IMPRINT

THE YORKSHIRE MAMMAL GROUP - NEWSLETTER

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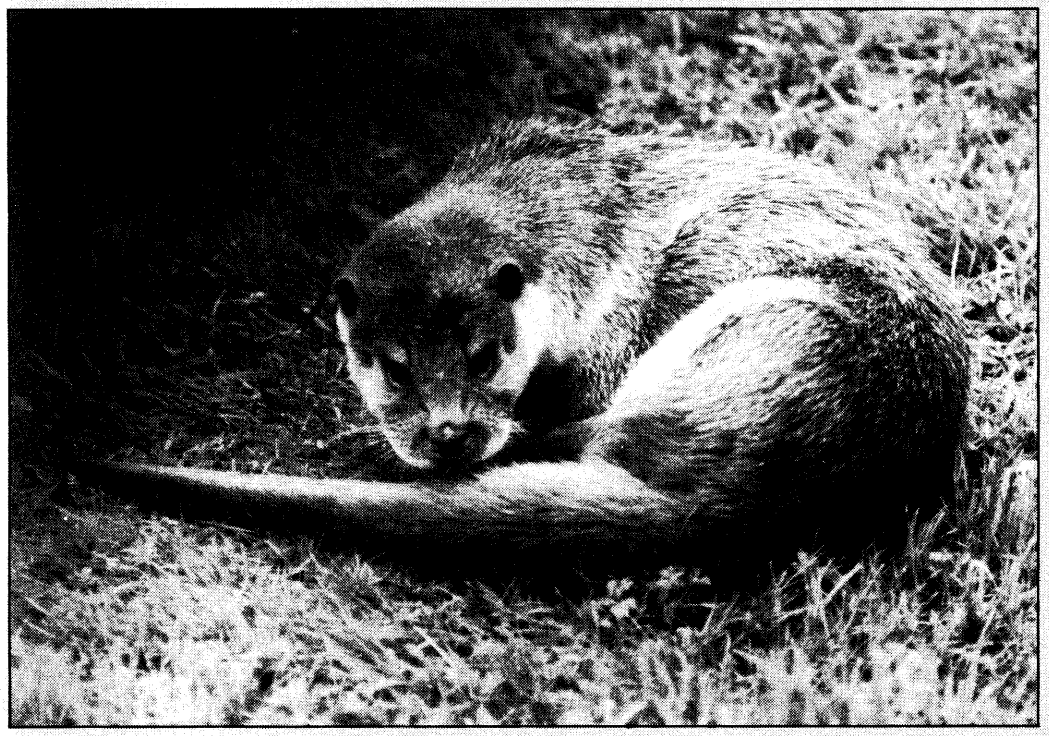

NO. 20 1993

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Cover photograph : Gordon Woodroffe

EDITOR'S REPORT

Welcome to the new look 20th edition of Imprint.

The decision was made some time ago to change the format of the magazine, improving the presentation and publishing once rather than twice a year. As an annual publication, it is important that Imprint carries a full record of the activities of the YMG, an objective which I think has been achieved in this issue. It is also important to carry news from around the region and I hope we have achieved this also to a certain extent.

I would like to thank all those people who have contributed to this edition for they have made what at first I thought was going to be an uphill task, into an interesting and enjoyable one.

On behalf of the YMG, I would like to thank Kate Fuller for her sterling work as Editor of Imprint over the past 5 years, and also extend a personal 'thank you' for her help and advice to myself over the last few months. She now has a young baby and we send our very best wishes to her and her family.

Thanks also to Ann Hanson for her untiring contributions as FSO and to her sister Julie for her charming illustrations. Our new look magazine will feature a cover photograph from now on and I would like to thank Gordon Woodroffe for providing us with the otter.

Finally, my thanks go to Michael Thompson for inviting me to take on the post of Editor and for his help and advice with the production of the magazine.

BERYL CRONIN

MAMMAL NEWS

Rare Bats

What appears to have been the first genuine immigrant of the species Kuhl's pipistrelle (Pipistrellus kuhlii) to mainland Britain was found in an exhausted state on the seafront at St Leonard's, East Sussex, on 26th August 1992. After a few days' recuperation, the bat, an otherwise healthy adult female, was released at Fairlight.
Another rare species, a young barbastelle bat (Barbastella barbastellus), was found in Marks & Spencers at Stratford-on-Avon on 21st August 1992; this followed one found earlier in the month also in the Stratford area. In the same month, a barbastelle found at Finchingfield gave Essex its first record for 23 years.

Ref: *'Bat News'* No 27. October 1992.

Bottles versus Snap Traps for short term Small Mammal Sampling

Discarded bottles frequently attract small mammals into a death trap and such information can be used to augment standard trapping techniques to provide data on species distribution. But how effective would bottles be as part of a controlled trapping régime? Not very effective at all, it seems, according to a study carried out in forestry plantations in central Arkansas, USA. When compared with standard snap traps over 30,240 trap nights, bottles captured only 8 (2%) of the 421 animals caught. Although the same bait was used in both types of trap, the authors suggest that the small orifice of the bottle prevented the aroma of the bait from dispersing as widely as that on the exposed paddle of the snap trap, thereby reducing the attraction of the bottle bait!

Ref: Taulman, J.F.; Thill, R.E.; Wigley, T.B. and Melchiors, M.A. *American Midland Naturalist 127(1) (1992)*, p.208-210

Do Wood Mice (Apodemus sylvaticus) abandon fields during autumn?

Jon Loman tested the hypothesis that at the time of autumn ploughing, mice living in an agricultural landscape invade islands of natural habitat. He sampled the mouse population in these island areas both before and after the ploughing of neighbouring fields and did not find any significant difference in population numbers. He suggests that field

dwelling mice dig burrows that are deep enough to escape disturbance by the plough and which contain abundant food stores. To desert this habitat for another would mean competition with the resident mouse population. Thus he concludes that mice do not leave fields during autumn.

However, Mr Loman does not rule out the possibility that mice invade buildings at this time of year, but suggests that an increase in total mouse activity between summer and autumn may give the impression to the human population of a mouse invasion.

Ref: Loman, J. *Ekologia Polska 39 (2) (1991)* p. 221-228

National Dormouse Week

October 27th-November 3rd has been designated National Dormouse Week to draw attention to the plight of one of our most attractive British mammals. Apparently extinct in 7 northern counties where it was found 100 years ago, the dormouse *(Muscardinus avellanarius)* was found in the 1880s in 20 locations in Yorkshire. However, recent studies have failed to provide firm evidence that they are still to be found in the county *(Imprint No. 17)*. Although fully protected under the Wildlife & Countryside Act, loss of woodland habitat and the destruction of old hazel coppices has led to 'island' populations of dormice that have gradually become too small to survive.

Reinstatement of hazel coppicing in woodlands may take many years to benefit dormice. A cutting régime of 5-7 years encourages regeneration of flowers and butterflies, but removes the hazel before it is old enough to produce the nuts which are vital to dormice. A coppice rotation of 15-20 years suits these mammals better. In addition, tree holes are the preferred nesting site, but these will not be found in young woodland.

Radio tracking has revealed that dormice are almost entirely arboreal, spending days at a time 20 metres off the ground in large oak trees. They like to travel along the network of horizontal branches, so a lack of woodland management which leads to tall spindly trees with few such branches also destroys their habitat.

English Nature's Species Recovery Programme in conjunction with the Vincent Wildlife Trust aims to conserve those habitats which are currently known to support dormouse populations and to reintroduce dormice to suitable areas where populations have been lost. Nest boxes

are being put up as part of the programme. Dormice seem to like them almost as much as natural tree holes and whole populations have been known to congregate in one box!

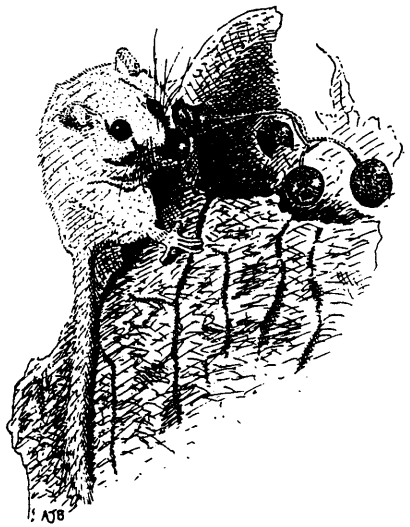
'The Great Nut Hunt' is just one of the activities for National Dormouse Week and will continue throughout the winter and into next spring. It focusses on the identification of the distinctively nibbled hazel nuts which are sure signs of the animal's presence.

A survey pack can be obtained from:

Andrew Deadman (NDW)
English Nature
Northminster House
Peterborough
PE1 1UA

Ref: Pat Morris & Paul Bright, *Natural World, Autumn 1993.*

EDITOR



The Small Mammals of Drainage Ditches: The Influence of Structure

This recent study showed that different types of ditches in farmland have different small mammal communities. The ditches looked at were those with hedges (cut or overgrown) and grassy ditches without hedges. The ditches were all in Suffolk farmland, surrounded by arable land or pasture.

It was concluded that different types of ditches contain different small mammal communites, varying in space and time.

Suitable ditch refuges, as breeding and/or wintering habitat, appear to be essential in maintaining populations of some species of small mammals (and their predators) in arable land.

Understanding the relationships between ditches and their mammal communities, means that ditches can then be managed to conserve the species present in them.

Ref: Perrow, M.R.; Peet, N. & Jowitt, A.
Trans. Suffolk Nat. Soc. 28(1992), pp3-9.

Use of Woody Ground Litter as a Substrate for Travel by the White-footed Mouse, *(Peromyscus leucopus)*

A recent study in Pennsylvania used a fluorescent pigment tracking technique, along with experimental manipulation of woody litter (dead branches, trees and logs), to determine the extent to which white-footed mice used woody ground litter as routes of travel. It was discovered that approximately half the total distance travelled by the mice was using woody ground litter, showing how important this substrate is to spatial habitat use by the animals.

Ref: Planz, J.V. & Kirkland, G.L., Jr.
Canadian Field-Naturalist 106(1) (1992), pp. 118-121.

A Method for Decreasing Trap Mortality of *Sorex*

A live-trapping study of shrews *(Sorex cinereus)* was carried out in a bog in south-west Michigan, using various food supplements to reduce trap mortality. This is always a problem when live-trapping shrews, due to their very high metabolic rate and specific dietary preferences.

It was discovered that red worms *(Eisenia fœtida)* did not significantly reduce trap mortality of shrews, but about 7g of whitefish per trap did significantly reduce mortality.

(*NB:* Has no-one told these people about using deceased blowfly pupæ as bait when trapping shrews, or should the YMG patent this method!!)

Ref: Yunger, J. A.; Brewer, R & Snook, R.
Canadian Field-Naturalist 106(2) (1992), pp. 249-251.

Striped Dolphin in Shetland

On 14th July 1993, a striped dolphin *(Stenella cœruleoalba)* was found stranding itself at Tresta Voe, Shetland. Unfortunately, rescue attempts were unsuccessful, and the animal died. Despite being one of the most widely distributed dolphins in the world, this species is very rare in British waters.

Ref: Harrop, H.
Birding World 6 (7) (1993), p. 296.

ANN HANSON

FIELDWORK REPORTS

TRAP AT FILEY DAMS
22-23 August 1992

A trap held at Filey Dams Nature Reserve on the weekend of 22-23 August 1992 was well attended by members of the public and one or two members of the Yorkshire Mammal Group.

A total of 98 traps were laid down on the afternoon of 19 August and pre-baited with a muesli mix and blowfly pupæ. The traps were positioned in pairs in a variety of habitats ranging from mature deciduous hedgerow and a deciduous copse to open rank grassland and juncus marsh. This apparently random selection of sites was designed to avoid the problems caused by grazing cattle and to produce a good variety of species.

With such a large amount of traps to process we decided to inspect only twice during the weekend: at 9.00am on Saturday and Sunday, and to reset the traps for the second lift when the visitors had left for lunch.

On Friday evening the traps were freshly baited, bedding checked and the doors were tripped. The results are tabled below:

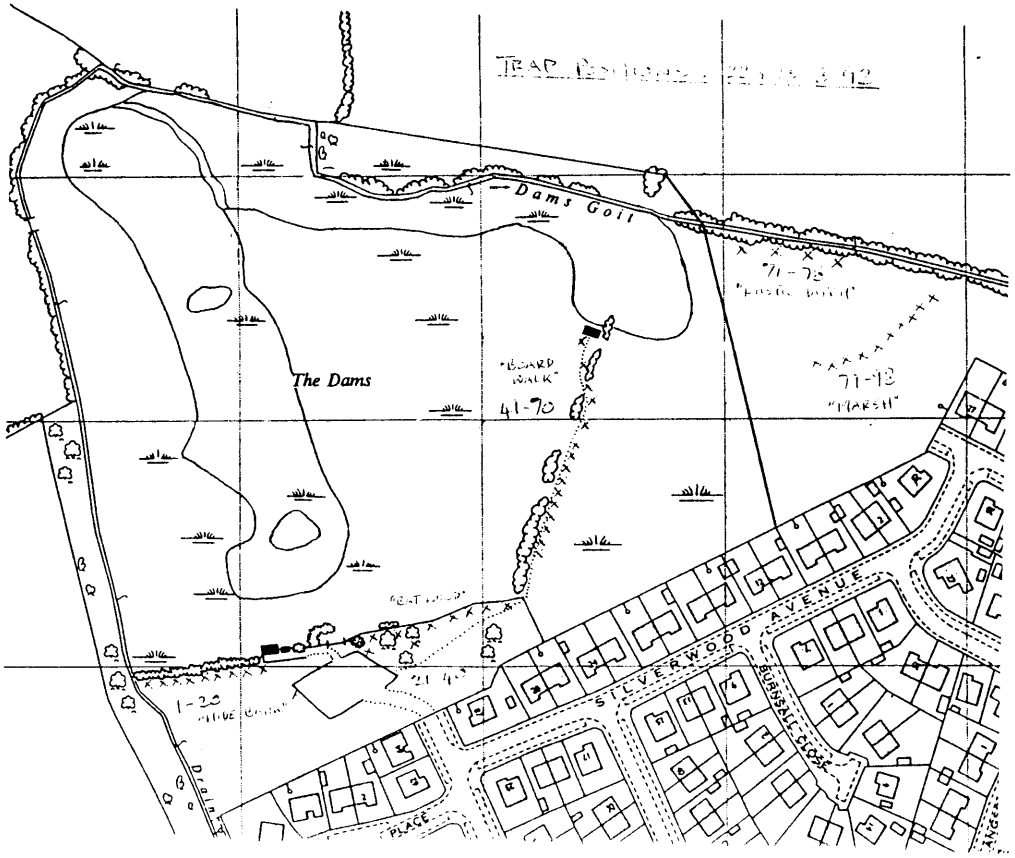
Species	*Saturday 22 Aug*	*Sunday 23 Aug*
Apodemus sylvaticus	12	13
Sorex araneus	8	13
Clethrionomys glareolus	17	17
Neomys fodiens	2	4
Microtus agrestis	-	1
Total:	39	48

Weather conditions in the few days before the weekend were mainly dry and temperate though there was some rain during Saturday night and the temperature fell no lower than 9°C. Fortunately there were no shrew deaths, most animals appearing lively, and various stages of adolescence, pregnancy and flea infestation were noted. Water shrews *(Neomys fodiens)* were well spread, if a little thin on the ground, and the only real surprise was the almost total absence of field voles (*Microtus agrestis)*, a species usually well represented.

It is hoped eventually to establish a permanent grid of trapping stations, including some in the marshy area to the north of the reserve, where large numbers of water shrew have been trapped in the past. This is dependent on adjacent building development which may influence water levels and vegetation zones, but would help to reveal population trends over the longer term.

I am grateful to Gordon Woodroffe, Michael Thompson and Geoff Oxford for helping with the trap and in particular to Kate Fuller, who holds the detailed account of the weekend.

JACK WHITEHEAD



THE MICE OF ASHBERRY PASTURES
12-13 September 1992

The Denis Aspinall Memorial Trap this year was held at the beautiful Yorkshire Wildlife Trust (YWT) reserve at Ashberry Pastures, Helmsley. As last year, this trap also formed an open meeting for the YWT north eastern region. The reserve is in a narrow south-facing valley protected to the north, east and west by mature deciduous woodland. Running through the heart of the reserve is a wonderfully clear stream, containing species such as stonewort. Floristically the pastures are very rich, not only because of the sheltered southerly aspect but also as a result of the juxtaposition of limestone and overlying clays. Moles bring up friable limestone (tufa) from beneath and produce a fine mosaic of acidic and basic soils. The reserve is also notable for its insects, some locally and nationally very rare, and some well outside what is considered to be their normal range.

What about its mammals? On his way home after helping to lay the traps, Gordon Woodroffe saw four fallow deer (*Cervus dama)* on the edge of the pastures. The next morning, two roe deer *(Capreolus capreolus)* were spotted to the north of the reserve. These are apparently fairly regular denizens of Ashberry and there was certainly signs of bark stripping on some of the, presumably juicier, shrubs. Badgers live not far from the reserve and foxes, hedgehogs and grey squirrels are often seen. Of the small mammals there were very few records. Trapping by the YMG on Rievaulx Terraces, in the valley to the east of Ashberry had, a few years ago, produced a number of water shrews. We were therefore full of hope that the stream side would deliver the goods at Ashberry as well. The seemingly ideal habitat and the presence of a shrewd and experienced ex-field studies adviser on the Saturday evening boded well.

Nine o'clock on Sunday morning saw a small gathering of adults and children anxious to see the plethora of mammals Ashberry could offer. The first 25 traps were placed in the upper reaches of the reserve. Five traps in a patch of alder carr produced 3 woodmice (*Apodemus sylvaticus),* these were all males - an impressive start. Five traps in a drier woodland edge yielded another male woodmouse. A thorn thicket running from the wood down to the stream produced a further two woodmice (males) in five traps. Surely there must be more than male woodmice on such a reserve? The next five traps in tussocky grass produced nothing, but then at last, the final five set along the stream edge broke the pattern - with a *female* woodmouse! Another lactating

female followed in the first of the second set of 25 traps set beside the stream in the lower pastures, and that was all. Despite the perfect setting, high expectations and unstinting expert advice, diversity was one thing we did not find.

The reason for our lack of success is not clear, but may be a result of the lack of cover along the stream edge. Prior to our visit, the pastures had been fairly heavily grazed by sheep and most of the vegetation was very short. Perhaps significantly, the mice were all caught under trees although in many places the ground cover was even thinner than in the pasture proper. Despite the rather repetitive nature of the captures, all the children emptied a trap of its mouse, saw how to sex them and had a good time. The recorder for the reserve was also happy for we had added a new species of small mammal to his list.

Many thanks to Jeanetta, Gordon and Kate for their assistance, and to Keith Gittins of the Ashberry Pasture Management Committee for inviting us to the reserve and for his much appreciated help during the trap.

GEOFF OXFORD

FOSS ISLANDS RESERVE YORK
17-18 October 1992

This small, inner city reserve is situated on the banks of the River Foss on the site of a former cooling tower (map ref. SE609519). Removal of the tower left a large hole which flooded, forming a moderately-sized pond connected to the river by a narrow channel. This pond, plus a fringe of surrounding land, forms the reserve. The river bends to form the reserve boundary on two sides; the other sides abut developed or redevelopment sites. The reserve is thus a green island in the heart of urban York, with the only natural corridor provided by the river.
The YMG was asked by the Reserve Management Committee to investigate which small mammals inhabit the site. Fifty traps were laid on 17 October and lifted on 18 October. Trapping effort was concentrated near the hide and on the far side of the reserve, since the peninsula adjacent to the river is dominated by willows and was surprisingly dry and devoid of ground cover. Traps were placed under shrubs and bramble clumps but about half were reserved for a dense stand of reedmace in the hope of detecting water shrews.

The trap yielded just three field mice (*Apodemus sylvaticus)* - all male. These were spread throughout the area trapped, with one taken near

the hide, one under bramble on the far boundary and the third in the reedmace. The result was disappointing but not totally unexpected. It is well known that *Apodemus* is not averse to crossing terrain without much cover, whereas the voles and shrews generally do not. Given the rather small size of the reserve and its isolation from potential sources of small mammals, it seems unlikely that a diverse mammal fauna will ever develop. It is possible, however, that water shrews could colonize the area by moving along the river corridor. This would depend on viable source populations existing nearby. Another trap, perhaps over a longer period and concentrating on the reedmace beds, might be interesting from this point of view.

Many thanks to Ann Hanson, Jeanetta Lambert and Roma Oxford for their help with the trap.

GEOFF OXFORD

THE HUMBER WILDFOWL REFUGE
6-7 March 1993

Participants: Ann Hanson, Geoff & Roma Oxford, Callum Rankine (Reserve Warden), Mary Youngman

Fifty Longworth traps were set in the edge of a reedbed (*Phragmites),* just below a floodbank, in the Humber Wildfowl Refuge, alongside the Humber estuary. Also, four watervole traps were set in an overgrown ditch on the opposite side of the floodbank to the reedbed. Traps were set on Saturday evening, and lifted on Sunday morning at about 10.30am. The weather was cool and misty, with no overnight rain. This site has not been trapped for small mammals previously, so all records obtained were new.

Three mammals were captured in the reedbed edge, consisting of 1 woodmouse (*Apodemus sylvaticus)* and 2 common shrews *(Sorex araneus).* All the animals were adults, and the woodmouse was male. No attempt was made to sex the shrews, and the animals were not weighed on this occasion. The watervole traps yielded no captures. However, numerous small mammal tracks were noted in the mud along the estuary and through the reedbed, and deer trails were also obvious through the reedbed.

Although the catch was very low - not unusual for this time of year, when small mammal populations are at their lowest after winter - it did show that small mammals are able to use the reedbed, despite regular

flooding at high tides. The ditch beyond the floodbank may act as a refuge at these times.

ANN HANSON (FSO)

A LONG TERM STUDY OF THE AGROFORESTRY SITE AT LEEDS UNIVERSITY FARM NEAR TADCASTER

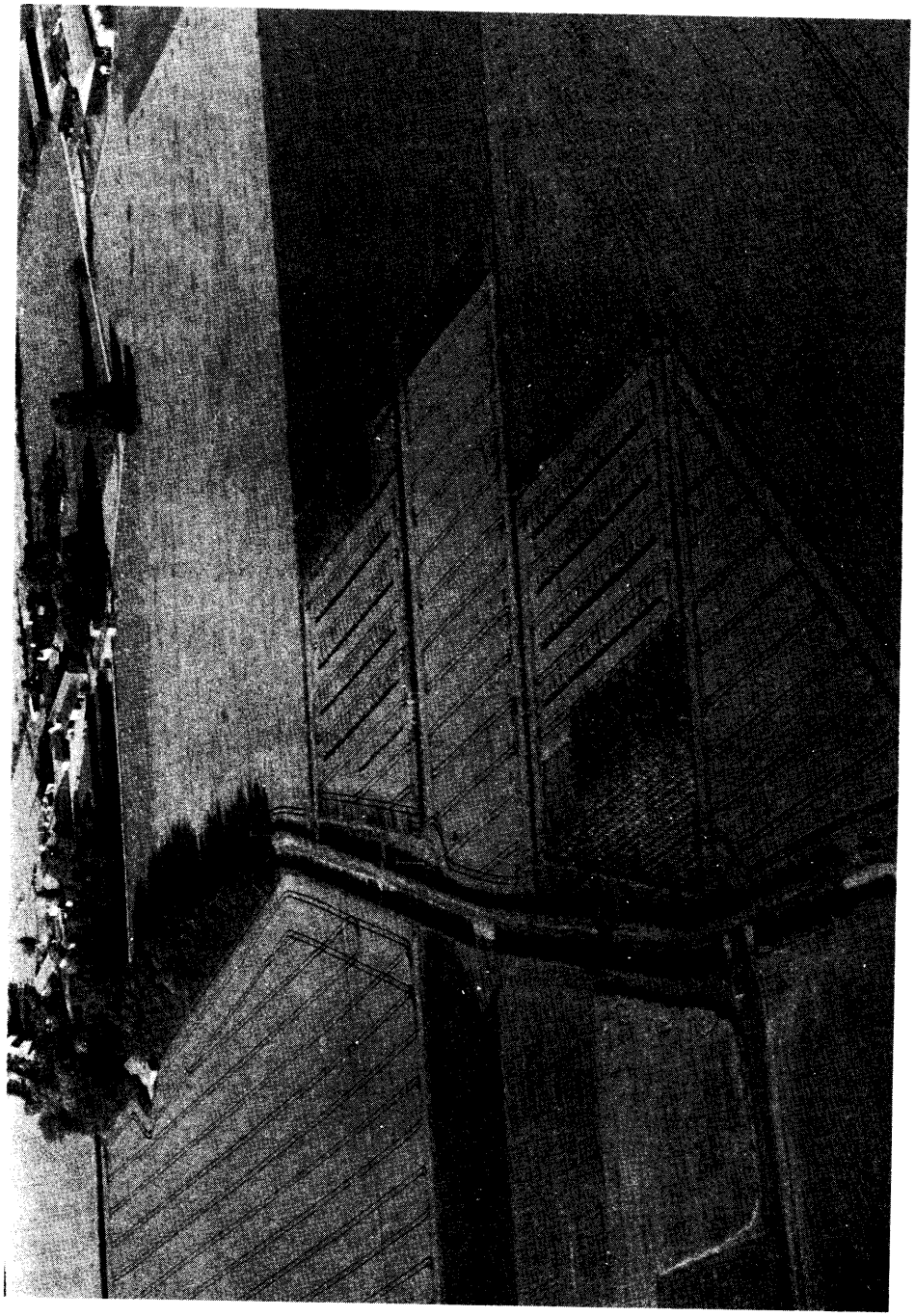
For background information and results of previous traps, see *Imprint Nos. 17, 18 & 19.*

Background

The agroforestry treatment areas at Leeds University Experimental Farm consist of production hedges containing timber trees with an intermediate storey of hazel bushes. These are interspersed with arable strips 12m wide which are being cropped with a rotation of combinable crops. The site was planted in spring 1988 and, during 1990, grass was sown in the 2m production hedge strips. Abutting onto the agroforestry treatment areas are forestry control plots, and surrounding the whole area is a windbreak hedge.

The above planting is replicated four times. Near to each - but far enough away to minimise microclimatic interactions - are areas of arable control treatment.

The site is being monitored to compare arable yields, tree growth, microclimatic and soil moisture measurements in the experimental and control treatments. Extensive micro and macrofaunal monitoring is also underway, and the YMG will be participating in small mammal studies over a long period of time.



LEEDS UNIVERSITY EXPERIMENTAL FARM
Photograph by Arthur Chadwick

Procedure
The object of the trapping sessions is to compare small mammal use of the experimental and control treatments. We hope to investigate how this changes in the future as the site becomes more established.
Traps are laid in two treatment blocks, with eight traps (4 x 2) in hedges, eight traps (4 x 2) in arable strips, eight traps in forestry control and eight in arable control in each block.
Eight traps are also laid in the original hedge next to agroforestry block 2. The traps are set on Friday and Saturday evenings, and checked on Saturday and Sunday mornings.

Fifth Trap
23-25 October 1992

Participants: Kate Fuller, Ann Hanson
Results: **24.10.92.**
Weather: Cold, clear, light breeze.

Site	*Species*	*Sex (M/F)*	*Age (A/J)*	*Weight (g)*	*Recapture*	*Notes & Conditions*
BLOCK II						
Forestry Control	Apodemus sylvaticus	-	-	-		Escaped!
Forestry Control	Apodemus sylvaticus	M	J	17		
Forestry Control	Apodemus sylvaticus	-	J	14		
Forestry Control	Apodemus sylvaticus	-	-	17		
Agroforestry Strip 1	Apodemus sylvaticus	M	J	16		
Agroforestry Hedge 1	Apodemus sylvaticus	-	J	-		
Agroforestry Hedge 2	Apodemus sylvaticus	M	J	16		
Agroforestry Hedge 3	Apodemus sylvaticus	F	A	21		
Agroforestry Strip 4	Apodemus sylvaticus	F	J	19		
Agroforestry Hedge 4	Clethrionomys glareolus	-	-	-		Dead in trap.

Site	*Species*	*Sex (M/F)*	*Age (A/J)*	*Weight (g)*	*Recapture*	*Notes & Conditions*
BLOCK IV						
Forestry Control	Apodemus sylvaticus	F	J	16		
Forestry Control	Clethrionomys glareolus	M	-	14		
Forestry Control	Apodemus sylvaticus	M	A	23		Yellow stripe on neck.
Forestry Control	Apodemus sylvaticus	F	J	17		
Forestry Control	Apodemus sylvaticus	F	J	18		
Agroforestry Strip 2	Apodemus sylvaticus	M	J	17		
Agroforestry Hedge 1	Sorex araneus	-	-	8		
SURROUNDING HABITAT						
Original Hedge	Clethrionomys glareolus	M	-	-		Dead in trap.
Original Hedge	Apodemus sylvaticus	-	J	15		
Original Hedge	Apodemus sylvaticus	M	J	16		
Original Hedge (i)	Apodemus sylvaticus	M	A	20		3 animals in one trap!
(ii)	Apodemus sylvaticus	M	J	16		
(iii)	Apodemus sylvaticus	M	J	17		

25.10.93

Weather: Cold, wet and windy. Dry earlier in the night.

Site	*Species*	*Sex (M/F)*	*Age (A/J)*	*Weight (g)*	*Recapture*	*Notes & Conditions*
BLOCK II						
Forestry Control	Clethrionomys glareolus	F	-	12		

Site	Species	Sex (M/F)	Age (A/J)	Weight (g)	Recapture	Notes & Conditions
Forestry Control	Apodemus sylvaticus	M	J	18		
Agroforestry Strip 1	Apodemus sylvaticus	M	J	18		
Agroforestry Strip 2	Apodemus sylvaticus	M	A	22		
Agroforestry Hedge 1	Apodemus sylvaticus	F	J	17		
Agroforestry Strip 2	Apodemus sylvaticus	M	A	21		
Agroforestry Hedge 2	Apodemus sylvaticus	M	J	17	√	
Agroforestry Strip 4	Apodemus sylvaticus	M	J	18	√	
Agroforestry Hedge 4	Apodemus sylvaticus	M	J	16		
Arable Control	Apodemus sylvaticus	M	A	22		
Arable Control	Apodemus sylvaticus	F	A	21		
BLOCK IV						
Forestry Control	Apodemus sylvaticus	M	A	22		
Forestry Control	Apodemus sylvaticus	M	J	17		
Forestry Control	Clethrionomys glareolus	F	-	12		
Forestry Control	Apodemus sylvaticus	F	J	18		
Forestry Control	Clethrionomys glareolus	M	-	13		
Forestry Control	Apodemus sylvaticus	F	A	21		

Site	Species	Sex (M/F)	Age (A/J)	Weight (g)	Recapture	Notes & Conditions
Agroforestry Strip 2	Apodemus sylvaticus	M	J	18		
Agroforestry Hedge 2	Apodemus sylvaticus	F	J	17		
Agroforestry Hedge 4	Clethrionomys glareolus	F	-	13		
SURROUNDING HABITAT						
Original Hedge	Apodemus sylvaticus	M	A	22		
Original Hedge	Apodemus sylvaticus	M	J	17	√	
Original Hedge	Apodemus sylvaticus	F	J	18		
Original Hedge	Sorex araneus	-	-	9		
Original Hedge	Apodemus sylvaticus	M	J	17		
Original Hedge	Apodemus sylvaticus	F	A	21		
Original Hedge	Apodemus sylvaticus	M	J	17		
Arable Control	Apodemus sylvaticus	F	A	20		

Sixth Trap
16-18 April 1993

Participants: Ann Hanson, Geoff Oxford, Chris Wright, Mary Youngman.
Results: **17.04.93.**
Weather: Fine, warm, dry and cloudy.

Site	Species	Sex (M/F)	Age (A/J)	Weight (g)	Recapture	Notes & Conditions
BLOCK II						
Forestry Control	Microtus agrestis	M	A	26		

Site	Species	Sex (M/F)	Age (A/J)	Weight (g)	Recapture	Notes & Conditions
Agroforestry Hedge 4	Sorex araneus	-	A	7		
Agroforestry Hedge 3	-	-	-	-		Trap sprung & casters eaten
BLOCK IV						
Arable Control	Apodemus sylvaticus	F	A	21		
SURROUNDING HABITAT						
Original Hedge (Trap I)	Sorex araneus	-	A	11		
Original Hedge (Trap 5)	Sorex araneus	-	A	8.5		Distinctive moult line on head
Original Hedge (Trap 6)	Sorex araneus	-	A	13		
Original Hedge (Trap 7)	Sorex araneus	-	A	10		
Original Hedge (Trap 8)	Clethrionomys glareolus	M	A	18		

18.04.93

Weather: Wet, windy and rather cool.

Site	Species	Sex (M/F)	Age (A/J)	Weight (g)	Recapture	Notes & Conditions
BLOCK II						
Forestry Control	Sorex araneus	-	A	11	√	
Forestry Control	Sorex araneus	-	A	11		
Agroforestry Hedge 4	Sorex araneus	-	A	12		Distinctive white ear tufts.

Site	Species	Sex (M/F)	Age (A/J)	Weight (g)	Recapture	Notes & Conditions
Agroforestry Strip 2	Sorex araneus	-	A	12		
BLOCK IV						
Agroforestry Hedge 1	Sorex araneus	-	A	11		Distinctive leg moult pattern.
Agroforestry Strip 2	Clethrionomys glareolus	F	A	18		
Arable Control	Apodemus sylvaticus	F	A	23		
SURROUNDING HABITAT						
Original Hedge (Trap 1)	Apodemus sylvaticus	F	A	33		Possibly lactating.
Original Hedge (Trap) 2	Sorex araneus	-	A	12	√	
Original Hedge (Trap 5)	Sorex araneus	-	A	11.5		
Original Hedge (Trap 7)	Clethrionomys glareolus	F	A	17		

Comments

During this trap the arable crops were still fairly short and the undergrowth in the hedges and forestry controls was just beginning to provide cover.

The results indicate the original, established hedge is still acting as a reservoir for animals over winter, which may then be moving out into the agroforestry plots as the crops and hedge ground flora mature. The high catch of shrews indicates an increased invertebrate population, which corresponds to the results obtained by the faunal monitoring studies on the agroforestry plots.

This trap provided the first record of *Microtus agrestis* on the agroforestry plots.

The overall catch for this trap was rather low, although this is normal for the time of year, as populations are usually low after winter.

Seventh Trap
9-11 July 1993

Participants: Ann Hanson, David Laughton, Chris Wright, Charles Foster + 2.
Results: **10.07.93.**
Weather: Dry, cold night. Sunny, windy, cool morning.

Site	*Species*	*Sex (M/F)*	*Age (A/J)*	*Weight (g)*	*Recapture*	*Notes & Conditions*
BLOCK II						
Forestry Control	Sorex araneus	F	J	7.2		
Forestry Control	Sorex araneus	-	A	7.4		
Forestry Control	Sorex	-	-	-		Trap sprung but no capture
Forestry Control	Sorex araneus	F	A	8.5		
Forestry Control	-	-	-	-		Trap sprung.
Agroforestry Strip 3	Apodemus sylvaticus	-	J	17		Escaped during handling.
Agroforestry Strip 2	Sorex araneus	F	A	10.8		
Agroforestry Hedge 1	Sorex araneus	-	A	8.5		
Agroforestry Strip 1	Sorex araneus	-	-	-		Dead in trap.
BLOCK IV						
Forestry Control	Sorex araneus	-	-	-		Dead in trap.
Forestry Control	Sorex araneus	-	-	-		Dead in trap.
Forestry Control	Sorex araneus	M	A	9		
Forestry Control	-	-	-	-		Trap sprung.
Forestry Control	Sorex araneus	-	J	7		
Forestry Control	Sorex araneus	-	J	8		
Agroforestry Strip 1	Sorex araneus	-	J	8		
Agroforestry Hedge 1	Sorex araneus	-	J	8		
Agroforestry Strip 2	Sorex araneus	-	J	8		Distinctive white ear tufts.
Agroforestry Hedge 2	Clethrionomys glareolus	F	J	14		

SURROUNDING HABITAT
No captures were made in the original hedge on this occasion.

11.07.93

Weather: Dry night. Cool morning with light showers.

Site	*Species*	*Sex (M/F)*	*Age (A/J)*	*Weight (g)*	*Recapture*	*Notes & Conditions*
BLOCK II						
Forestry Control	Sorex araneus	-	J	8.5		
Forestry Control	Sorex araneus	-	J	7		
Agroforestry Strip 4	Sorex araneus	-	A	9		
Agroforestry Strip 3	Sorex araneus	-	A	12		
Arable Control	Apodemus sylvaticus	F	A	33		Heavily pregnant.
BLOCK IV						
Forestry Control	Sorex araneus	-	J	8		
Forestry Control	Sorex araneus	-	J	8		Black patch on each side.

Site	*Species*	*Sex (M/F)*	*Age (A/J)*	*Weight (g)*	*Recapture*	*Notes & Conditions*
Forestry Control	Sorex araneus	-	J	8		Very dark colour.
Forestry Control	Sorex araneus	-	-	-		Dead in trap.
Agroforestry Hedge 1	Sorex araneus	-	J	7		
Agroforestry Hedge 3	Sorex araneus	-	J	7.5		Distinctive white ear tufts.
Agroforestry Strip 3	-	-	-	-		Trap sprung.
Agroforestry Strip 4	Sorex araneus	-	J	7		Distinctive white ear tufts.
Arable Control	Sorex araneus	-	A	11		Distinctive white ear tufts.
SURROUNDING HABITAT						
Original Hedge	Sorex araneus	-	J	8		

Comments

During this trap the arable crops were fully grown and due to be cut in the near future. The ground cover in the hedges and forestry controls was also well grown, providing plenty of cover for small mammals. The catch for this trap was considerably higher than for the previous trap in spring, although once again consisting mainly of common shrews *(Sorex araneus)*. Animals were present both in the forestry controls and the agroforestry plots, but now less numerous in the original, established hedge, possibly indicating they were making use of the better food supply and increased cover in the agroforestry treatments at this time of year. Interesting to note is the incidence of distinctive white ear tufts in the shrew population at this site - perhaps a genetic trait, as I have yet to see such markings on a shrew around my own home, which is only 2 miles from the University Farm.

Overview of the Results so Far

1) The initial traps in 1991 yielded quite low catches, mainly because the ground cover in the agroforestry hedges and forestry controls had not yet established sufficiently.

2) The first animals to move into the agroforestry plots in any numbers were woodmice *(Apodemus sylvaticus)*, followed by common shrews (*Sorex araneus)* and bank voles (*Clethrionomys glareolus*) in smaller numbers.

3) Autumn traps have always yielded many more animals than spring or summer traps, as ground cover is minimal early in the year, but becomes very dense as the summer progresses. Also, small mammal populations generally build up over the summer months, to peak in autumn, and reduce again overwinter.

4) Most striking over the past two years is the increase in the common shrew populations in the agroforestry plots. This seems to correspond to an increase in insects in these areas, which are the main prey of shrews.

5) So far, five small mammal species have been recorded in the agroforestry plots. These are woodmice (*Apodemus sylvaticus)*, common shrews *(Sorex araneus)*, bank voles *(Clethrionomys glareolus)*, field voles *(Microtus agrestis)* and the house mouse *(Mus musculus)*. Species which may well occur in the future are the pygmy shrew *(Sorex minutus)* and the water shrew *(Neomys fodiens)* - both of which are found in the surrounding countryside.

ANN HANSON (FSO)

A YORKSHIRE MAMMAL GROUP OUTING TO TWYCROSS ZOO

When I suggested that the Yorkshire Mammal Group might like a visit to Twycross Zoo in Warwickshire, the committee looked at me as though I had proposed that the River Derwent should be used as a testing site for nuclear submarines. Nonetheless the idea was eventually taken on board and Sunday 14 March saw 10 intrepid members motoring down to deepest Warwickshire. By this time I was having serious misgivings about the whole affair: if the zoo did not come up to expectations I was going to get a lot of hassle!

I had suggested a visit to the East Midlands Zoological Society because it is an important centre for the breeding of primates. Indeed, very few zoos, anywhere in the world, have the experience that Twycross has with so many apes and monkeys. We arrived mid-morning and after lunch we were taken on a conducted tour by Malcolm Whitehead, the

Education Officer, whose enthusiasm, expertise and sense of humour were a source of delight.

We were introduced to the particularly interesting groups of siamangs (the largest of the gibbons); pileated gibbons, Klauss's gibbons, agile gibbons and black gibbons, most of whom were breeding. The gibbons are housed in long grassy, well-branched aviary type enclosures running parallel to each other which act like forest corridors and evoke loud calling as members defend their territories. In the wild, all of the gibbons are threatened by rapid destruction of rain forests in South East Asia. They are species which need vast areas of forest in which to survive, and as human populations and commercial logging encroach on the forest, so the importance of good zoo management of these mammals increases. Perhaps one day there will be the possibility of reintroductions into the wild. Admittedly, zoos are a long way from achieving this goal with most gibbon species, although the efforts of Twycross give some hope for the future.

There are also chimpanzees, western lowland gorillas (two of which were born at the Jersey Wildlife Preservation Trust), leaf eating monkeys, howler monkeys and tamarins. As you might expect from such a collection, several primate houses occur all around the zoo, and they are all broadly similar in design; they consist of a central corridor into which visitors can wander, flanked by glass fronted indoor rooms which house the exhibits.

The story of Twycross Zoo's perseverance in keeping and breeding 'difficult' zoo species is interesting. In its infancy Twycross defied convention completely by putting its rare and valuable collection of monkeys in grassy enclosures. The Zoological Society of London advised them against it, saying that to keep monkeys on grass would be disastrous. Miss Molly Badham, the Director, replied that she would take the risk: if her monkeys died then she would ensure that they died happy! However, the gamble paid off. The ground is regularly tested and treated to kill parasites as well as being returfed from time to time. And London Zoo acknowledged that they had probably got it wrong when they incorporated grassy areas in the Michael Sobell Ape House!

As Malcolm explained, Twycross is involved in joint breeding programmes with other zoos. Along with the Washington National Zoo and Jersey, it has co-operated in the Golden Lion Tamarin conservation project. This is a most interesting programme which had severe setbacks and highlighted some of the problems with captive breeding.

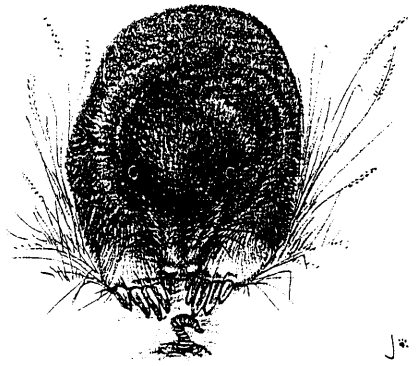
Initially 14 Tamarins were released between May and July 1984. Sadly by June 1985, 11 were dead or had to be rescued. As Colin Tudge in his excellent book *Last Animals at the Zoo* remarked, disease was the main cause of death: what was probably a virus caused diarrhœa and dehydration in 5 animals in a family group in February 1985. And to make matters worse, the captive bred Tamarins were not good climbers. They particularly disliked the difficult passage from tree to tree, along thin twigs. They tended to move along the ground instead. In this way one was killed by a snake and another by a feral dog. Of course, the critics of captive breeding took this as evidence that captive breeding and reintroductions are doomed. The real point, however, is simply that they can be extremely difficult. Since the initial releases, reintroduction of Tamarins has been preceded by training in climbing, feeding and all other skills necessary for survival. With such preparations, the reintroductions are now succeeding and the project continues.

Finally, we made a trunk call and were introduced to the Asian elephants. I am always impressed by the care and dedication elephant keepers have for their charges: a rewarding but dangerous job if a friendly elephant leans on you. Obviously, it helps to have a male if you intend to breed elephants but very special facilities are also needed. Zoos breeding elephants have, in fact, had a number of keepers killed. The nearest elephant breeding centre is at Chester Zoo. Perhaps next year we might enjoy the elephant experience there?

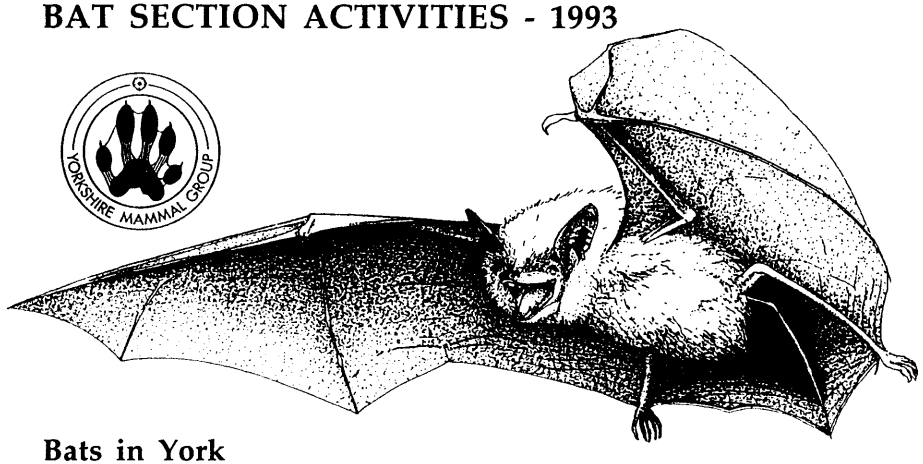
Yes, I think that Twycross takes its rôle as a conservation zoo very seriously. It is prepared to commit resources towards keeping surplus males and juveniles. An admirable commitment and one that does not come cheaply. In spite of their initial reservations everyone agreed it had been a most enjoyable and worthwhile visit.

Chester next year?

GORDON L WOODROFFE



BAT SECTION ACTIVITIES - 1993



Bats in York

Whoever they are, whenever they come, they all say the same..."Thank goodness we've found someone!!" Are they lost in Long Marston or stressed out in Strensall? No - they've usually rescued a bat and want someone to care for it. For the York area, that someone is me!

Since January 1993 a total of 24 bats have been taken into care and of these, 20 have been pipistrelles *(Pipistrellus pipistrellus)*. Two were male whiskered bats *(Myotis mystacinus)*, one was a female Daubenton's bat *(Myotis daubentoni)* and one a male noctule bat *(Nyctalus noctula)*. Both whiskered bats died within hours, while the female Daubenton's bat expired one hour after the birth of her stillborn infant. Saddening as this was, it all took place in the hand and was an extraordinary experience. Of the pipistrelles, many have been juveniles but happily, nearly independent individuals have been returned to their roosts while injured adults and hand-reared babies remain in captivity. Such bats are invaluable for events like National Bat Week when it is vital to educate the public about these often misunderstood creatures.

This year during National Bat Week, I organised, with the enthusiastic help of Richard Dean and his staff, a display featuring bats as visitors to our gardens. At Dean's Garden Centre it was possible to see a collection of trees, shrubs, herbs and perennial plants which released their perfumes throughout the evening, thus attracting night-flying insects which in turn would entice bats. Specially produced leaflets were available free of charge and these contained information on creating a bat friendly garden plus a list of suitable plants to grow. At the weekend, live bats were on display to coincide with timed talks.

About £80 was collected in donations for the Bat Conservation Trust, with a similar amount raised in sales of books, bat boxes and T-shirts.

Although National Bat Week activities are often exhausting, it is always extremely satisfying when people crowd round, curious to see a live bat, questions coming from every quarter and, I hope, fears and doubts being allayed one by one. Roll on National Bat Week 1994!

ROMA OXFORD

Bats & Bees

Meanwhile, Lesley Helliwell has also been very busy. In May, 30 bat boxes were put up in St Peter's School and on Joseph Rowntree property in the hope of attracting roosting noctule bats away from Clifton Bridge. There has been a problem for several years of bats being disturbed during the day and falling into the River Ouse. Unfortunately, the bats still seem to prefer the bridge, but there have been no problems so far this year.

Roof and building surveys for English Nature continue, with three visits involving unwanted bee colonies co-habiting with bat colonies! All these were successfully dealt with. Another visit involved the police compelling a householder to reopen a pipistrelle nursery roost entrance which he had blocked. At Goathland, a known pipstrelle and brown long-eared bat roost was also found to contain one male Natterer's bat *(Myotis nattereri)*.

A retired water bailiff from Duncombe Park, Helmsley, took Lesley and Dick Wakelin around some of Adam Gordon's old haunts, they hope to follow this up with some night-time surveys.

A bat walk for Ryedale Council in June was very well attended, with 40 people seeing three bat species despite the heavy rain. Lesley hopes to repeat this walk next year.

There seem to be a lot of abandoned juvenile bats this year, with an interesting sex ratio of 9 : 1 male to female. Are females selectively abandoning male babies as a survival strategy?!

Lesley is giving a talk at the National Bat Conference on "Bats in Hong Kong" and is holding a workshop on injured bats.

EDITOR

Bat Chat

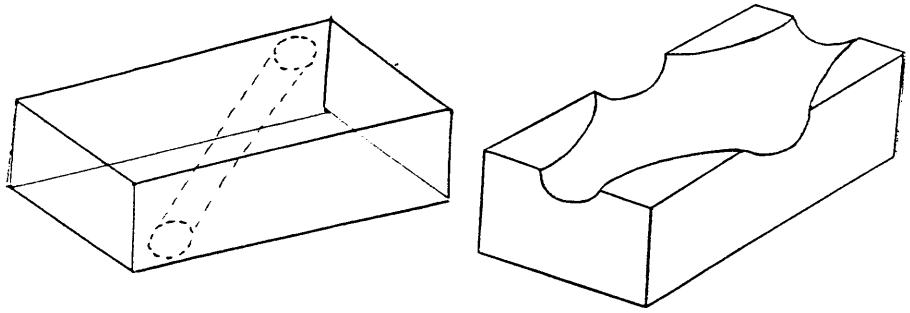
Edna Shann has been working tirelessly on the public relations front, giving talks to schools and other organisations and mounting displays at various shows in the area, usually with the help of live bats. The live animals always attract a lot of interest and donations have been given to the group, while specially designed T-shirts and bat boxes have been selling steadily.

Again there has been a lot of survey work to do on behalf of English Nature and Edna's area has now widened to cover Harrogate, Ripon, Knaresborough and Boroughbridge. The most exciting discovery so far this year has been a Natterer's bat roost in a farmhouse near Pateley Bridge. Surveys of churches and bridges are being carried out, and a new keen batworker is training to get a licence. There have been many young and injured bats to care for, more than in any other year in this area.

EDITOR

Bat Bricks

Over the last few years, Derek Ungley has spent a lot of time developing a bat brick design in conjunction with a local firm. Two designs are now available from Desimpel of Dunnington.



(a) The original (b) The frog

The original design provides access for bats into suitable roosting sites such as cavity walls, lofts and outbuildings. An entry hole on the face of the brick leads diagonally upwards so that driving rain cannot penetrate and birds are excluded.

The new style is more versatile and may be used to create a roosting site in itself. The brick can be used in any orientation, or two can be used together with the frogs facing to provide a roost site for larger bats. These bricks may be useful for incorporating into the underside of river bridges to accommodate for example, Daubenton's bats.

Prices on request from Desimpel (UK) Ltd (0904) 488788.

EDITOR

OTTER REINTRODUCTIONS: STEPPING STONES TO CONSERVATION

North Yorkshire boasts a number of beautiful rivers. For example, in addition to the wild splendours of the moors, the North Yorkshire Moors National Park has some 1667km of waterways. These include some of the principal river systems in the region which rise as small streams on the high moorland before becoming fully fledged rivers lined with alders, sycamores and ash trees as they wind through the National Park.

From 1984-1990 an intensive survey was carried out to assess the distribution and status of the Eurasian Otter *(Lutra lutra)* in this assemblage of rivers. Survey sites were selected at 2-5km intervals along them and stretches were searched for otter signs such as footprints and fæces. Otter footprints, which can be found on sandbars and mudflats, are very characteristic and a good print is unlikely to be confused with that of any other five toed river mammal. More importantly, otters also deposit their fæces - known as spraints - throughout their home range. Spraints are usually deposited at prominent places on rocks or stones, tree roots, fallen tree trunks and under bridges. They have a highly distinctive sweetish odour and if otters are regularly using a system the spraints are not too difficult to find.

Unfortunately the survey showed that the North Yorkshire rivers had a very low density and possibly declining population of otters. So in 1990 a scheme was drawn up with Jim and Rosie Green, ecologists with The Vincent Wildlife Trust, to reintroduce otters into the area to try and

bolster up this small, highly fragmented population. Animals would be introduced in a structured way so that if successful they would breed and colonise throughout the whole river system.

The success of any reintroduction programme depends on the support and practical co-operation of riparian landowners and their staff. Not only was this forthcoming but most of them greeted the idea with enthusiasm. It is essential, for example, that private sites are found for the erection of release pens close by the river. Lectures were given on the intended management of the project to gamekeepers and water bailiffs and the need for secrecy emphasized.

In 1990, 4 otters were received from The Vincent Wildlife Trust and a further 17 were reintroduced from 1991 to 1993. All these were wild animals which had either been injured or orphaned and then sent to Jim and Rosie Green for rehabilitation. Once at the rehabilitation centre they receive full veterinary attention and have to be in peak condition before release is contemplated.

The North Yorkshire releases pioneered the use of electric fencing for constructing the release pens. A single live wire, about 15cm above the ground, was also incorporated on the inside of the enclosure to stop the animals digging their way out. Electric fencing is far cheaper than the conventional chain link fencing which had been used in earlier release programmes in Norfolk. The animals were kept in the enclosure for three weeks to enable them to settle down and ensure that they became used to their surroundings. Plenty of cover was provided and the otters were only disturbed once a day for feeding. After three weeks when the weather was good the fence facing the river was dismantled and the animals allowed to go in their own time.

Research is now being carried out to determine how far otters are ranging and information is being collected on sprainting and feeding patterns. However, it will take at least another 3-4 years to gauge how successful the project has been. Hopefully at the end of that time we should know far more about the ecology of otters in freshwater systems in North Yorkshire and the factors necessary for their conservation.

GORDON WOODROFFE

Acknowledgement: *Biology Matters*, University of York.

WINTER ACTIVITY OF BATS OVER BEVERLEY BECK

There are relatively few published systematic studies of bat activity in winter at potential feeding sites. Avery (1985, 1986) observed pipistrelles *(Pipistrellus pipistrellus)* and noctule *(Nyctalus noctula)* at Coe Fen Nature Reserve, Cambridge over three consecutive winters. Both species were seen to be active during all winter months dependent upon the prevailing weather conditions. Although Avery recorded the number of occasions on which bat activity was observed, it was not possible to quantitate the numbers of active bats. In this study it was of interest to see if bat activity could be recorded during winter months at a known, more northerly feeding site, namely Beverley Beck, East Yorkshire (Lane, 1991), to identify any species encountered and to attempt some quantification of numbers feeding.

Beverley Beck (Grid Ref. TA 045393 to TA 057394) is a canalised stream of some antiquity, three quarters of a mile in length, linking an industrialised part of the town with the River Hull. On nights when there was a high expectation of successful encounters (relatively high ambient temperature combined with low wind speed) the Beck was visited between half an hour and one and a half hours after sunset. No attempt was made to visit the site on all suitable nights. The beckside towpath was walked with a Skye bat detector set at 45 kHz. Whenever possible, bat identification was achieved by a combination of characteristic echolocation sounds, bat flight pattern and the use of a portable spot-lamp. Feeding activity was determined by the detection of feeding buzzes on the detector. Because bat activity was focussed to the length of the Beck by adjacent buildings, hedgerows and tree-lines it was possible to estimate the numbers of bats feeding at any one time. No attempt was made to correlate bat activity with insect density.
The Beck was visited twenty-one times over the winter period (October 1991-April 1992) during spells of relatively mild weather. Bat activity (Table I) declined during October and increased from late February onwards. During the intermediate period five out of eleven visits were blank, but bat activity was noted during all winter months. During December, January and early February although bats were encountered, feeding buzzes were not noted. There was no correlation between ambient temperature at emergence time and the number of bats encountered. The highest temperature recorded for a negative visit was 12°C in November, whereas in April, when a temperature of 1.5°C was recorded, at least fifty bats were active.

TABLE I: BAT ACTIVITY OVER BEVERLEY BECK
Winter 1991-92

Date	*Temp .* ℃	*Number Active (Feeding)*	*Species (Number)*		
02.10.91	12	>20(F)	P.	W.	D. (3)
10.10.91.	14.5	10(F)		W.	D. (3)
22.10.91.	6.5	3(F)		W.(1)	D. (3)
02.11.91.	12	0			
09.11.91.	4.5	0			
21.11.91.	8	>4(F)	P.	W.	
23.11.91.	9	0			
27.11.91.	11	3(F)		W.	
02.12.91.	6.5	0			
30.12.91.	7	1	?		
06.01.92.	6	1	?		
19.01.92.	9	1	?		
05.02.92.	7.5	1	?		
06.02.92.	5	0			
23.02.92.	7.5	>10(F)		W.	
04.03.92.	10	>10(F)	P.	W.	
16.03.92.	7.5	>10(F)		W.	
19.03.92.	8.5	>20(F)	P.	W.	
05.04.92.	6	>20(F)	P.	W.	
08.04.92.	1.5	>50(F)	P.	W.	
10.04.92.	9	>50(F)	P.	W.	

P = pipistrelle *(Pipistrellus pipistrellus);* W = whiskered bat *(Myotis species);*
D = Daubenton's bat (*Myotis daubentoni).*

Three species of bats were encountered with whiskered species (*Myotis mystacinus* or *brandtii*) being the most frequently recorded, followed by pipistrelles and Daubenton's bat (*Myotis daubentoni).* The latter were only noted during October. Although noctule has been recorded at the site during the summer months (Lane, 1991), none were seen or heard during the study period in contrast to Avery's studies at Coe Fen.

When bat activity was low, bats were only found at the western end of the Beck, nearest to the town. When bat activity was high (>50), bats were found along the entire length of the Beck. Summer studies of how bats commute to the Beck to feed (Lane, personal observations) and the known location of pipistrelle roosts suggest that bats arrive at the section between the fly-over and the town and then move down towards the lock.

This study confirms Avery's studies that bats are active during all winter months on favourable nights. Fewer bats were encountered during mid-winter, presumably due to scarcer food items. Avery concluded that the high incidence with which activity was recorded and the demonstration of the profitable nature of winter feeding on mild winter nights was an important adaptive strategy for pipistrelles and noctules which may also apply to other species. This study suggests that whiskered species follow a similar pattern of winter activity to pipistrelles at Beverley Beck.

Beverley Beck has suffered a history of pollution from an adjacent tanning industry which ceased activities about fifteen years ago. Since that time, water quality has improved markedly, resulting in aquatic vegetation and fish recolonizing the waterway from the River Hull. This study extends the summer observation that Beverley Beck is an important feeding area for several species of bats (Lane, 1991) by showing that the site is also a vital feeding area for overwintering bats.

TONY LANE

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YORK BADGER GROUP

In Kenneth Grahame's *'Wind in the Willows'* (1908) the amiable Badger says of this species "We are an enduring lot, and we may move out for a time, but we wait and are patient, and back we came. And so it will ever be."

Well, badgers certainly need all their powers of endurance to survive in the modern world, for human beings seem determined to make life for *Meles meles* as difficult as possible. In parts of Yorkshire the badger has been unable to endure in the face of relentless persecution by terrier gangs which continues despite repeated legislation in Parliament. The badger is, apparently, the recipient of more legal protection than any other creature in the EC! However, this protection is only effective if those responsible for digging and baiting badgers are caught. Usually, they are not.

On the other hand, in other parts of the county the badger population is healthy, and the animal is under much less pressure. There is no cause

for complacency though, as the baiting gangs are well organised and highly mobile, with extensive knowledge of sett locations. Driving 100 miles in the middle of the night to attack a sett would be no problem to them. With increasing public awareness of this threat to badgers, there was a natural wish among local conservationists to try and counter it.

York Badger Group was formed in 1991 by a nucleus of people with experience of badger protection from around the country. Organising a series of meetings in York to which the public were invited, we established a membership of about 30 within a few months, which grew to over 100 within two years. To begin with the Group had knowledge of about 10 setts in its operating area (roughly a triangle with York, Selby and Tadcaster at its corners) and immediately concentrated on finding more. Regular survey sessions by members and reports from other conservation groups quickly swelled the number of known setts to over 50, most of which contain breeding females. In the Vale of York we found a strong correlation between sett locations and outcrops of sandy soils. Other factors such as habitat type, land use and human proximity seem less important. Once a sett is located, the Group tries to keep a regular written record of badger activity; this is essential if the sett is attacked, as it may be used as evidence in court if the diggers can be found and brought to trial. The expertise amassed by York Badger Group has already been recognized by many official bodies, and we have undertaken surveys for English Nature, the Department of Transport, Ryedale and Selby Councils, and several professional environmental consultancies, to whom we always make a charge for our work.

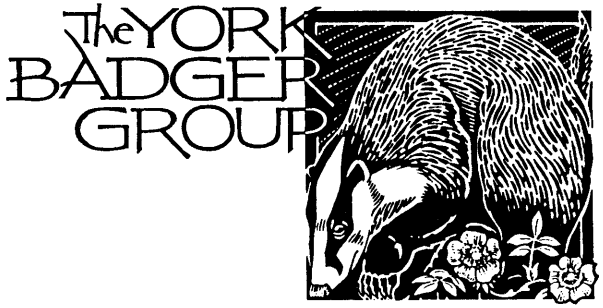
The Group has also been involved in practical action to protect badgers. Three setts in the area now enjoy the security of steel mesh roofs, dug into position and secured in place, under licence from English Nature. We have been fortunate to receive backing from various local firms supplying and delivering materials free and providing sponsorship. The hard work is then done by our excellent members, who always turn out when their help is needed. More setts will be protected in the coming months and years, for many of them are subjected to repeated attack. If we can only slow down the process of digging a sett, we are increasing the chance of the perpetrators being caught. And if they don't have the right equipment with them, the steel mesh is an impenetrable barrier.

The Badger Group also offers an educational service, with members giving talks to schools, community groups and other conservation

bodies. This helps us to spread our message about the badger - about its ecology, its lifestyle and about the threats it faces from man.

The badger is a fascinating creature, whose misfortune it is to possess the characteristics of strength and tenacity which make it a formidable opponent for any dog; characteristics which are brutally exploited by the baiters. But the badgers' friends are making progress. With patience, and some of that famous endurance, the fight to give badgers the chance to live a peaceful life in the Vale of York can be won.

To contact the York Badger Group write to:
Philip Gray, 83 Frances Street, York YO1 4DP or phone 0904 612556.



YORK BADGER GROUP 1993

ALL IN A YEAR'S WORK

Report of the West Yorkshire Bat Group

The bat box project in Chevin Forest Park began in 1991 with two groups of boxes, sited at the eastern edge of the trees on the main path to the White House Visitor Centre, and along a favoured walk in a sheltered wood at the west end, as an exercise in raising public awareness of bat conservation, and as a learning experience for the bat group. During the last year we have extended the project to include boxes immediately outside the White House, and in a popular plantation at Bramhope Gate. More boxes are prepared and waiting for siting, but this project is spasmodic and subject to weather conditions and more urgent bat activities. Boxes have been checked on two occasions and although we know this is a feeding area from a previous survey, no evidence of roosting bats has been found. Not all

the boxes were checked due to the difficulty of manhandling ladders on steep gradients in wet weather conditions, but earwigs (estimated numbers 300!), spiders, unidentified grubs, wasp nests, and a birds' nest (probably blue tits), were found. The only two known roosts in the Forest Park are possibly night roosts used in early autumn.

Caves have been surveyed in Upper Wharfedale during the winter. The very busy Dow Cave has shown evidence of bat activity, in November, January, February, March and May, with flying bats seen mid afternoon in August. The rumoured very large colony of bats has evaded us, although a bat was seen high in the roof during cold snowy conditions. The neighbouring Dove Holes was also surveyed with consistent records of several isolated bats, Daubenton's, Natterer's, brown long eared, free hanging. This site is in the process of being gated, and it is hoped that it will provide refuge if visitor disturbance in Dow Cave becomes excessive.

The group has been monitoring a large Hoffman Lime Kiln in the Dales, in order to assess its use, first as a hibernaculum, or as a summer roost. It is thought, from local information that it used to be a very significant site for bats, but the future of the site is undecided and various redevelopment uses could pose particular threats. During the winter up to six bats have been found there, brown long eared, Natterer's, Daubenton's, and in spring whiskered species. A midsummer visit showed its importance as a feeding area with pipistrelles flying in from neighbouring properties to forage, and Natterer's, long eared, Daubenton's and whiskered bats feeding. The area of the kiln and workings has been derelict long enough for a very rich limestone habitat to establish.

Problem roosts at the height of the breeding season have as usual dominated the programme. Several new pipistrelle roosts have been located in suburban areas, as a consequence of trying to return erring juveniles. An abandoned roost at Keighley created considerable difficulties, and the partial blocking of a chimney with a "bat grid" by bat workers in order to prevent bats coming into living areas seems to have succeeded, though some young starved and the remaining 11 were hand reared.

Bat group members have also participated in bridge surveys in anticipation of maintenance work. In most cases, bats were not present. Church surveys in conjunction with The Bat Conservation Trust are being carried out now.

We were invited to Embsay with Eastby to survey in a tiny nature reserve that we discovered last year when checking out two poisoned Daubenton's bats found in a mill. In doing so, we discovered a possible night roost under Bow Bridge which is about to be widened, but were unable to look for roosts in the mill yard. The weather was not good, but Daubenton's were heard and seen, and feeding pipistrelles with possibly whiskered bats in the shelter of the trees where local people have sited bat boxes.

We spent a very enjoyable *fine* evening at Fountains Abbey with other Northern batworkers, enjoying bats without having to think about public relations or solve difficulties!

Finally we ended a very simple bat walk in a municipal park in Kirklees with an excellent view of feeding pipistrelles, over the pond, and a feeding Leisler's bat providing a superb contrast!

MAGGIE BROWN

A SURVEY OF THE BROWN HARE *(Lepus europæus)* II at Bishop Burton and Walkington (Winter 1992-93)

HARE TODAY, GONE TOMORROW?

The survey results reported here are the outcome from the second year of a scheduled two year National Hare Survey of Great Britain, organized by Professor Stephen Harris of the Zoology Department at Bristol University. Results from the first study, by the author, during the winter of 1991-92 were described in *Imprint No 19 (1992).* The methodology was exactly the same as described previously but two different, randomly selected, kilometre squares were surveyed. Both squares were essentially mixed arable land on the lower part of the Yorkshire Wolds near the villages of Bishop Burton and Walkington. The object of the survey was to locate and mark the position of any hares encountered in the defined areas. Each area was walked three times within specified dates during the middle of the day. The results can be seen in the Table.

Hare Survey Results: Winter 1992-93

Bishop Burton (SE 9838)

Date	*Total*
14.11.92.	2
06.12.92.	0
03.01.93.	5
Average	2.3

Walkington (SE 9835)

Date	*Total*
08.11.92.	4
13.12.92.	2
03.01.93.	2
Average	2.7

The results obtained here were remarkably consistent with those obtained during winter, 1991-92 which ranged between 0-5 hares on each occasion. The lack of any observations on one occasion during each winter suggests that the hares can, and do, range widely, perhaps as a result of disturbance by game shooting. All of the kilometre squares studied were subject to shooting pressure, hares being taken as incidental game to driven pheasants *(Phasianus colchicus)* and partridges *(Perdix perdix)*. Assuming that no more than half of the hare population was shot each winter, it may be inferred that the peak winter density was in the range 4-6 per square kilometre. This estimate of brown hare density on farmland is in close agreement with the lower figures published (Corbet and Harris, 1991) for ten farmland areas in England during the autumn (range 3.2-147). If the observed hare densities are so low, the question may be asked, "Is the brown hare under threat?".

The local game-bag or shooting records can provide useful evidence of changes in hare numbers from year to year. It was possible to obtain figures for brown hares taken from one shoot at Walkington, which covered part of the survey square, for the previous three winters (1989-90 : 43, 1990-91 : 45, 1991-92 : 41). The figures were remarkably consistent, suggesting that hare numbers were stable in the area.

The study protocol provides a readily repeatable procedure which could be carried out by different observers from year to year. The wider aspect of the National Hare Survey will be to identify preferred habitats and to provide a basis with which to assess population change as a result of future altered land usage or management.

TONY LANE

Acknowledgement:
The author wishes to record his thanks to the several landowners concerned who readily consented to their land being the subject of this study.

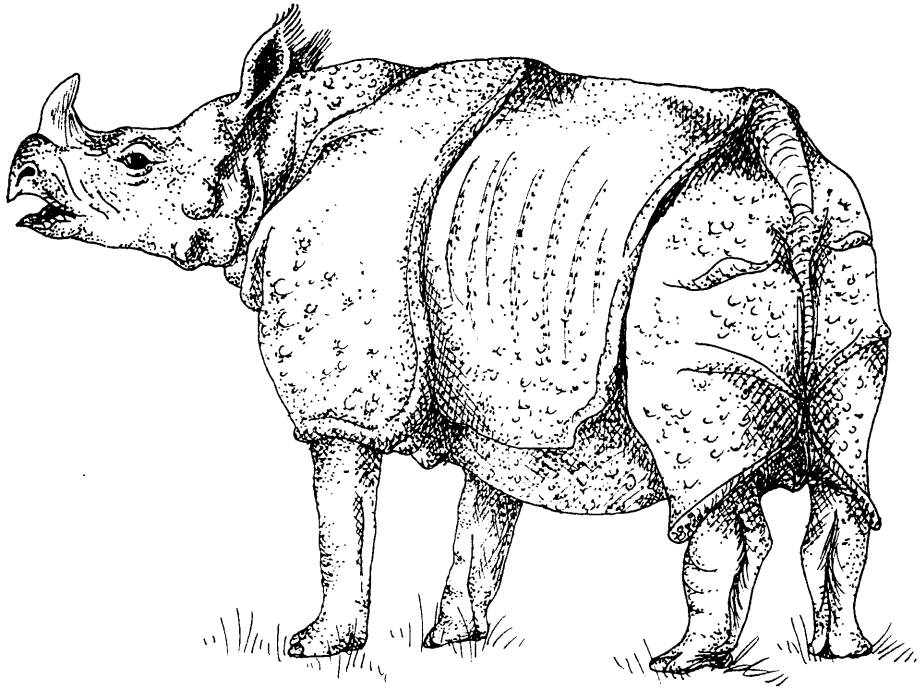
Reference: Corbet, G.B. and Harris, S. (editors) in *The Handbook of British Mammals. Third Edition (1991),* 154-161. Blackwell Scientific Publications, Oxford.

THE GREAT INDIAN RHINOCEROS

To reach the Royal Chitwan National Park, Nepal's first and largest such park, we had travelled down the River Trisuli on our rubber rafts to a site not far from the town of Bharatpur. From here, passing through Bharatpur, which with its straight roads was more Indian than Nepalese in character, we were bussed to Narayani Safari Hotel. At this smart colonial styled hotel, we had an opportunity to have a swim, a shower and an excellent meal, before we piled into two jeeps. Bumping along dusty, pot-holed and unmade-up roads, through areas of intense agriculture, the party, with which we were travelling, eventually reached The Narayani Safari Lodge, an annexe of the main hotel. Situated on a high bank overlooking the River Rapti and the Chitwan National Park beyond, The Lodge consisted of chalet styled semi-bungalows set in a square. It is ideally placed for observing wildlife, of which there is an abundance, and the surrounding area.

Next morning at 5.30am, well before sunrise, Geto, our natural history guide, woke us. By 6.00am we were all on our elephants, three individuals to each beast. The trained elephants used for transporting tourists are of the Asian variety *Elephas maximus,* and only females are used because of their more placid temperaments. Slowly plodding along, these large mammals made for the River Rapti, which they waded with ease. At times, the rocking motion of the platform strapped to the elephant's back, on which we sat, became uncomfortable. When we reached the opposite bank of the river we saw a golden jackal *Canis aureus* slinking off into the undergrowth. A red jungle fowl *Gallus gallus,* the forerunner of our domestic fowl, crossed in front of our elephant. A wild male common peacock or peafowl *Pavo cristatus,* in all his beauty, was perched in a nearby tree.

Passing through what is collectively called 'elephant grass', a thick matted impenetrable grassland, containing over 70 different grass species, sometimes reaching six metres in height, we reached the sal forest, which covers 70% of the Park. Sal trees *Shorea robusta* are deciduous, and often grow to between 30 and 40 metres in height. The ground cover, of a variety of grasses below the trees, was widespread, but not as dense as the previous habitat. We had been travelling for about half an hour through this environment, disturbing small groups of chital deer *Axis axis* as we went, well camouflaged by the mottling of their spotted coats, when we came across a great Asian one-horned rhinoceros *Rhinoceros unicornis.*



This particular animal was a male aged about 50 years. He was easily identified by the park wardens, because he had lost one of his ears in a territorial fight. He was in a wallowing hole, partially covered with water. Our elephant grunted at the rhinoceros, before the latter moved off down a small stream, into the undergrowth. Although we were quite close to the rhinoceros, we were under no danger from a charge, for we were looking down at him. With the rhinoceros disappearing, the elephants were turned around and we set off back to the Lodge for breakfast, retracing our steps across the Rapti.

During the remainder of the day the group had two further trips into the Park, firstly by dug out canoe and walking, followed by another elephant safari in the afternoon. No large mammals were seen during the mid-morning session, but we got quite close to the large specimen of the crocodile called the marsh mugger *Crocodylus palustris*, lying in wait on the bank of one of the many areas of stagnant water within the Park. There were numerous bird species to be seen, including the open-billed stork *Anastomus oscitans* and the black ibis *Pseudibis papillosa*.

Back on the elephants for more than three hours, we searched a wide area for the Bengal tiger *Panthera tigris tigris*, but we saw none. There was plenty of evidence of their presence, with numerous recent paw prints in the soft mud along the main tracks in the forest. According to Martin (1992), there are about 170 tigers now in the Chitwan National Park and the surrounding areas, with numbers increasing gradually. Although we were disappointed not to see the tiger, we were rewarded with further sightings of a female rhinoceros and her young. Again we saw chital deer, along with a single sighting of Indian muntjac *Muntiacus muntjac*.

There is a strong association between the chital deer and the common langur monkey *Presbytis entellus* (Cockerill, 1989). Both monkeys and deer respond to their respective alarm calls, thus detecting early such predators as tiger and the common leopard *Panthera pardus*, the latter species being in the Park. The chital collects in small herds below the trees in which the monkeys are feeding, browsing on the foliage dropped and discarded by the monkeys. The chital probably benefits more from the association than does the langur. We did not see the common langur in the Park, but observed from our raft a small troupe on the banks of the River Trisuli. The only monkey we saw at Chitwan was a single rhesus macaque *Macaca mulatta*, a common enough species amongst the Hindu temples of Kathmandu.

In 1968 it was estimated that there were between 81 and 108 greater one-horned rhinoceros *Rhinoceros unicornis* in Nepal, the majority of which were within the confines of the Chitwan National Park (Martin, 1992). Like the tiger *Panthera tigris tigris*, which is poached for its bones, the rhinoceros is poached for its horn, which is said to have aphrodisiac and medicinal properties. However, through careful protection from the Royal Nepalese Army, who are permanently stationed in the Park, along with over 100 armed rhino guards of the Forest Department, the numbers in Chitwan had built up to over 400 by 1992. Until recently the level of poaching has been minimal, but due to policital unrest in Nepal, which started in 1990, the amount of poaching has increased.

According to Owen-Smith (1989), rhinos are slow breeders, the females of this species becoming sexually mature after five years and bearing their first calves between 6 and 8 years. Births can take place at any time of the year, after a gestation period of between 18 and 19 months. Thus the recovery of the numbers of the greater one-horned rhinoceros

will be slow. Females have a home range of 9 - 15 sq. km, which means at Chitwan which is nearly 1000 sq. km., that saturation point for the rhinoceros is being reached. Recently, 13 rhinos were removed from Chitwan to the Royal Bardia National Park in Nepal, to re-establish a new colony. In 1989 it was estimated that the total wild population of the greater one-horned rhinoceros was 1959, having increased from the 1986 estimate of 1771. The majority of these animals are in Assam in India (Vigne & Martin, 1991).

MICHAEL J A THOMPSON

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BOOK REVIEWS

THE WORLD OF ANIMALS by DESMOND MORRIS
Published by Jonathan Cape at £12.99

Reviewing this book for the Daily Mail, Maris Ross suggests that all ages will be fascinated by the riveting explanations of the behaviour of 24 wild animal species. From Chi-Chi, the much-loved giant panda of London Zoo, who in maturity savagely attacked the young keeper with whom she had previously enjoyed a playful relationship, to the truth behind the elephants' graveyard.

Adult pandas, it seems, value their privacy once they are fully grown, and ferociously defend their territory. While, sadly, the elephants' bones found together marked the site of mass slaughter by ivory poachers.

And the coup de grâce - Captain Cook's crew, while visiting Australia in 1770, saw an extraordinary animal and asked the local inhabitants what it was. "Kangaroo", they replied, meaning "I don't understand you"!

EDITOR

BIG CATS by DOUGLAS RICHARDSON
Illustrations by Rosanne Strachan
World Wildlife Series. Published by Whittet Books, 1992. Price £9.99 in hardback.

This is an extremely absorbing book - once picked up it becomes very difficult to put down again, until it has been read from cover to cover. Rosanne Strachan's illustrations are both accurate and enchanting, and the quality of the colour photographs included more than makes up for their sparseness.

The book concentrates on the eight largest cat species - the lion, tiger, leopard, jaguar, cheetah, puma, snow leopard and clouded leopard. A chapter is devoted to each species, covering their biology, ecology, behaviour and conservation. In addition, rare subspecies such as the Asian lion, Amur leopard and Florida puma, are given extra attention.

Subject areas covered in more detail are the worldwide conflict between man and large cats, and also a fascinating section on the genetics of colour variation.

Douglas Richardson is an expert in the captive management of big cats, and provides an excellent discussion on the future rôle of zoos in the captive breeding and possible reintroduction of endangered species.

All in all, this book is excellent value for money, and could be equally appreciated by both the layman and expert.

ANN HANSON

OTTERS by PAUL CHANIN

with illustrations by Guy Troughton

British Natural History Series No.20. Published by Whittet Books Ltd., at £7.99 in hardback, with 128 pages.

One of my favourite wild British mammals is the otter, so to receive a book about otters to review greatly pleased me. There has been a long tradition in this country of books on single species, of which the otter is no exception. I can think of such classics as *Tarka the Otter* by Henry Williamson, first published in 1927, and *Ring of Bright Water* by Gavin Maxwell (1960), and more recently *On the Swirl of the Tide* by the MacCaskills (1992). All these studies are of wild otters, mostly anecdotal, with little, if any, scientific content. That, of course, is not to distract from the pleasure they give their readers.

Now, however, we have a slim volume that combines narrative with serious study, which is scientifically based. Paul Chanin's *Otters*, like his previous publication *The Natural History of Otters* (1985), is not only informative about otters, but is also very readable. It has a wealth of information about the Eurasian otter *Lutra lutra*, along with both serious and cartoon illustrations by Guy Troughton. The illustrations catch the charm of the otter, and the cartoons attempt to humanise them.

He deals with the otters' natural history, from their birth to adulthood, their territories and their mating habits, their food, their relationships with mankind and the reasons for their decline. Rather than being divided into chapters, the book contains a number of sections dealing

with various topics, such as 'How long do otters live?'. Dr Paul Chanin, who has been carrying out scientific research on otters since 1971, especially their conservation, has written this book for the general public, with a view to stimulating their interest in otters, and, thereby, increasing their support for their conservation.

I would recommend this book to anyone who would like to study this elusive British mammal in the wild, especially for beginners. Finding them is not easy, as the book duly points out, especially in lowland England.

MICHAEL J A THOMPSON

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YORKSHIRE MAMMAL GROUP PROGRAMME 1993-4

November 4th 1993
Dr John Altringham on A Biology Lesson from Bats

December 2nd 1993
AGM followed by Dr Gareth Jones on Bat Conservation at Home and Abroad

January 6th 1994
Mr Ken Smith of ICI on Mammals and the Payroll - the wonderings of an industrial naturalist

February 4th 1994
Mr Martin Parsons and Dr Rupert Ormond on The Political Implications of Wildlife Conservation

March 3rd 1994
Mrs Shirley Thompson on Bats Need Friends

April 7th 1994
Mr Gordon Simpson on Mammals and Commercial Forestry

May 5th 1994
Kathleen Beeley on Primate Captive Breeding Programmes

June 2nd 1994
Evening walk on a nature reserve
(this date may be interchanged with May's programme)

October 6th 1994
Mr Colin Howes on More of What the Cat Brought In

November 3rd 1994
Mr Derek Whiteley - title to be announced

December 1st 1994
AGM followed by Mr Michael Thompson on Zoonoses

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

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