Imprint

The Yorkshire Mammal Group - Newsletter

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Elephant family in the Serengeti National Park

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EDITOR'S REPORT

Imprint No. 22 has a distinctly international flavour, with news items from far-away places and reports from such exotic locations as Hawai'i and Tanzania by some of our more well-travelled members.

That of course does not detract from our ongoing activities at home, and 1995 has been another busy year, with many members enjoying taking part in the National Badger Survey as well as the continued monitoring of mammal species at Leeds University Experimental Farm.

Wild mammals are seldom seen, even by experienced mammal watchers, but we know that much activity goes on behind the scenes. As if to reflect the nature of the animals they study, much undercover work also goes on amongst mammalogists. This is not always reported or publicity seeking, but the quiet, painstaking recording that goes on year after year, collecting data on the behaviour of certain species is perhaps the most important work of all. For how else are we to measure the effect of man's excesses on our natural environment?

It will be interesting to hear the Government's response to *Biodiversity Challenge* and to see which mammals will be further protected as a result. We trust that a strong commitment will be made to species and habitat conservation and that both will benefit from this report.

BERYL CRONIN

MAMMAL NEWS

Otter numbers increase in Shetland

Despite two major environmental hazards in the last few years, the otter population in Shetland is reported to have increased in a study by Jim Conroy and Hans Kruuk. Otters were originally thought to be at risk from the epidemic which hit seals in the North Sea in 1988 and more recently following the grounding of the Braer oil tanker in 1993. Following both these catastrophes, surveying was carried out and a census of otter holts suggests that there has been an increase in numbers during the 5 year period.

Reference: Conroy, J. and Kruuk, H. *Oryx, Vol 29 No 3, July 1995* pp 197 - 204

'Wild Otters, Predation and Populations' by Hans Kruuk Published by Oxford University Press at £30

This new book by Hans Kruuk is based on 13 years of research in the north of Scotland, and makes a major contribution to otter ecology. It is required reading for anyone contemplating scientific research in this field.

Editor

Mountain Gorillas

Four mountain gorillas were killed in March by poachers in the Bwindi Impenetrable National Park. Since one of the dead animals was a lactating female, the capture of one or more infant gorillas seems a likely motive for the attack.

Flying Fox

Habitat alteration in addition to hunting for food and the pet trade is believed to have led to the extinction of the Formosan flying fox *(Pteropus dasymallus formosus)* on the island of Taiwan. Although several hundred individuals were known to exist 10 years ago, the future now looks bleak for this subspecies. Only 8 - 10 animals now exist in captivity, probably too few to establish a viable captive population.

Ganges Dolphins

The Ganges river dolphin *(Platanista gangetica)* is being threatened by the increasing use of gill-nets in fishing operations on the Ganges and Brahmaputra rivers. Implementation of fishery controlling regulations to protect the dolphins is difficult, because the fishermen regard them as competitors.

Reference: *Oryx, Vol 29 No 3, July 1995*

Fat Dormouse Survey

Originally introduced into Hertfordshire at the beginning of this century, the fat dormouse *(Glis glis)* is believed to have spread and become locally common. To find out just how far it has travelled, the Mammal Society is currently running a survey mainly in the counties bordering Hertfordshire. However, anyone who may have information to contribute should contact the Mammal Society office.

White Whale

In April this year, a rare white whale or Beluga *(Delphinapterus leucas)* was the subject of two sightings on the west coast of Scotland. This animal, which represents only the tenth sighting this century of this species in British waters, may belong to a stray group from the Barents Sea.

Harvest mouse

A new 1 km square record for the harvest mouse was discovered by the Sorby Mammal Group when they visited Laughton Common in March. Although the vegetation had been beaten down by snow over the winter, a rather battered nest was found, and droppings confirmed the harvest mouse presence.

Reference: *Mammal News, No 102, Summer 1995*

Ernest Kemp

Ernest Kemp retired this year from his post as Deer Warden at Studley Royal Park, having established the deer in the park as some of the finest in the country. Born and raised on the estate, Ernest worked first as a forester, then gardener and groundsman before taking on responsibility for the deer in 1967. I know that generations of YMG members on visits to the park have enjoyed his enthusiasm and quiet devotion to the animals that represented his life's work and will join me in wishing him a long and happy retirement.

Reference: *National Trust Newsletter (Yorkshire Region), No 30, Spring 1995*

Pine Marten

A recent study in Wales has revealed that the pine marten is still present in conifer woods despite fears that it was extinct. A reintroduction programme may be considered when reasons for the dramatic decline over the past 40 or 50 years have been identified. A successful reintroduction programme has taken place in Galloway, where a dozen pine martens introduced in the 1970s have now reached numbers of between forty and fifty.

Reference: *Forest Life, No 11, 1995*

A new pine marten record for the North Yorkshire Moors

A skull found in the Cleveland Forest in 1994 is believed to be that of a pine marten *(Martes martes)*. In order to confirm the species, seventeen measurements were taken from the skull and compared to those for the similar species beech marten *(Martes foina)* and American marten *(Martes americana)*. Both these species have been ranched for fur in this country and have been reported as living in the wild. However, careful comparison of the dimensions has led the authors to believe that the skull is that of our native pine marten. This is an important record as there has long been a history of sightings on the North Yorkshire Moors, with the last definite record being a body found in 1983. Positive evidence of a large, long-lived adult animal suggests that a population may still exist in the area.

Reference: Jefferies, D.J. and Critchley, C.H. *The Naturalist , Vol 119, No 1011, 1994*, pp 145 - 150

Oil pollution in south-west England

A Mammal Society grant helped Stephen Westcott carry out a study of the impact of oil pollution on grey seal pups *(Halichoerus grypus)* at sea-cave sites in Cornwall. Calm sea conditions facilitated a comprehensive count of pup production and mortality in one district. Of 21 pups born between August and October 1994, two died within 2 days of birth and 19 survived to weaning. Only 2 were unmarked by oil, while another 3 showed only traces. In rough sea conditions, seal pups received up to 50% contamination of their coats, while in calmer seas, this figure fell to 10 - 33%. Eight animals received 100% contamination. Oil pollution was not responsible for deaths during lactation but it is uncertain as to whether it affected the scent recognition based mother - pup bond. Due to human pressures, these animals already occupy the most marginal sites, so close observation of their situation will continue.

Reference: Westcott, S. *Mammal News, No 102, Summer 1995*, p10

The importance of RSPB nature reserves for mammals

Fifty-four species of mammal have been recorded on RSPB reserves, plus 10 species of whale offshore. The list includes 41 of the 44 species indigenous to Great Britain and Ireland. Twelve of the 14 British bats have been recorded and all five of the other Schedule 5 land mammals breed on reserves; otters on at least 17, pine martens probably at 6, wildcats at 2, red squirrels at 13 and hazel dormice at 11. Five species of deer occur on RSPB reserves. Polecats have been recorded on 5 reserves, Orkney voles on 4 and harvest mice on 23.

Reference: Cadbury, J. and Lambton, S. *RSPB Conservation Review, No 8, 1994*

Breeding suppression in the bank vole as an antipredatory adaptation

In a series of breeding experiments with bank voles *(Clethrionomys glareolus)*, females were found to suppress breeding when exposed to the odour of stoats *(Mustela erminea)*. A change in mating behaviour meant that females actively avoided copulation when under high predation risk. No such change was observed in male behaviour.

Reference: Ylonen, H. and Ronkainen, H. *Evolutionary Ecology, No 8,1994* pp 658 - 666

Arboreal foraging by red foxes *(Vulpes vulpes)* during winter food shortage

Arboreal foraging by two different animals was observed on three separate occasions on Baccalieu Island, Newfoundland. The foxes were observed climbing up into birch and fir trees, walking along branches and searching as they went. Fir cones were taken, chewed and eaten, but it is not thought that they would have significant nutritional value for the animals and were probably taken to alleviate hunger. Red foxes are adept climbers and these animals jumped between branches with

little effort. They are opportunistic feeders and it is possible that arboreal foraging may be more common than previously suspected.

Reference: Sklepkovych, B. *Canadian Field Naturalist, 108 (4), 1994* pp 479 - 481

EDITOR

FIELDWORK REPORTS

NATIONAL BADGER SURVEY

On two cold, sunny Sundays in February and March this year, several members of the YMG headed out into the countryside around York to take part in the National Badger Survey. This survey is currently being run by Professor Stephen Harris of Bristol University, with the support of the People's Trust for Endangered Species.

The idea was to survey several randomly allocated 1km squares for badger setts and signs, to give an indication of badger numbers and activity levels in the area. Signs to be looked for included footprints, dung pits, trails through hedges or undergrowth and badger hair on wire and bushes.

Badger setts were classified in the following way:

a) Main setts
These usually have a large number of holes with large spoil heaps, and the sett generally looks well-used. There will be well-worn paths to and from the sett and between sett entrances. About twelve holes is the average size of an active main sett.

b) Annexe setts
These are often close to a main sett, usually less than 150 metres away, and are usually connected to the main sett by one or more obvious well-worn paths. They usually have several holes, with the average number being about five holes.

c) Subsidiary setts
These are not continuously active, and do not have an obvious path connecting with another sett. They are usually at least 50 metres from a main sett, and have an average of about four holes.

d) Outlying setts
These usually only have one or two holes, little spoil around the holes and no obvious path connecting with another sett. They are generally only used sporadically.

Also recorded for each sett were the numbers of well-used holes, partially-used holes and disused holes, along with any evidence of disturbance such as hole blocking, snaring or digging.

Altogether we completed five 1km squares over our two days' surveying. One major sett was discovered and badger signs were found in all the squares surveyed. It was amazing how quickly even the most inexperienced 'trackers' became able to distinguish badger tracks from those of other animals, such as dogs and foxes. Badger footprints are quite distinctive, with five toes and a very broad pad usually showing, with clawmarks in softer ground. Badgers also obligingly left dung pits under hedges, and hair on barbed wire fencing for us to find, along with their well-used trails through undergrowth. We were aided in our hunt by the weather, as it rained heavily before each of our survey days, so tracks were easy to spot in the muddy farmland.

Habitat data was also collected whilst surveying, and recorded on maps at a later date in order to give an idea of habitat use and preferences by the badgers. All in all I think an enjoyable time was had by everyone who took part in these surveys. We braved barbed wire, electric fences, shotgun fire, suspicious dogs and over-the-wellie-top mud, but it was all worth it in the end. Not only did we find plenty of evidence of badgers, but also tracks and signs of numerous other wild animals, and even a population of wild black rabbits in one area of farmland. We watched brown hares boxing each other in the winter wheat, oystercatchers feeding along a flooded river and heard curlews calling across the fields.

Many thanks are due to everyone who turned out and took part in these surveys, along with all the landowners and farmers who kindly gave us access to their land. If anyone is interested in future badger surveys, I am hoping to arrange to do two or three more 1km squares sometime over the coming winter, so watch out for details.

ANN HANSON

CHAFER WOOD
THE DENNIS ASPINALL MEMORIAL TRAP 1994

The Dennis Aspinall Memorial Trap for 1994 was held on the 9th - 11th September at Chafer Wood, a Yorkshire Wildlife Trust Reserve near Pickering, and was an open meeting for members of the YWT. Chafer Wood, as its name implies, is a mainly wooded reserve, with damp deciduous woodland in the valley bottom, rising up to quite dry woodland on the hillside. There is also a large, dry, grassy area surrounding an ancient stone cairn on the hilltop. Thus it gives a fairly wide variety of habitats in which to sample small mammals.

Traps were set in an area of very damp woodland alongside a stream, in a drier area contained within an old pinfold (a small walled stock enclosure), alongside a path and drystone wall in the drier woodland higher up, in an area of lush damp tufted grass and in the very dry, shorter grassland around the stone cairn. Most traps were laid on the ground, under vegetation, but a few were placed a few feet above the ground in trees and also in holes in the dry stone wall.

Traps were set on Friday and Saturday evenings, and checked on Saturday and Sunday mornings, with animals being shown to YWT members on both occasions.

Results: 10.09.94
Participants: David and Chris Carter, Ann and Julie Hanson, David Laughton, Gordon Woodroffe, Charles and Charlotte Critchley and several YWT members
Weather: Cool, but sunny. Heavy rain overnight

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Pinfold	Apodemus sylvaticus	M	A	23.0	
Pinfold	Clethrionomys glareolus	F	J	13.0	Caught up a tree (about 4ft)
Dry woodland	Apodemus sylvaticus	M	A	28.0	
Dry woodland	Sorex araneus	?	?	?	Escaped
Dry long grassland (cairn)	Apodemus sylvaticus	M	J	19.0	
Dry long grassland (cairn)	Apodemus sylvaticus	F	A	25.0	
Dry shorter grassland (cairn)	Sorex araneus	?	A	8.0	
Dry shorter grassland (cairn)	Sorex araneus	?	A	7.0	
Wet woodland	Clethrionomys glareolus	F	A	20.0	
Wet woodland	Apodemus sylvaticus	M	A	20.0	
Wet woodland	Sorex araneus	?	A	8.0	

Results: 11.09.94
Participants: David and Chris Carter, Ann Hanson, David Laughton, Geoff Oxford and several YWT members
Weather: Cool and windy. Wet overnight.

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Pinfold	Apodemus sylvaticus	M	A	24.0	
Pinfold	Clethrionomys glareolus	F	A	21.0	
Pinfold	Clethrionomys glareolus	F	A	21.0	
Dry woodland	Clethrionomys glareolus	F	A	20.0	Lactating
Dry woodland	Sorex araneus	?	A	10.0	
Dry woodland	Sorex araneus	?	A	9.0	Dead in trap (not starvation)
Dry grassland (cairn)	Apodemus sylvaticus	F	A	17.0	
Dry grassland (cairn)	Sorex araneus	?	A	6.0	
Dry grassland (cairn)	Sorex araneus	?	A	8.0	
Dry grassland (cairn)	Sorex araneus	?	A	8.0))	Caught in same trap!
	Sorex araneus	?	A	11.0))	

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Dry grassland (cairn)	Sorex araneus	?	A	7.0	
Wet woodland	Clethrionomys glareolus	F	A	17.0	Lactating
Wet woodland	Apodemus sylvaticus	M	A	18.0	
Wet woodland	Clethrionomys glareolus	F	A	18.0	
Wet woodland	Clethrionomys glareolus	F	A	18.0	Lactating
Wet woodland	Clethrionomys glareolus	?	J	11.0	

Comments

The overall catch was quite reasonable for the time of year, and although few juveniles were trapped, the presence of lactating females showed that breeding was still taking place. Habitat partitioning was observed to a certain extent, with the woodmice and bank voles being found mainly in the woodland areas, including the very wet areas around the stream, whilst the common shrews seemed to prefer the higher dry woodland and dry grassy area around the cairn. The capture of a bank vole in one of the traps placed up a tree showed that small woodland species are quite arboreal, and are not restricted to the woodland floor in their foraging activities. Many thanks to David Carter of the Reserve Management Committee, and his son Chris for all their help during this trap.

ANN HANSON

FILEY DAMS
THE DENNIS ASPINALL MEMORIAL TRAP 1995

The Yorkshire Wildlife Trust Reserve at Filey Dams was this year's location for the Dennis Aspinall Memorial Trap, held on 19th - 20th August. This was an open meeting for members of the Yorkshire Wildlife Trust and the general public.

Several years have passed since the Mammal Group last trapped at Filey Dams, and it was interesting to see how small mammal populations had changed in this time. We also wanted to see how various species had fared over the hottest, driest summer in living memory!

Filey Dams is usually a very wet, marshy reserve, with several ponds, large reedbeds and damp meadows, although on this occasion most of the ponds had dried up and much of the vegetation was quite dry too. There were however still some quite damp areas, in places ungrazed by cattle and alongside the last remaining open water.

Traps were set in the following areas:

1. Green Pond - damp vegetation alongside a dried up pond and also along the adjacent well established hedgerow.
2. Boardwalk - marshy area, with rushes and reeds, alongside a wooden walkway.
3. Bat Wood - a small area of drier woodland, with several dead tree stumps and good ground cover.
4. Dams Goit - a very wet area alongside the last remaining standing water, with tall, lush vegetation and young willow trees.

In all, 96 traps were set in the above areas on 16th August, and prebaited for three nights with wheat and blowfly pupae. The traps were then set to catch, and checked on the mornings of 19th and 20th August.

Results: 19.08.95
Participants: Jack Whitehead, Ken Senior, Ann Hanson, Denise and John Ray, several members of the public and YWT
Weather: Cloudy overnight. Very hot and dry

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Green Pond	Sorex araneus	-	A	8.5	
Green Pond	Clethrionomys glareolus	F	A	20.5	
Green Pond	Apodemus sylvaticus	F	A	17.5	
Green Pond	Sorex araneus	-	A	7.5	White ear tufts
Green Pond	Clethrionomys glareolus	M	J	16.5	
Green Pond	Sorex araneus	-	A	7.5	
Green Pond	Clethrionomys glareolus	F	A	22.5	
Green Pond	Clethrionomys glareolus	M	J	16.5	
Green Pond	Clethrionomys glareolus	F	A	19.5	Pregnant
Green Pond	Clethrionomys glareolus	M	J	13.5	
Green Pond	Sorex araneus	-	A	7.5	White ear tufts
Green Pond	Sorex araneus	-	A	9.5	Grey on head and neck
Boardwalk	Sorex araneus	-	A	7.5	

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Boardwalk	Sorex araneus	-	A	7.5	
Bat Wood	Apodemus sylvaticus	M	A	18.5	
Dams Goit	Sorex araneus	-	A	7.5	
Dams Goit	Sorex araneus	-	A	7.5	White ear tufts
Dams Goit	Apodemus sylvaticus	M	A	20.0	
Dams Goit	Apodemus sylvaticus	M	A	22.5	
Dams Goit	Apodemus sylvaticus	M	A	22.5	
Dams Goit	Sorex araneus	-	A	7.5	

Results: 20.08.95
Participants: Jack Whitehead, Ken Senior, Ann Hanson, Mary Youngman, Geoff and Roma Oxford, several members of the public and YWT
Weather: Cloudy overnight. Very Hot and dry

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Green Pond	Sorex araneus	-	A	9.0	White ear tufts

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Green Pond	Sorex araneus	-	A	8.0	Grey on head and neck
Green Pond	Clethrionomys glareolus	F	A	18.5	
Green Pond	Sorex araneus	-	A	7.0	White ear tufts
Green Pond	Sorex araneus	-	A	7.0	
Green Pond	Clethrionomys glareolus	M	A	18.0	
Green Pond	Clethrionomys glareolus	F	A	17.0	
Green Pond	Sorex araneus	-	A	7.0	White ear tufts
Green Pond	Clethrionomys glareolus	M	A	17.0	
Green Pond	Clethrionomys glareolus	F	A	22.0	
Green Pond	Sorex araneus	-	A	7.0	White ear tufts and grey patch on rear
Green Pond	Sorex araneus	-	A	-	Dead in trap
Green Pond	Sorex araneus	-	A	7.0	

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Green Pond	Neomys fodiens	-	J	12.0	
Green Pond	Sorex araneus	-	A	6.0	
Green Pond	Sorex araneus	-	A	7.0	
Green Pond	Sorex araneus	-	A	7.0	
Boardwalk	Sorex araneus	-	A	7.0	
Boardwalk	Sorex araneus	-	A	7.0	
Bat Wood	Apodemus sylvaticus	M	A	18.0	
Dams Goit	Sorex araneus	-	A	7.0	
Dams Goit	Sorex araneus	-	A	7.0	
Dams Goit	Apodemus sylvaticus	M	A	23.0	
Dams Goit	Apodemus sylvaticus	M	A	18.0	
Dams Goit	Apodemus sylvaticus	M	A	21.0	
Dams Goit	Sorex araneus	-	A	7.0	

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Dams Goit	Sorex araneus	-	A	7.0	

Also seen on this occasion was a young fox *(Vulpes vulpes)*.

Comments:
The overall catch for this trap was quite high, as would be expected at this time of year. Animals were mainly caught in the damp vegetation alongside Green Pond and the adjacent hedgerow, and in the very wet area of tall vegetation beside the last remaining standing water. This could indicate that the drought had caused animals to leave the drier parts of the reserve and concentrate in the remaining damp areas. Only woodmice were found in the very dry area of woodland, and only common shrews in the rushes and reeds alongside the boardwalk. Several of the shrews captured showed characteristic white ear tufts, and a couple also had patches of grey fur which were quite distinctive. Previous trapping sessions at Filey Dams have revealed quite a high water shrew population in the area. However, on this occasion only one juvenile water shrew was captured by Green Pond, although this did indicate that breeding had occurred on the site recently.

In general, the small mammal populations on the reserve seemed very fit and healthy, despite the very hot summer and prolonged drought, which was very encouraging. A bonus for this trap was the appearance of a young fox at Green Pond on the Sunday morning, which apparently had no fear of humans - surely a bit of a design fault in a fox? He showed great interest in our trap emptying activities, and even came out of the undergrowth to sunbathe and chase beetles on the dried up pond bed, much to the delight of everyone present. The fox appeared fit and healthy, and was evidently just young and inquisitive!

Many thanks to Jack Whitehead of the Reserve Management Committee, and to Ken Senior, for all their help and hospitality during this very enjoyable trapping session.

ANN HANSON

LEEDS UNIVERSITY FARM AGROFORESTRY PROJECT

For background information and results of previous traps see *Imprint Nos. 17,18,19,20 and 21.*

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.

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 (4x2) in hedges, eight traps (4x2) in arable strips, eight traps in forestry control and eight in arable control in each block. Eight traps are also sometimes 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.

Tenth Trap
7th - 9th October 1994

Participants: Chris Wright, Ann Hanson, David Freer, David Laughton, Mary Youngman, Geoff Oxford and Gordon Woodroffe
Results: 8.10.94
Weather: Warm, dry night. Damp, cloudy morning

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
BLOCK II					
Forestry control	Clethrionomys glareolus	M	J	13.0	
Forestry control	Clethrionomys glareolus	F	J	16.0	
Forestry control	Apodemus sylvaticus	M	J	17.0	
Agroforestry hedge 3	Apodemus sylvaticus	M	J	18.0	
Agroforestry strip 3	Apodemus sylvaticus	F	A	21.0	
Agroforestry hedge 1	Apodemus sylvaticus	F	J	17.0	
BLOCK IV					
Forestry control	Sorex araneus	-	A	9.0	
Forestry control	Sorex minutus	-	A	3.0	

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Forestry control	Sorex araneus	-	A	-	Dead in trap
Agroforestry hedge 1	Sorex araneus	-	A	8.0	

Results: 9.10.94
Weather: Cool, damp night. Dry, cloudy morning

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
BLOCK II					
Forestry control	Apodemus sylvaticus	F	J	14.0	
Forestry control	Clethrionomys glareolus	M	J	13.0	
Forestry control	Clethrionomys glareolus	F	J	14.0	
Forestry control	Apodemus sylvaticus	M	J	16.0	Recapture
Forestry control	Clethrionomys glareolus	F	J	13.0	
Agroforestry strip 4	Apodemus sylvaticus	F	A	20.0	
Agroforestry hedge 4	Apodemus sylvaticus	M	J	16.0	Recapture

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
Agroforestry strip 3	Apodemus sylvaticus	M	A	20.0	Recapture
Agroforestry hedge 3	Apodemus sylvaticus	F	J	16.0	
Agroforestry strip 2	Apodemus sylvaticus	M	J	15.0	
Agroforestry strip 1	Apodemus sylvaticus	F	A	19.0	
BLOCK IV					
Forestry control	Sorex araneus	-	A	8.0	Bald patches on stomach
Agroforestry hedge 1	Sorex araneus	-	A	-	Dead in trap

Comments

During this trap, the agroforestry strips and surrounding arable fields had been newly sown with winter cereal crops, so the ground was quite bare, and this could account for most of the animals being trapped in the forestry control areas and agroforestry hedges. The catch was fairly low for the time of year, but juveniles were quite abundant, as would be expected in autumn.

This trap was distinctive for the difference in species between the two agroforestry plots, with woodmice and bank voles being exclusively trapped in Block 2 and shrews in Block 4. There seemed to be no obvious reason for this partitioning, as all species have been trapped in similar numbers in both agroforestry plots previously.

Eleventh Trap
21st - 23rd April 1995

Participants: Ann Hanson, David Freer, Geoff Oxford, Mary Youngman
Mike and Linden Guest
Results: 22.04.95
Weather: Very cold overnight. Dull, cold, windy morning

Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
BLOCK II					
Agroforestry strip 2	Apodemus sylvaticus	F	A	30.5	
BLOCK IV					
Arable control	Apodemus sylvaticus	M	A	25.0	

Results: 23.04.95
Weather: Very cold and wet overnight. Sunny, cold morning

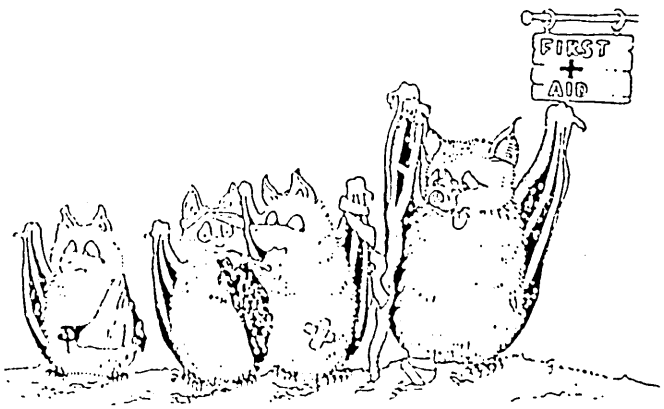
Site	*Species*	*Sex (M/F)*	*Age (J/A)*	*Weight (g)*	*Notes & condition*
BLOCK II					
Agroforestry strip 3	Apodemus sylvaticus	F	A	30.0	Recapture
BLOCK IV					
Arable control	Apodemus sylvaticus	F	A	28.0	
Arable control	Apodemus sylvaticus	M	A	26.5	Recapture
Agroforestry strip 4	Apodemus sylvaticus	M	A	28.0	

Comments

The overall catch for this trap was very low, which was to be expected for the time of year, although it was somewhat surprising that only one species, the woodmouse, was encountered. Winter cereal crops had been planted in the agroforestry arable strips and the arable control areas, so a certain amount of cover was available and this could account for animals being captured out in the crops. It has been noticed previously that woodmice seem to travel quite a lot at this time of year, which could also explain their presence out in the fields.

ANN HANSON
FIELD STUDIES OFFICER

BAT SECTION



NEWS FROM THE BAT INFIRMARY

So many bats pass through our care these days, that I think we can rightfully call our house the York Bat Infirmary! So far this year 26 bats have been 'registered' as patients, 24 of which have been Pipistrelles *(P.pipistrellus)*. Nine of them have been released, 4 have joined the swelling ranks of permanent guests and 11 have died - some of injuries too distressing to describe. Of the two other species brought in, one was a Whiskered bat *(Myotis mystacinus)* found at the City Hospital in York and the other a Brown Long-eared bat *(Plecotus auritus)* found in the clothing department at the Dringhouses branch of Tesco's. The Long-eared bat literally fell from between some ladies blouses and if one level-headed shopper hadn't acted promptly, there would have been mayhem midst the millinery! The Whiskered and the Long-eared bat were both released after a couple of days' respite care, although the latter did pose something of a problem. Did it arrive with a consignment of clothes or was it local? As the bat flies, another Long-eared bat roost somewhere on the Clifton Moor Estate is about 7.5 km away, so it was released at Tesco - outside this time! There seems little justification for keeping an able-bodied bat in captivity on the off chance that it's not local.

By far the most interesting bat to be brought to the infirmary arrived one afternoon at the end of May this year. She was in a very sorry state, having been mauled or crushed or both and I didn't give her much of a chance. The female Pipistrelle had been taken to the RSPCA Landing Lane animal home in York, bearing none of the customary credentials such as the address at which she had been found, the name of the finder, or a contact telephone number in the event of release being possible. What she **did have** which was even better, was a small numbered bat ring on a badly injured right wing bearing no thumb. The number was checked with Michael Thompson who confirmed that she had been ringed as a one-year-old on 21st June 1985 at a roost site near Hob Moor in Acomb, York. Sheila Walsh and Bob Stebbings had also been present. Her finder had discovered her somewhere on the road on Clifton Bridge, so she had not covered a huge distance since her first capture (about 2 km). Caring for her has been relatively easy - she has required no major surgery and her wounds healed quickly. She soon learned to feed herself and was full of vitality. Then she suddenly lost interest in food for three or four days, took to lying on the bottom of her box and appeared lethargic. On the morning of 22nd June, she was back in her more usual position - feet up! - but on the floor of the box lay a still-born male. I was pleased I had made the decision not to handle the mother during her few days of difficulty, particularly as I had failed to notice her pregnancy. I was so concerned for her injuries, that her 'interesting condition' had passed me by! She did not mourn the loss of her youngster - she enthusiastically made up for lost eating time and is now one of the largest female pipistrelles in my care. She will join the bats who make regular visits to Yorkshire Primary schools, because hers is such an interesting story.

ROMA OXFORD

Illustration by GERARD HOBSON

NORTH YORKSHIRE BAT GROUP

Towards the end of 1994 plans were made to relaunch the Bat Section as the North Yorkshire Bat Group. With the demise of the Harrogate Bat Group and the absence of other bat groups based in the county, it

seemed essential to build on the long-standing work of Lesley Helliwell, Edna Shann and others to secure the fortunes of bats in North Yorkshire.

1995 started with three indoor meetings in York, each of which was supported by around fifteen people. Wide publicity through posters and the media helped to attract several who were new to bat work and a number continued to attend events during the summer.

The cold, wet weather early in the year had a disastrous effect on our first outdoor meetings. Few people attended and even fewer bats were seen! However, things looked up at Clifton Bridge in York, where pipistrelles were watched as they emerged from the bridge. A noctule was heard during the evening, but Daubenton's were not seen. They had though, been present during a preliminary visit earlier in the week. Other walks during the summer had mixed fortunes, but the visit to the bridge over the River Ure, by Ripon racecourse, was greeted by a spectacular display of feeding noctules.

My first bat call of the season was to a weak pipistrelle found in Long Drax. Food, warmth and care soon encouraged it to recover and the bat was released later that week. From then onwards, calls to weak or injured bats were received regularly through the summer although, in total such calls were relatively few. One interesting case was a whiskered bat near Kelfield, which was found behind the panels around a bath. After it had recovered, it was taken back for release to its home area, which was also found to support noctules.

Twice during the season I was unable to contact Lesley when I received calls from the northern part of the county, so was treated to two long round trips. The first, to an orphaned baby pipistrelle at Harome, soon revealed the roost in an old pipe hole in the wall of an adjoining property. Unfortunately security measures at the house prevented me from returning the bat to its roost, so it was taken home for care. Despite surviving several weeks it failed to grow substantially and eventually died.

The other call was to a weak pipistrelle at Leeming Bar, which had been found with all of the wing membrane between the body and fifth finger missing on the right side. Feeding and general care soon saw her putting on weight and becoming more active, but she was only able to flutter at floor level. General opinion was that she would never fly properly again, but as time went on she became more restless in her box and ever more stronger in flight. The missing part of her wing membrane never healed, but by late summer she was able to fly for an hour at a stretch, at ceiling height. As she was clearly unhappy in her confinement, she was released back at Leeming Bar in early September, much to the delight of the householders who have had a roost in their property for many years. It was great to see her flying round her home range again with other local bats and feeding well.

English Nature calls resulted in the discovery of several previously unknown roosts, all of pipistrelle. Unlike 1994, all householders visited were happy to take advice to keep their bats, which was most encouraging. A survey of old barns due for redevelopment at Burn early in the year, revealed no evidence of bats, although the survey was limited by the unsafe structure of the buildings. Local people had claimed to have seen bats flying around, but these were probably from the ideal, executive-style bat homes across the road!

Finally, outdoor surveys. The planned survey of Bishop Wood, Cawood proved surprisingly unproductive, although the weather on each visit was rather poor. All that can be said of the site so far is that pipistrelles and whiskered/Brandt's bats feed there. More successful was the joint project with the East Yorkshire Bat Group to monitor the Daubenton's roost at the old Kexby bridge. At the time of writing this still continues, so will undoubtedly form the basis of a future report.

Overall, the year has seen a varied range of activity and a steady growth in Bat Group membership. Over the winter plans will be drawn up to further develop the group and build on our work so far.

JOHN DREWETT

BAT CONSERVATION TRUST ANNUAL NATIONAL CONFERENCE AT KEELE UNIVERSITY
Friday 8th to Sunday 10th September 1995

Over 230 delegates from all over the United Kingdom, representing most local bat groups as well as other bat conservation bodies and

university bat research units, gathered for the 1995 National Conference. Accomodation was in the student halls of residence of Keele's leafy campus, with the main talks and lecture contributions being given in the main lecture theatre of the Physics Department. After registration and an evening meal on the Friday, delegates were taken on a guided tour around the pond complex and the mature arboretum that is part of the campus. Armed with several bat detectors and powerful torches, four species of bat were identified. Over the water good views were seen of Daubenton's bat and both species of pipistrelle bat were identified on the detectors. A single noctule was heard but not seen, the area being usually well represented by this species.

During Saturday and Sunday we heard a great variety of contributions, all of which were of a high standard and well illustrated. Without going into details, I would say the highlight for me was the contribution by Gareth Jones and Kate Barlow on the recognition of a further species of pipistrelle bat in Europe. It has now been established that there are two species of pipistrelle bat in Britain and Europe. Both can now be easily identified when handled, especially from their facial appearances. However, each has a different ultrasonic frequency range, which can now be distinguished using an average sized bat detector. The 45 kHz bats will be classified as *Pipistrellus pipistrellus* and the 55 kHz bats have not as yet had a species name applied, although they will belong to the genus *Pipistrellus*. Having distinguished between the two species in the field, studies are now progressing in trying to differentiate between their different habitats and behaviour.

On the Saturday afternoon the conference divided into workshops. I attended one entitled *'Mammalian cochlear ultrastructure : an electron microscope view'*. I was fascinated by the intricate detail of the pipistrelle bat cochlear, which was demonstrated to us by some post graduate students of Keele University using an electron microscope.

I have attended many national bat conferences in the past, but I would count this as one of the best. I enjoyed meeting old friends and making new ones, along with keeping up to date in the bat world in Britain.

MICHAEL THOMPSON

NORTH YORK MOORS FOREST BAT BOX SCHEME

The bat box scheme is now in its tenth year. The boxes are inspected about 6 times a year, usually in the early morning. Inspections over the past three years have revealed habitation by the following species:

Date	*Pipistrellus pipistrellus*	*Plecotus auritus*	*Myotis mystacinus*	*Myotis brandtii*	*Nyctalus noctula*
20.04.93	21	2	-	-	-
18.05.93	75	3	-	-	-
17.06.93	6	3	1	-	-
12.08.93	11	2	-	-	-
23.09.93	13	5	-	-	-
14.04.94	6	3	-	-	-
19.05.94	4	3	-	-	-
10.06.94	11	3	-	-	-
11.08.94	21	1	-	1	-
22.09.94	4	2	-	-	-
20.10.94	13	-	-	-	1
27.04.95	12	4	-	-	-
25.05.95	21	1	-	-	-
22.06.95	2	3	-	-	-
17.08.95	20	3	-	3	-

The results of this survey have always been made available to English Nature and Dr Bob Stebbings and have more recently formed the subject of research by Dr John Altringham and his students at Leeds University. All interested persons are welcome to attend the bat box inspections led by Charles Critchley

BAT HIBERNACULUM

The purpose built hibernaculum in Dalby Forest is now entering its fifth winter and although regularly checked and the temperature recorded, there has as yet been no evidence of any bat use.

The artificial cave, designed by Dr Bob Stebbings was constructed out of redundant civil engineering materials during the summer of 1991 and is a triumph for recycling. Concrete pipes, railway sleepers and tramlines together with corrugated arch culvert sections had lain forgotten in the forest for years, but now proudly play their part in bat conservation. The entrance tunnel slopes steeply upwards to a large main chamber from which narrow passages lead to two smaller chambers. Crevices built into the structure provide hibernation sites suitable for different species of bats and spring water flowing through the system ensures a high level of humidity. Of the seven bat species found in the forest in summer, five could be considered to be likely inhabitants, but as yet no evidence of any has been found.

EDITOR

Reference: Forest Enterprise, Pickering

A YEAR IN THE YORK BADGER GROUP

Our membership consists of some eighty to one hundred members, who elect on joining to give whatever commitment they feel they can to the Group. Jobs range from raising funds and monitoring setts, to building and reinforcing existing setts, and surveying for new setts. There are members who just attend the quarterly meetings, and pay their £8.00 annual subscription fee!

Our year really starts in January, when we plan the year ahead. Decisions have to be made as to which setts need attention to defend them against the cruel people who dig setts in order to capture a live badger with the intention of baiting it against a number of terrier dogs.

This reinforcement work involves removing earth from the top of the sett - a job usually done by hand - and laying sheets of metal mesh in two layers which are wired together and then re-covered with soil. Given time, grass and undergrowth become re-established and before too long, the area looks quite normal and undisturbed. This process makes life more difficult for the diggers and slows them down, hopefully making them abandon their task. All the work has to be done between June and the end of September, so as not to disturb the badgers during the period when the sow is pregnant, and when the cubs are born in February or March.

Between the months of October and May, we spend time going for country walks combined with keeping an eye out for any new setts that may have been started by an overflow of badgers from a family group who may have been turned out of the family sett. These new setts need recording for the new breeding season, and are then monitored on a regular basis for family activity and for assessment of vulnerability.

From time to time, we are also asked to build an artificial sett and for the last two years, have built one each year. The 1994 sett is now inhabited, which has made all the hard work worthwhile. This year's artificial sett had to be built basically at ground level. This was due to a high water table which would have caused flooding if the sett had been built at the traditional four to six feet depth. So we built above the ground, rather like a first and second floor house. This was then encased in metal mesh, and covered with tons of earth. It has now been landscaped,

seeded and planted with bluebells, so in the spring it will blend into the woodland area and provide a very safe home.

Earlier this year, a firm hired by the Highways Agency sought our assistance in surveying an area likely to be affected by a new motorway. The area is inhabited by badgers, and underpasses have to be built under the motorway in order for the badgers to still have access to their territory without being in danger of death or injury from the motorway traffic.

Unfortunately we do get called out on a regular basis to attend either injured badgers or to remove dead badgers, killed by cars and lorries. We lose perhaps 25 - 30% of the badger population in this way, and we wish that all drivers would use headlamps on full beam when at all possible, particularly in country areas, in order to give themselves time to avoid any wildlife crossing the roads at night.

We do have a limited social side, and this year we have had a barbecue, a quiz night and a sponsored country walk which ended with a meal at the local pub.

If you would like to join us, please contact Rod Jebson on 01937 585534 or Graham Taylor on 01937 833782.

Everybody welcomed!

ROD JEBSON
(CHAIRMAN) YORK BADGER GROUP

ANNUAL CONSERVATION CONFERENCE OF THE WILDLIFE TRUSTS (RSNC) AT EXETER UNIVERSITY
Monday 21st to Friday 25th August 1995

Along with Stephen Warburton and Paul Murby, I represented the Yorkshire Wildlife Trust at the Annual Conference for Conservation Officers of Britain's Wildlife Trusts. The main topic for discussions and

lectures was the recently published *Biodiversity Challenge - Second Edition* issued by various conservation bodies such as the RSNC, RSPB, WWF - UK, Plantlife and the Dragonfly Society. We also considered marine conservation and the new Environment Act, which is now in the statute books. The conservation lobby is now awaiting with interest the British Government's response to *Biodiversity Challenge*, which is expected to be published by the Department of the Environment at the end of the year. The whole exercise has arisen following the Rio Conference of 1992, at which the British Government was one of the signatories to the Biodiversity Treaty. Anyone concerned about the future of Britain's wildlife, including its mammals, should read *Biodiversity Challenge - Second Edition*.

The British Government's response is expected to contain species action plans (SAPS) and habitat action plans (HAPS), of which some will concern mammals. About 100 species of plants and animals are expected to be on this list, along with several habitats under threat. The Conference discussed in small groups and plenary sessions how these plans can be implemented at local, regional and national levels. We wait with interest to see which mammals are on the list. By bringing out this list, the Government will be committed to financing the conservation of those species and habitats on the list.

All in all, I found this conference a very interesting exercise, albeit hard work at times.

MICHAEL THOMPSON

Biodiversity Challenge - Second Edition is available through the RSPB at price £20

MAMMALS IN HAWAI'I

The Hawaiian archipelago (Fig. 1), the most remote island group on Earth, is positioned in the middle of the Pacific Ocean over 2300 miles from the North American continent. As a result of this extreme isolation, relatively few organisms successfully colonised the islands. Those that did found an abundance of evolutionary opportunities with new land continuously being formed by volcanic activity, empty

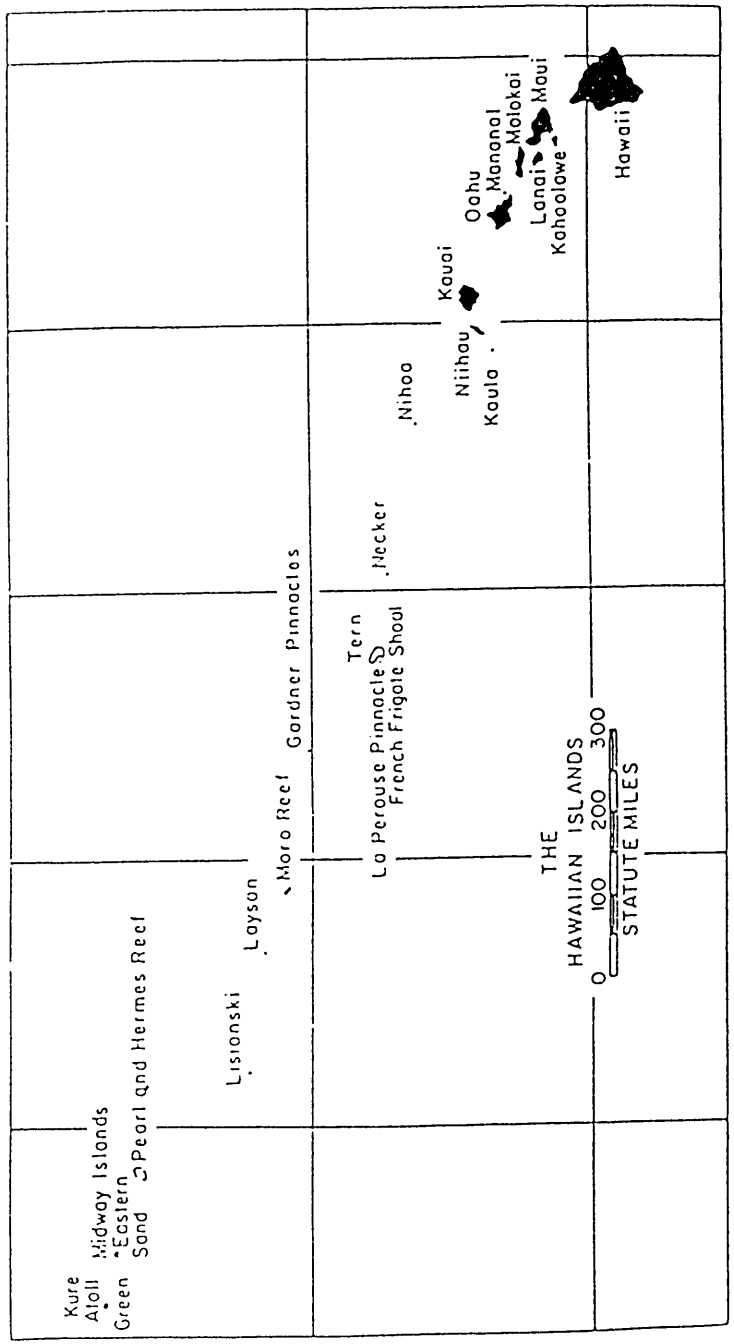


Fig. 1 The Hawaiian Archipelago

ecological niches and a wide range of climatic conditions - the 'Big' island of Hawai'i experiences 21 of the world's 22 recognised climatic regimes. The vast majority of the original colonists were plants and invertebrates and, as a result, life in Hawai'i evolved in blissful ignorance of land vertebrates. Thus, Hawaiian raspberries have no prickles, Hawaiian nettles have no sting and many plants have lost the ability to make anti-herbivore chemicals. The only two vertebrates to have established on Hawai'i prior to the arrival of humans were a seal (Hawaiian monk seal, *Monachus schauinslandi*) and a bat (Hawaiian hoary bat, *Lasiurus cinereus semotus*). The former is recognised as an endemic species whereas there is still some dispute about whether the bat is an endemic species or merely a sub-species of its closest relative from the Americas.

The first human colonisers were the Polynesians who arrived between 300 and 700AD. These people had sailed north over 2000 miles from the Marquesas Islands in dug-out canoes and brought with them various plants and mammals - dogs, pigs and rats - the vertebrate onslaught had begun. Today there are 21 species of mammal recognised as having feral populations in the Hawaiian islands (see table). Mammals have established on Hawai'i as a result of accidental or deliberate introductions. Reasons for deliberate importation are:

Food
Companion animals
Sport
Resources (other than for food)
Biological control agents

The Polynesian dog *(Canis familiaris)*, short-legged with pointed ears, was a companion animal but was also used as a hunting aid, a food resource for the upper ranks of society, and sacrificial offerings.
Pigs *(Sus scrofa)* were obviously used as a food resource but were also greatly respected by the Polynesians and were regarded as second only to humans as objects for ritual sacrifice. The Pacific rat *(Rattus exulans hawaiiensis)* was probably not merely a stowaway in Polynesian canoes but a planned cargo. Although the early Hawaiians did not eat rats (an activity common elsewhere in the Pacific eg. by the Maoris of New Zealand) they may have introduced them for sport. Small bows and arrows have been found which, it is suggested, were used during rat hunts.

Mammals in Hawai'i

Native

Family VESPERTILIONIDAE	
Lasiurus cinereus semotus	Hawaiian Hoary bat
Family PHOCIDAE	
Monachus schauinslandi	Hawaiian Monk seal

Introduced by the Polynesians

Family HOMINIDAE	
Homo sapiens	Man
Family MURIDAE	
Rattus exulans hawaiiensis	Hawaiian rat
Family CANIDAE	
Canis familiaris	Feral dog
Family SUIDAE	
Sus scrofa	Feral pig

Introduced by 'Europeans'

Family MACROPODIDAE	
Petrogale penicillata	Brush-tailed wallaby
Family LEPORIDAE	
Oryctolagus cuniculus	European rabbit
Family MURIDAE	
Rattus rattus	Black rat
Rattus norvegicus	Brown rat
Mus musculus domesticus	House mouse
Family VIVERRIDAE	
Herpestes auropunctatus	Small Indian mongoose
Family FELIDAE	
Felis catus	Feral cat
Family SUIDAE	
Sus scrofa	Feral pig
Family CERVIDAE	
Axis axis	Axis deer
Odocoileus hemionus columbianus	Black-tailed deer (Mule deer)
Family ANTILOCAPRIDAE	
Antiocapra americana	Pronghorn
Family BOVIDAE	
Capra hircus	Feral goat
Ovis musimon	Mouflon
Ovis aries	Feral sheep
Bos taurus	Feral cattle

The next, much more catastrophic, phase of mammalian introductions began when the islands were 'discovered' by Captain James Cook in 1778. Cook, and subsequently Captain Vancouver and others, brought European pigs (same species as the Polynesian pig but larger), sheep *(Ovis aries)*, goats *(Capra hircus)* and cattle *(Bos taurus)* to Hawai'i during the 1700s. The pigs, goats and to some extent, sheep subsequently escaped from human control and established feral populations. The effects of these efficient grubbers and grazers on the unprepared Hawaiian flora, and its associated and highly specialised invertebrate faunas, was severe. Hawai'i developed as an important staging point for long-distance sailing ships and inevitably became colonised by those plagues of the sea, rats *(Rattus norvegicus)* and house mice *(Mus musculus domesticus)*. The former have tended to remain associated with human habitation at low altitudes while the latter have also established populations in native mountain rain forest. Interestingly the black or roof rat *(Rattus rattus)* was probably the last rodent to reach the islands around the 1870s. These rodents were obviously accidental introductions as, in a way, was the brush-tailed rock wallaby *(Petrogale penicillata)*. A pair of these marsupials escaped from the care of a local businessman on O'ahu in 1916 and founded a small but persistent colony in the Kalihi Valley to the north of Honolulu. Ironically this species is now rare in its native Australia and there is a move in some quarters for the Hawaiian population to receive some legal protection.

Only one mammal has been deliberately established in Hawai'i for the purpose of biological control. The small Indian mongoose *(Herpestes auropunctatus)* was brought to the islands to control rats in the sugarcane plantations after a euphoric, but ill-founded, report of their efficacy in this respect in the West Indies. As with most biological control programmes the mongoose failed to live up to its, admittedly dubious, reputation. There are now feral populations on all the major islands, with the possible exception of Kaua'i, and this aggressive predator has had a major impact on several endemic ground-nesting bird species. Rabbits *(Oryctolagus cuniculus)* were brought in for food but thankfully only established on three or four small offshore islands of the main Hawaiian group where they characteristically wreaked havoc to the flora. Further north along the Hawaiian chain, rabbits were the direct cause of habitat destruction which led to the extinction of the endemic Laysan honeycreeper *(Himatione sanguinea freethii)* in 1923.

Species of deer have been introduced for sporting purposes. The first axis deer *(Axis axis)* were a gift to King Kamehameha V from the Hawaiian consul in Hong Kong in 1868. Their populations are currently kept in check by hunting. Pronghorn antelope *(Antiocapra americana)* and black-tailed deer *(Odocoileus hemionus columbianus)* were established by the Hawaiian Division of Fish and Game as late as 1959 and 1961, respectively. It is amazing that recent, deliberate introductions of this sort could have been sanctioned given the mounting evidence of the destructive potential of alien mammals on the delicate Hawaiian ecosystem.

The Hawaiian Islands represent a mere 0.2% of the total land area of the United States but contain 14.3% of the native plants and birds. Of these groups present in the US, Hawai'i has the unenviable record of housing 27.8% of species considered endangered and 72.1% of species known to have become extinct. Although introduced mammals are not totally to blame for this loss, they have certainly played their part.

GEOFF OXFORD

Further reading:
Tomich, P.Q (1986) *Mammals in Hawai'i (2nd edition)*, Bishop Museum Press, Honolulu, Hawai'i
van Riper, S.G & van Riper, C (1982) *A Field Guide to the Mammals in Hawai'i*, The Oriental Publishing Co., Honolulu, Hawai'i

TANZANIAN MAMMALS

The vastness of the African scene has to be seen to be believed. The endless mile upon mile of the sparsely vegetated open scrub land plain of the upland Serengeti or the arid semi-desert conditions in the Rift Valley lingers long in my memory. Patricia and I experienced all this during the three weeks in October 1994 when we, along with seven others, travelled around northern Tanzania in a three ton ex-army Bedford truck, converted to carry passengers such as ourselves. At times we saw little wildlife, but at other times on the plains and in the basin of the famous Ngorongoro Crater, life was to be seen in

abundance. The journey, as far as I was concerned, was like passing through a mammologist's idea of paradise.

To describe all that we had seen would be impossible in this short article, so I have had to be selective. I have also considered some aspects of their conservation. I listed 38 species of mammals in the three weeks, both large and small, common and uncommon, some of which I had never seen before in the wild and was able to add to my mammalian life list. This list is small compared with the total number of mammalian species to be found in Tanzania, with over 130 species listed on one checklist. For instance, 62 species are listed for Lake Manyara National Park, one of the smaller national parks we visited and over 90 species are to be found in the Serengeti. After a while we got so used to seeing some of the big game, we would stop for long periods of time just to watch their behaviour and the inter-reaction between members of a group or other species and that group. I found the socio-biology fascinating.

Take for example, the African elephant *(Loxodonta africana)*. The last time I had seen an African elephant in the wild was in May 1944, when as a boy I travelled north up the White Nile with my mother and sister. So to see them again in a wild setting was for me a great thrill. On this occasion we saw elephants, either as a single mammal or in small family groups, in all the national parks we visited, except the Kilimanjaro Park. In the Arusha National Park, the smallest park we visited, we saw evidence of elephant at 8000 feet on Mount Meru, but no actual animals. More often than not we would come across small family groups, with elephants of all ages being present. If we ventured too close, the dominant females would make a defensive ring, with the young taking cover in amongst them. It was possible sometimes to make some sort of guess as to the ages of the younger elephants, as the photograph on the front cover of *Imprint* shows. Baby elephants will follow the example of their mothers. This was well illustrated to us when we came across two adults, along with a baby, taking a dust bath using their trunks to suck up the dust. This comical little figure, with its much shortened trunk was not succeeding in spite of all its efforts!

Sometimes we saw an individual bull elephant on his own, especially in Tarangire National Park. More often than not, these older solitary males, having been rejected by other males from the breeding females, live out their lives in solitude. However, our best views of males were

in the Ngorongoro Crater, where a small multi-aged male group frequented some of the freshwater marshes next to one of the hippopotamus pools. Their massive hulks could just be seen above the reeds, as they munched their way through the lush vegetation. One evening, a large solitary male was noticed quietly taking a meal next to the shower and toilet unit, at the campsite on the Ngorongoro Rim, but not causing any alarm amongst the ablutionists!

Elephants seemed to be present in good numbers and managing those numbers can be quite a problem, both within or without the parks. Numbers it seems to me have to be controlled, either by culling or by translocation, because overpopulation leads to the habitat being destroyed beyond its carrying capacity for elephants and other wildlife alike. This seems to be an increasing problem throughout Africa with more and more elephants crammed into restricted park areas, following several successful conservation programmes to save the elephant, introduced during the last decade. We saw plenty of evidence of trees pushed over so that they could get at the upper branches. Once, in Manyara National Park, we watched a middle-sized female elephant stripping bark off an acacia tree with its tusk.

Another herbivore we wanted to see, but realised it might be difficult to see, was the black rhinoceros *(Diceros bicornis)*. It was not until we reached the basin of the Ngorongoro Crater that we were rewarded with an excellent view of this magnificent mammal. We watched for some while an adult female suckling her infant, born a few months earlier and now almost half the size of its mother. The pair were right out in the open, surrounded by small herds of hartebeest *(Alcelaphus buselaphus)* and Burchell's Zebra *(Equinus burchelli)*. As we moved off, another adult black rhinoceros came into sight. The guide told us that there were now only 5 black rhinoceros in the Crater, so the fact that a female had given birth to one pleased the park's wardens. Throughout Africa, according to a news item in the October 1994 edition of *Oryx*, the Fauna & Flora International's quarterly magazine, the black rhinoceros population is now stabilised at 2550, with particular successes in Zimbabwe. However, it is a sad reflection on man's ability to bring to near extinction such an interesting species, when two decades or more ago, black rhinoceros was present in thousands upon thousands.

Another grazer worth describing is the African buffalo *(Syncercus caffer)*, the most dangerous mammal on the African scene. The male will

charge, coming straight at you. We saw several herds on our travels, including a mixed herd grazing on a small plain in Arusha National Park. Our footpath up the slopes of Mount Meru passed close to this herd, on the edge of which was a solitary bull. Joseph, our game warden-guide, cocked his rifle in preparation for trouble, but we passed by without any incident. Such incidents do occur, but they are extremely rare and are not in the interest of wildlife conservation.

Of the big cats, the one we saw most frequently was the lion *(Panthera leo)*. In all we came across several prides, and were able to watch the social inter-reaction between the members of the pride. Remembering B.C.R.Bertram's classical paper on kinship relationships in lion prides, published in 1976, I found this an excellent opportunity to observe some of the things he wrote about. The first pride we came across was in the Tarangire National Park. Here, in the shade of a small acacia tree, the dominant male was taking his due from a recent 'kill', whilst nearby the females and two almost fully grown juvenile males were awaiting their turn. The kill was a Burchell's zebra. We were able to get quite close, without disturbing the meal. We turned off the engine and watched.

On another occasion we came across a fully mature male, surrounded by several females, all of whom were lying around usually on their backs. It was obviously a mating party, for brief copulation was observed. The females, according to our guide, were in oestrus and matings occur frequently when this happens over a period of a few days. In another such pride, the male refused to cooperate with a sexually displaying female, presumably because he had had enough! He simply flicked his tail at her, or thrust out his paw, to tell her to go away. Several mixed aged female prides with cubs were located, often lying close to the base of a tree, such as the boabab. At night, across the plains of the Serengeti, male lions could be heard roaring as they marked out their territories, with some of them coming right up to our camp periphery.

Of the other big cats, we located at three different sites adult leopards *(Panthera pardus)*, two males and a female. One of the males had dragged its prey item up into the tree in which it was resting. Another male came down from a tree slowly enough for us to get some excellent photographs. Elsewhere, we came across a single male cheetah *(Acinonyx jubatus)*, resting on a rock close to the dry dust track. As it moved off, it started calling which I assumed was a contact call.

Whenever a rare cat or other interesting mammalian species was located, a swarm of other tourist vehicles would turn up, almost as if they were in for the 'kill'. At times, we felt very uncomfortable to be part of this tourist system, as we wondered what effect it was having on the animals themselves. Was it breaking up their social structures, interfering with their feeding or breeding? These were the sort of questions we were asking ourselves, yet we knew that the tourist trade was an important part of the Tanzanian economy.

One very hot night in the Serengeti National Park, when the rest of our party decided to go for a drink at the local tourist lodge, Patricia and I decided to retire to our tent early. We were left to keep an eye on the campsite, which was several kilometres from the lodge. Within five minutes of settling down, with the tent's entrance flaps firmly zipped up, but leaving the mosquito-netted air vents on each flap open, we heard the approach of a pair of spotted hyaena *(Crocuta crocuta)*. They started scavenging around cooking utensils and the camp kitchen area, and once one of them passed right in front of our tent. After about half an hour they moved off to sniff around another party's site. The thrill of watching a wild mammal under these circumstances, reminded me of my early attempts at badger watching in England. They remained in the area all night, as their noisy calls kept us awake, including a howling scream. This successful species we saw elsewhere, once disturbing a small resting party from under a road culvert as we crossed over it.

The majority of mammals on the Tanzanian list are grazers, particularly the even-toed and odd-toed ungulates, only a few of which I have mentioned. However, I cannot write such an article without mentioning the bats. In all I was able to identify 3 species from the many listed. At one of our campsites overlooking a small lake, a light-coloured bat with almost transparent wings, flew over before it was dark. Flying at about 100 metres, it flew with a strong direct flight. I identified it as the white-bellied tomb bat *(Taphozous maurianus)*. Later that same week at dawn, at the campsite near Lake Nactron in the Rift Valley, I followed a bat flying around the campsite to its perch under an acacia tree. In its low flight, large ears were easily visible, and at rest, yellow wings and a leaf-nosed muzzle. It was the yellow-winged bat *(Lavia frons)*. The third species was the Angola free-tailed bat *(Tadarida condylura)*. At 10.00 pm, flying around the powerful arc lights opposite the reception buildings of Kilimanjaro Airport, were several species of bat, hawking amongst the insects attracted by the lights. Of these, I was only able to identify one

species positively, the Angola free-tailed bat, which is common in this part of Tanzania. Their flight was strong, direct and with occasional swoops to pick up insects, not unlike that of the noctule to which it can be compared in size. Its underparts were light grey to brown and every time one flew close to an arc lamp I could see the free tail extending beyond the intrafemoral membrane.
We were able to complete a most interesting and exciting journey, which had a high mammalian content.

MICHAEL J A THOMPSON

BOOK REVIEWS

THE POCKET GUIDE TO MAMMALS OF BRITAIN AND EUROPE by A.M.HUTSON
Published by Dragon's World Ltd at £6.95

This is one of the numerous recently published mammal guides providing basic information on mammals throughout Britain and Europe. In a handy ring binder format each page is dedicated to one species, providing a general overview with sections for identification, size and weight, range, habitat, behaviour, breeding, food, conservation and similar species. This information is very useful as a quick easy reference guide but provides few details. The conservation section in particular seemed very vague and often misleading. In line with the other quick reference sections, perhaps the range description would have been best shown in map form.

The illustrations were done by individual artists and varied in quality. This did not provide any consistency and so consequently comparison between species was difficult.

In conclusion, this guide is useful as a quick reference guide for very basic information about a particular species. However with a distinct lack of detail and poor quality drawings I doubt if it would spark off much interest for mammals in the reader. I would not recommend this guide.

SARAH BENCE

WILD ANIMALS OF BRITAIN AND EUROPE by HELGA HOFMANN

Translated by Martin Walters
Scientific Consultant Dr Gordon Corbet

Published by Harper Collins at £6.99

This book although somewhat misleading in its title provides a very informative and interesting basic guide to wild mammals. The format consists of a colour illustrated key which enables quick and easy reference to the major groups of mammals. Once within the correct mammal group, very good, clear, colour photographs make it easy to identify different species and to distinguish between similar species.

Basic information is provided in the usual sections marked as identification, distribution, habitat, behaviour, food and breeding. Following these basic features is a note section which provides the reader with details about some of the more interesting features of each species. These notes are very varied in topic, interesting, informative and scientifically sound. In addition they are often illustrated with excellent drawings by Heinz Bogner.

Wild Animals combines the need for a quick reference guide well with a more leisurely browse that would hold the interest of both beginners and more experienced mammal enthusiasts alike. I would certainly recommend it.

SARAH BENCE

AURITUS - A NATURAL HISTORY OF THE LONG - EARED BAT by ROBERT HOWARD

Published by Sessions of York at £8.50
Also obtainable from the author Robert Howard at
Warner's Lodge, Chewton, Keynsham, Bristol BS1 2ST

This is the first comprehensive monograph on the Brown Long-eared Bat to be published in Britain. Like some previous such mammalian monographs, it is an example of a long term study carried out by an enthusiastic amateur naturalist. Robert Howard is a retired veterinary surgeon, who has been keen on natural history and especially mammals, since his boyhood. This is not his first venture into a book about a mammal species, for he wrote the highly acclaimed book *Badgers without Bias*, on the problems of badgers and bovine tuberculosis.

As one who has also carried out a single species study, I found the book most readable. It contains a lot of descriptive material on the brown long-eared bat colony found within the loft of the author's own house, collected over a period of 15 years. Scientific and analytical material is presented, but one is not overwhelmed by it. Robert Howard has read extensively around his subject and presents comparisons of his own work on *Plecotus auritus*, with that of others.

The text contains chapters on classification, distribution, colony numbers, movements within the colony, ultrasonics, food, breeding, hibernation and many other aspects of the ecology and socio-biology of brown long-eared bats. I was fascinated that he used an infra-red beam as an automatic recording device in his loft space over a continuous period of time. Chapters often end with snippets of information, either from the author's own field notes or from other field observers of a bygone age. I was particularly interested in the chapter entitled *'Bats and Men'*, for in it Robert Howard describes the relationship between mankind and bats, with particular reference to the brown long-eared bat.

The book also contains historical literature from the first heyday of bat studies. The book is aimed at a wide range of readers, from the amateur naturalist to the professional biologist and it will add to our knowledge about bat biology. I would recommend the book to anyone interested in mammals, but especially to those with an interest in bats.

MICHAEL THOMPSON

YORKSHIRE MAMMAL GROUP PROGRAMME 1995 - 6

October 5th 1995	*'The Polecat'* Johnny Birks of the Vincent Wildlife Trust
November 2nd 1995	*'High Batts Nature Reserve' - or related subject* Colin Slater of Kirby Hill, Boroughbridge
December 7th 1995	AGM *'A Miscellany on the Elephant'* Gordon and Lorna Woodroffe
January 4th 1996	*'Deer and their Management'* Gordon Wilkins from Leeds, member of the Deer Society
February 1st 1996	*'The Badger, its Conservation and Related Problems'* Dr Huw Griffiths of Leeds University
March 7th 1996	*'The Brown Hare'* Professor Stephen Harris of Bristol University This is a joint meeting with York University Natural History Society
April 4th 1996	*'The Dormouse and its Conservation'* Doug Woods from Somerset
May 2nd 1996	*'The Scottish Wildcat - its Decline and Recovery'* Dr Andrew Kitchener of the Scottish National Museum, Edinburgh
June 6th 1996	Evening field trip - venue to be announced
October 3rd 1996	A members' evening of short papers
November 7th 1996	*'Otter Releases'* Gordon Woodroffe of Sinnington
December 5th 1996	AGM *'The Grey Squirrel and its Management'* Charles Critchley of Forest Enterprise, Pickering

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

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