate so much of the bird food that squirrel-proof feeders had to be obtained. Is this because they have become wise to the easy take-aways in gardens or because of a lack of their normal food?

Rabbits too have always been in the fields surrounding us but only occasionally ventured into the garden, particularly when we acquired two cats. However this year they have been frequent visitors, but strangely have nibbled at the lawn rather than at precious plants, although other people have had whole areas devastated by them. Maybe it was because of the

paucity of grass during the spring as a result of horses being kept in the field all through the winter of 1997. However we were delighted to see a hare sitting on the lawn and although we've only had one sighting we hope it will return.

In early May, holes began to appear in the vegetable beds. On closer examination we saw that there were badger droppings deposited at the bottom. There have also been scrapings and quite large holes in the front lawn but we've never seen badgers in the garden. There have always been badgers locally but this is the first year that people can remember them coming into the village. Is it because they are breeding successfully and the young have come further afield? Or maybe the woods cannot sustain too large a population. We have enjoyed watching badgers locally on several evenings this summer, the boar and cubs snuffling around, running up a fallen branch and chasing each other. Meanwhile the sow gathered new bedding, walking backwards and pulling it with her front paws. During the last week a friend who was house and cat-sitting heard the cat-flap go one evening. Knowing that both cats were in the house she went to investigate. All was calm and she decided to look in the front garden to see if the resident hedgehog was around. To her delight a badger came across the lawn to within two metres of her, making off when the cat-flap was swiped by one of the cats.

There are numerous small mammals such as field voles, common shrews and field mice, quite a few enjoyed by the cats. Moles also visit but do little damage in the garden, although they play havoc with the river bank. Could this be because we grow Euphorbias in one bed near the front, a plant that is supposed to deter them?

Just outside the confines of the garden foxes and a deer with two young have been observed, and otters have been spotted swimming up the river, which is frequented by kingfishers and dippers.

Bats have been seen in large numbers for some years, with two roosting in one of the bat boxes, but this year we have had only three sightings of Pipistrelles. Our next-door neighbour usually has over a hundred in his roof but he has seen only one or two this year. He has, however, noticed bat droppings on the window sill on the north side of the house when normally they tumble out of the south side and wonders whether that is a new colony.

Whether they've read the literature or not, providing the right habitat seems to encourage wildlife and we feel very fortunate to be able to observe so much within our own garden and the immediate area.

## Book Review

*Roma Oxford*

*Everything You Want To Know About Hedgehogs* by Dilys Breese (1998)  
Midsummer Books, London. ISBN 1 900732 00 9.

If you are already familiar with Pat Morris' popular book on hedgehogs in the Whittet series, this volume by Dilys Breese is a beautifully lavish photographic exposition of the daily life of the hedgehog, written on similar lines. Dilys Breese has many years of wildlife programme making behind her and has observed for herself most of the hedgehog activities that she writes so comprehensively about. There are between four and eight photographs and colour drawings on each double page spread, my favourite photograph showing a hedgehog yawning! The text is broken up into bite-sized chunks of easy, non-technical knowledge and starts by following the hedgehog year through the seasons. It also introduces the topics of anatomy, world distribution, strange behaviour, and indeed, everything else you've always wanted to know about hedgehogs, including how to care for orphans. Because the book is written for non-specialists, there are one or two examples of imprecise information, for example, how to age a hedgehog. A sectioned jaw bone taken from a dead hedgehog is usually chosen to show annual growth rings, but the text implies that any sectioned bone will show them. However, this quibble aside, priced at £9.95 this book would make an excellent Christmas present for children and adults alike, and is one of the nicest books I have seen about one of Britain's best-loved mammals.

Watercolour paintings by the late Edna Shann:  
Brown long-eared bat (above), Natterer's bat (below)



## Yorkshire Mammal Group Programme, 1999

- January 7th. *Cruelty to Wild Mammals.* Geoff Edmond (Raskelf), RSPCA officer.
- February 4th. *More about Bats.* Dr Robert Stebbings (Peterborough), one of Britain's leading bat experts.
- March 4th. *The Red Squirrel and its Conservation.* Lynne Collins (Cumbria), RSNC Co-ordinator for the Red Alert programme in Britain.
- April 1st. *The History of British Mammals.* Dr Derek Yalden (Manchester University), Editor of *Mammal Review*.
- May 6th. *The Yellow-Necked Mouse.* Aidan Marsh (Bristol University), Co-ordinator of the national yellow-necked mouse survey.
- June 3rd. *Evening Trip to a Nature Reserve* (details to follow). During the summer months there will be other field study events, including those by the North Yorkshire Bat Group.
- October 7th. *The Interaction between Mammals and Farm Woodlands.* Dr. Niall Moore (Central Science Laboratory), Sand Hutton.
- November 4th. *Otters in Yorkshire.* Sylvia Jay, YWT Otters and Rivers Project Officer.
- December 2nd. *A.G.M. followed by a Mammal Quiz.*

All indoor meetings are held in the Common Room of the Department of Biology, University of York and start at 7.30 pm.

*Michael Thompson (Hon. Sec.), Denise Ray (Hon. Sec. elect)*