Contents

Introduction to 2006 edition of IMPRINT.

Jon Traill - Chair

Welcome to the 2006 edition of Imprint, we hope you enjoy the mix of news items, reports on our dormice and outdoor field trips and traps. As always, we have had a full year, with indoor events ranging from talks on upland water voles, badgers and TB and our usual lighthearted mammal quiz, to our field trips and many successful trapping sessions.
Another huge effort from the committee and others who have all chipped in and helped over the past year – THANK YOU.

The 2007 talk programme is the usual mix of subjects with red squirrels, bats and harvest mice all on the timetable. We will also continue to monitor our dormice and be out and about during the summer, looking out for our resident mammals.
To all who have supported us over the last year, thank you and to those who have just found out about us, a warm welcome.

I would like to add my thanks to everyone who has contributed articles and photos for this issue of Imprint. It is very much appreciated.

Mary Youngman - Editor

Autumn Swarming of Natterer's Bats in North Yorkshire.

A summary of the talk given to Yorkshire mammal group on 3/11/05

Nicky Rivers

Many species of British bat change their location and social groupings through the year. This is a response to changes in weather and food availability but it seems it can also be to find suitable mates.

In the summer, Natterer's bats (*Myotis nattereri*) roosts are usually sexually segregated with females and young roosting in nursery roosts and males often roosting on their own or in smaller groups. In the winter both sexes move to hibernacula, often caves and mines.

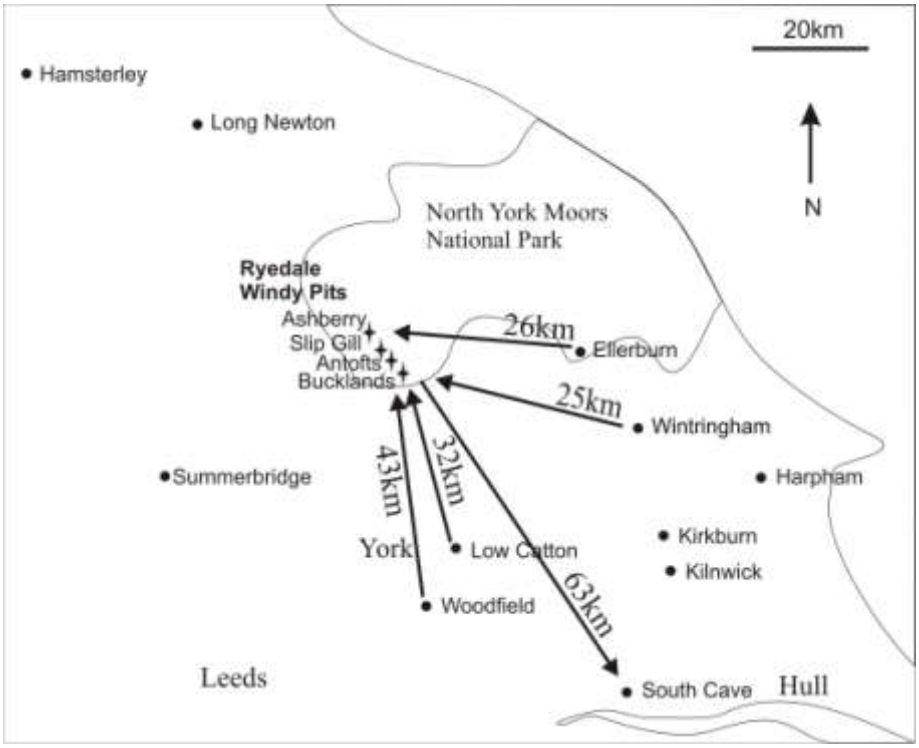
Natterer's bat. *Photo: Nicky Rivers*

Movements and behaviour in spring and autumn however, are not usually taken fully into account in describing the life-histories of Natterer's bats and other temperate bat species. In autumn, large numbers of Natterer's bats have been observed visiting caves and mines and chasing each other in and out. This behaviour is known as 'autumn swarming' and was first described for other *Myotis* species in North America in the 1960s. It generally involves bats visiting the cave, rather than roosting there, and is different from 'dawn swarming' where bats fly around a roost entrance upon returning to their roost at dawn.

For my PhD at Leeds University (supervised by Professor John Altringham) I investigated why bats swarm by studying Natterer's bats at a series of caves called the Ryedale Windy Pits in the North York Moors National Park. The

most common theory is that swarming is a mating event that could mix the genes from bats that otherwise live in dispersed summer colonies. We tested this idea by catching and ringing Natterer's bats at the caves in autumn and at 11 summer roosts in the area. We also took DNA samples to assess the genetic population structure.

We ringed over 1000 Natterer's bats during the project and were able to estimate that between 6-8000 bats visit the four main Windy Pit caves, and 80% of these are Natterer's bats. The other swarming species were also *Myotis* bats (Daubenton's, Brandt's and whiskered), with the exception of the brown long-eared bat which was the second most common species. It is interesting to see so many bats in the autumn as these species are crevice-dwellers during hibernation and therefore are very difficult to find during winter surveys. However, in autumn we estimated that on average 400 bats visited a night. Bats arrived late in the evening with the peak activity 4-6 hours after sunset, which makes for a late night in the field! Observations also showed that some bats were likely to stay and hibernate in the caves from November after the peak in swarming activity during September and October.



The ringing proved fruitful as we obtained recaptures in both directions between the Windy Pits and five known summer roosts and three additional locations. Our furthest recapture was an amazing 63km! Recaptures were of both sexes and of adults and juveniles. This proves that bats from many summer roosts all swarm at the same few caves. The genetic results strongly supported the idea that bats mate at swarming sites and therefore mix genes from between the different colonies. This seems especially important for Natterer's bats who seem to stay in the same colony that they were born into, whereas in some other species males move to a different colony as juveniles.

John Altringham has described swarming sites as nightclubs for bats, which I think, is a pretty good description. With 75% of the captures being of males, it looks like the males are hanging around for as many females as possible. It is clear these sites are important for mating and probably hibernation. Suitable sites may be limited in some areas and important swarming sites should therefore be a conservation priority. And for mammal group members it is a great way to see a lot of bats, and none of them Pipistrelles. You don't have to catch the bats; a bat detector, preferably a nightscope, some warm clothes and patience are all you need to experience some interesting bat behaviour. You just need to find a good site and there are still plenty to survey!

The project was supported by NERC, English Nature, The North York Moors NPA, Forest Enterprise and North and East Yorkshire Bat Groups. Results of this study have been published in the journals 'Biological Conservation' and 'Molecular Ecology'. If anybody wants reprints of these articles or wants to know more about the project or swarming in general, please contact me on nrivers@moose-mail.com

The Noctule Bats of Clifton Bridge.

James Mortimer

Clifton Bridge spans the River Ouse in York, at grid reference SE58915278. It is home to a well-known colony of noctules *Nyctalus noctula*, and is unusual in that this species normally roosts in trees. Common pipistrelles *Pipistrellus pipistrellus* and Daubenton's bats *Myotis daubentonii* also roost within the same bridge. The bridge is a modern structure, built in 1963 using 4000 tons of concrete and 50 tons of reinforced steel. It is not the kind of place you would immediately think of as being a potential bat roost, however the gaps between the pillars and the underside of the road provide suitable crevices for three bat species to roost.

Clifton Bridge. *Photo: J. Mortimer*

As I now live just down the road from this bridge, I decided to have a closer look, and monitor the use of the bridge by Noctules over an entire season. A similar, though more detailed, study was done by Oxford *et al* in 1996 of the Daubenton's roost in Kexby Bridge over the River Derwent. I carried out a series of survey visits to Clifton Bridge, about once a fortnight, from April until October. Noctules are an early emerging species therefore each survey started about 15 minutes before sunset, and continued until no bats had emerged for at least 10 minutes. A note was made of the weather, number of bats emerging, and time of the first and last bat emergence. For the purposes of this survey I labelled the five pillars of the bridge A to E, with A being the pillar that was furthest east. The results were as follows:

Date	Sunset time	Temp (°C)	Cloud (%)	Rain	Wind	No. bats	First bat	Last bat	1st emergence (mins +/- sunset)	Notes
10/4	1958	7	5	0	1	0	-	-	N/A	No bats recorded.
27/4	2028	13	100	0	2	18	2043	2120	+15	Noctules emerged from pillar D. Two noctules flew around pillar C several times before re-entering roost. Daubenton's present.
12/5	2056	15	50	1	0	c75	2047	2110	-9	All noctules emerged from pillar D. Daubenton's feeding under bridge. Common pipistrelles present. Accurate count difficult due to bat behaviour.
22/5	2113	7	100	1	2	11	2127	2132	+14	Noctules emerged, flew around then returned to roost. No pipistrelles or Daubenton's bats recorded.
3/6	2130	16	5	0	0	59	2121	2140	-9	Most noctules emerged from pillar E and flew up-river. Several flew down-river.
21/6	2144	14	100	0	3	11	2155	2201	+11	Wind speed approximately 20mph. Several noctules emerged and flew around near the bridge. Daubenton's bats heard.
13/7	2135	17	5	0	0	51	2131	2158	-4	Noctules emerged and flew up river, almost all from pillar D. Daubenton's bats recorded foraging under bridge and near the east bank, immediately south of the bridge.
28/7	2115	18	20	0	0	67	2124	2147	+9	Most noctules emerged from pillars C and D, with a few from pillar E. Daubenton's and common pipistrelle recorded.
11/8	2048	15	90	0	2	73	2103	2125	+15	Most noctules emerged from pillar D and flew up river. Common pipistrelles and daubenton's bats recorded feeding under the bridge.
24/8	2019	13	10	0	1	27	2007	2046	-12	All noctules emerged from pillar E. The first noctule flew out then re-entered about a minute later. Lots of common pipistrelles, soprano pipistrelles and daubenton's bats foraging near the eastern riverbank.
7/9	1946	12	10	0	0	11	1959	2005	+13	Most noctules emerged from pillar E, some from pillar D. Daubenton's bats emerged from pillar A. Several common pipistrelles foraging.
26/9	1858	16	75	0	1	6	1911	1917	+13	Several daubenton's bats foraging around bridge.
6/10	1833	14	90	2	1	0	-	-	N/A	No bats recorded. Brief periods of light rain.

Rain: 0 = dry, 1 = ground wet, 2 = light rain

Wind: 0 = none, 1 = slight, 2 = moderate, 3 = strong

1st emergence (mins +/- sunset) = the number of minutes before/after sunset of emergence of the first noctule bat.

No noctules emerged on the first visit, presumably because they had not yet arrived from their hibernation site(s) or temporary roosts. 18 bats emerged on the second visit, therefore it would seem that the noctules began to gather at the bridge to form a maternity roost at some point between 10th and 27th April. On subsequent visits, the number of noctules emerging varied quite considerably, from 11 to around 75 (Figure 2). The numbers emerging appeared to be connected to the weather conditions: not surprisingly, higher numbers of bats emerged on warm, dry evenings with low winds. The low numbers of noctules emerging on 22nd May and 21st June is most likely due to the weather being unfavourable (cold temperatures and/or high wind speeds). Despite favourable weather conditions, increasingly fewer bats emerged after 11th August, suggesting that from mid-August onwards the bats began to leave the bridge to find other roost sites. By 6th October all the noctules had vacated Clifton Bridge.

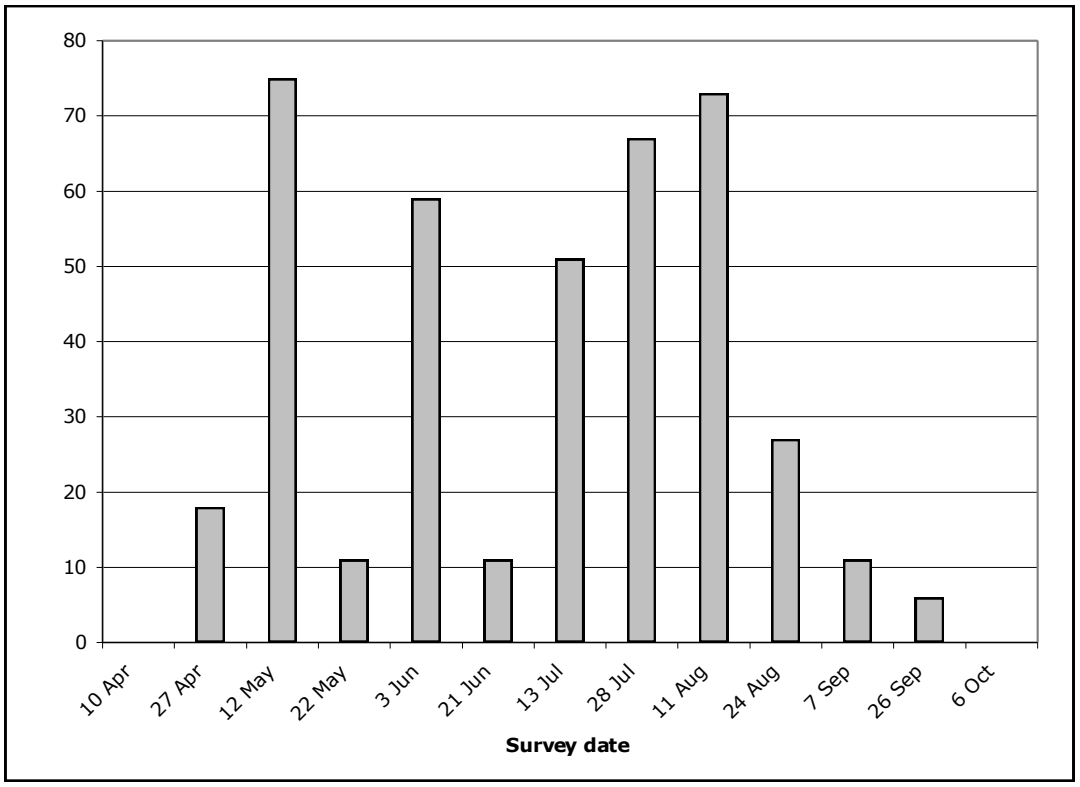


Figure 2: Number of bats emerging.

The peak count of around 75 bats is high for a noctule nursery colony. Normal colony size would be 20-40 bats, and rarely over 70. This could be due to a shortage of suitable roost sites in the York area, as there is a lack of mature trees in the Vale of York when compared to other parts of Yorkshire.

Noctules give birth in late June or early July, and the young bats can fly at the age of six weeks. A peak in numbers emerging was therefore expected around the middle of August. Looking at Figure 2, however, there is no dramatic increase in numbers of noctules emerging. A pattern may have been observed if I had carried out more frequent visits to the site, however finding the time to manage fortnightly surveys was difficult enough!

Interestingly, the noctules did not always emerge from the same pillar. Emergence varied, with the majority of bats emerging from pillar C on some visits and pillars D or E on others. Perhaps the bats moved to alternative roost locations with changing environmental conditions. It is possible that bat colonies have moved more than usual this year because of the higher than normal summer temperatures.

Time of emergence of the first noctule varied quite considerably (Figure 3). The earliest was 12 minutes before sunset, the latest 15 minutes after sunset. Looking at the weather conditions, it seemed at first that this could be related to temperature, with noctules emerging earlier on warmer nights. As the survey progressed it became clear however that this was not always the case, as on 28th July and 11th August the first noctule emerged some time after sunset despite temperatures of 18 and 15°C respectively. It is more likely that a combination of factors influences time of emergence, probably including weather conditions over the previous few days.

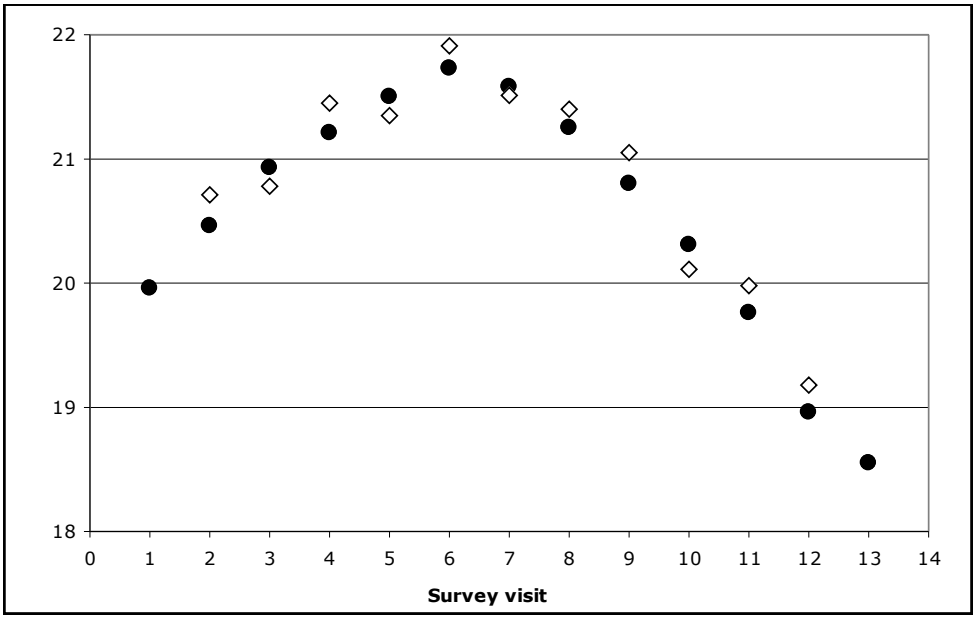


Figure 3: Time of first emergence compared to sunset (solid circle = sunset time, diamond = 1st noctule emergence time).

With so many noctules emerging and flying up the river, this begs the question "where are they going?" Clifton Ings are immediately to the north-west of Clifton Bridge. This area may provide suitable foraging habitat for noctules. The bats could fly further afield, however. I have been told that noctules forage at the point where the River Nidd joins the River Ouse near Moor Monkton (SE513579). Could these be the same bats that roost in Clifton Bridge? If so, they have flown almost 11km along the River Ouse to reach this area. This is possible, because although the literature quotes the noctule home range as being generally 1.5 – 2.5km, individuals have been found to travel much further to their favoured feeding grounds.

In summary:

- Noctules occupied Clifton Bridge from mid April until late September/ early October.
- Numbers emerging varied depending on the weather, with more bats emerging on warm, dry evenings with low winds. The highest number of bats to emerge was circa 75.
- Time of emergence of the first bat varied between 12 minutes before sunset and 15 minutes after sunset.
- The noctules did not always emerge from the same place – they moved roost frequently between three of the bridge pillars.
- Daubenton's were seen to emerge from the bridge and common pipistrelles were frequently recorded foraging in the area.

References

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The Original Dormouse Re-introduction – update for 2005 and 2006.

Geoff Oxford

During summer of 1999 the first reintroduction of the common dormouse (*Muscardinus avellanarius*) in Yorkshire took place in a wood near Helmsley. Annual updates on the population, which is normally monitored monthly between April or May and October, have appeared in previous editions of *Imprint* (Oxford, 2003 and references therein). Data for 2005 are discussed below together with those from the 2006 season.

Table 1 provides basic information on numbers of nests and dormice recorded in 142 nest boxes distributed in a grid across the site (Oxford, 2004). Data are for all years following the initial release. The boxes were not checked for most of 2001 because Foot and Mouth disease restrictions prevented access to the wood, and during July and August 2005 for personal reasons. Breeding in the nest boxes was recorded up to 2004, but not subsequently. The mean number of dormice weighing seven or more grams per 50 boxes in the October survey is used nationally as an index of population size. Animals below seven grams are considered unlikely to put on enough weight to overwinter successfully.

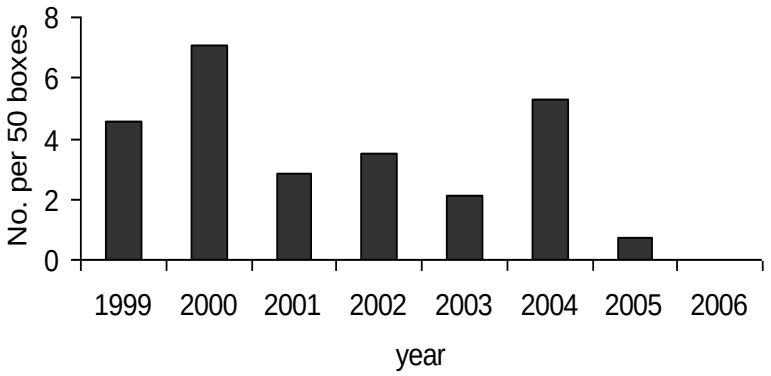

Figure 1. Average numbers of dormice weighing ≥7 g recorded per 50 boxes during the October check each year (1999 – 2006)

Figure 1 shows that the value of this index in the Helmsley population has fluctuated over the years, but in 2005 it fell to 0.7 and in 2006 to zero. This disappointing tendency is also reflected in the numbers of nests and of animals found earlier in the season over the last two years (Table 1). The

numbers of nests varies slightly from month to month as a result of new nests being built (Plate 1) and old nests being removed from boxes, if wet and mouldy, by the surveyors. Sometimes nest material disappears from boxes through the action of natural agents, possibly dormice or woodmice (*Apodemus sylvaticus)*. The trend, particularly during 2005, was for the removal rate (mostly by surveyors) to exceed the rate of construction. In 2006 the same nests were recorded in three boxes through most of the season, with only one showing signs of refurbishment between monthly checks. In September one was removed because it was very wet, and in October a total of six nests was recorded. Thus four new nests were constructed after the September check, indicating that dormice are still in the vicinity although the last animal to be seen was recorded in mid-July.

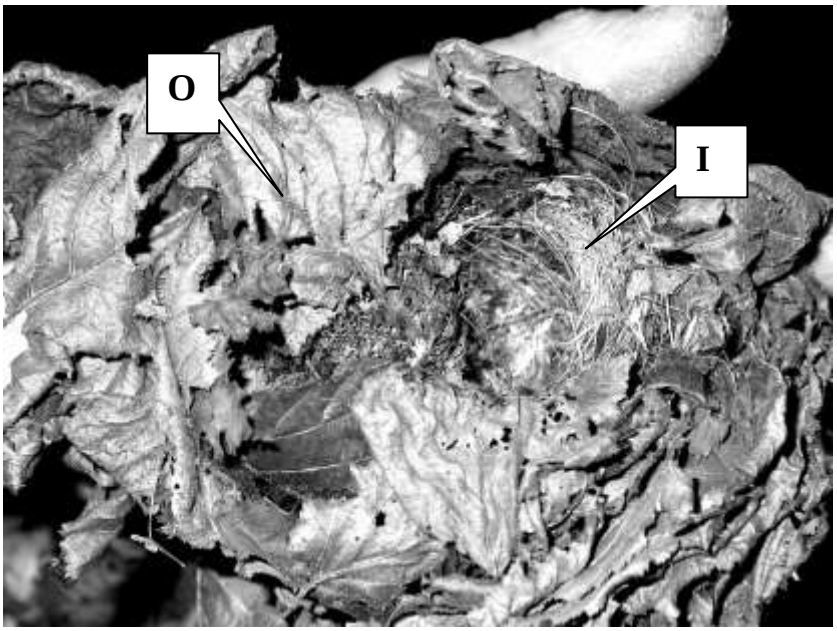

Photo: Geoff Oxford

Plate 1. Dormouse nest from 2006. Note the outer layer of green leaves (O) and a tightly woven inner core of shredded grass and honeysuckle bark (I)

It must be remembered that nest boxes are used by an unknown fraction of dormice living in an area and that, as indicated above, a lack of animals detected in boxes does not mean the species is absent. However, it seems unlikely that the number of natural sites suitable for dormice to nest in has increase substantially in the wood over the last couple of years and so the implication is that the population size in 2006 is probably the smallest it has been since the release in 1999. Many factors mean that the index used

nationally (Fig. 1) should be treated with caution. Chance will play a major part in determining the precise number of animals recorded in October each year. It is also the case that 2006 was remarkably mild and mice might be more likely to 'camp out' under these conditions and not be found in boxes. Nevertheless, this index is the best indication we have of how a population is faring and, on this basis, things do not look very rosy for the Helmsley re-introduction.

National trends also have to be taken into account when judging whether the Helmsley population is unusual in having so few mice recorded over the past two years. Although national dormouse monitoring each year is reported in *The Dormouse Monitor*, figures that would allow a straightforward comparison with other populations are not readily available. An analysis of data from the National Dormouse Monitoring Programme by Fiona Sanderson showed that abundance in populations situated in marginal northern and western Britain declined by 45% over the seven year period 1993 to 2000, and that dormouse densities at these sites were very low (0.47 per hectare) compared with between 3 and 5 per hectare nationally (Sanderson, 2002). Andy Swan has recently undertaken a radio-tracking study of the home ranges of dormice in three remnant northern sites (Cumbria and Northumberland) and two in the dormouse heartland in the south (Somerset and Herefordshire) (Swan, 2004). He found that the home range of northern dormice was over twice that in the south (0.91 ha *vs*. 0.39 ha, respectively) and that the total distance travelled each night was significantly greater in the north (200 m *vs*. 149 m, respectively). Finally he showed that the maximum distance moved away from the nest during foraging was significantly further in the north than in the south (74 m *vs*. 57 m, respectively). He concluded that the increased mobility of northern dormice could be explained by greater isolation of food resources and/or lower food quality. Indeed, the minimum number of trees visited per night in the north was greater than in the south, which supports the lower food-quality hypothesis. Despite this, statistics on timing of breeding, size of litters and average weights of animals in October for the Helmsley population (Oxford, 2003) did not suggest marked deviations from the National picture.

It is interesting to note that dormice in the most northerly remnant population, in Staward Wood SSSI, near Hexham, Northumberland have been elusive over the last few years too. Here boxes are checked monthly from April through to October. During 2004 and 2005 no mice or nests were found in 80 and 110 boxes, respectively. This year looked like another zero count

until October, when one 18 g female was discovered (110 boxes checked) (Scott Dixon, personal communication). The other Yorkshire re-introduction, at West Tanfield, has also returned counts in single-figures after a high of 61 animals in the September of the release year (2004) (Amy-Jane Beer, personal communication). The experience in Northumberland suggests that continued monitoring is required for a number of years before it can be concluded that the population is no more.

Finally, dormouse boxes attract other species too. During 2006, we recorded a brown long-eared bat (*Plecotus auritus*) in June and in July a common pipistrelle (*Pipistrellus pipistrellus*). A woodmouse (*Apodemus sylvaticus*) and a pygmy shrew (*Sorex minutus*) were found in September, and a further pair of woodmice were recorded co-habiting in October.

References:

Oxford G. (2003) Yorkshire dormouse update, 2003. *Imprint*, **30**: 24–28.
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Sanderson, F. (2002) Understanding dormouse population change. *The Dormouse Monitor*, April 2002 pp.1–4.
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Table 1. Numbers of nests and dormice found in box checks across seven years.

	2000		2001		2002		2003		2004		2005		2006	
Month	**No. nests**	**No. mice**	**No. nests**	**No. mice**	**No. nests**	**No. mice**	**No. nests**	**No. mice**	**No. nests**	**No. mice**	**No. nests**	**No. mice**	**No. nests**	**No. mice**
April	-	-	-	-	-	-	12	1	-	-	14	1	-	-
May	23	5	-	-	6	1 + 1D	9	4	8	2	10	3	3	2
June	20	4	-	-	6	2	9	4	9	3	6	0	3	0
July	17	4	-	-	6	9	8	3	9	2	-	-	3	1
August	24	18 inc.5P	-	-	7	5	10	17 inc.5P	12	4	-	-	3	0
September	27	19 inc.3P	-	-	10	14 inc.5P	11	10	18	20 inc.5P	8	2	3	0
October	33	20	?	8	16	10	14	6	17	15	4	2	6	0

P = pinkies (unfurred young in the nest); D = dead

2006 West Tanfield Dormouse Report.

Amy Beer

Two years after YMG volunteers helped with the soft release of 60 dormice to woods in West Tanfield near Ripon, we are continuing to monitor the population. We visited the woods three times this year, in May, July and September, to check the 390 nestboxes.

We now have a core team of about 6-8 regular volunteers, who are familiar with the site and the checking process. This speeds things along nicely and so far we have always been able to check all the boxes quite comfortably within one day. Of the current volunteers, three already have dormouse handling licences from English Nature – this should increase to at least five by next year.

The condition of the boxes has deteriorated significantly, especially in areas where they remain damp for long periods. The cheap, untreated plywood from which they are constructed has swollen and warped so that the lids are often difficult to remove and replace. Most awkward from a monitoring perspective is that the hook catches are rusted and sharp. Opening the catches often requires the application of considerable pressure with a finger or thumb on a point of rusted metal. Many of the boxes are infested with millipedes and earwigs – hundreds of them in many cases, as well as numerous slugs, woodlice, spiders and wasps. Some boxes are at least 1cm deep in frass and invertebrate remains at the bottom. This means the boxes retain moisture more readily and this may put the dormice off. Should we start recording this kind of thing in future, or simply clean out the boxes?

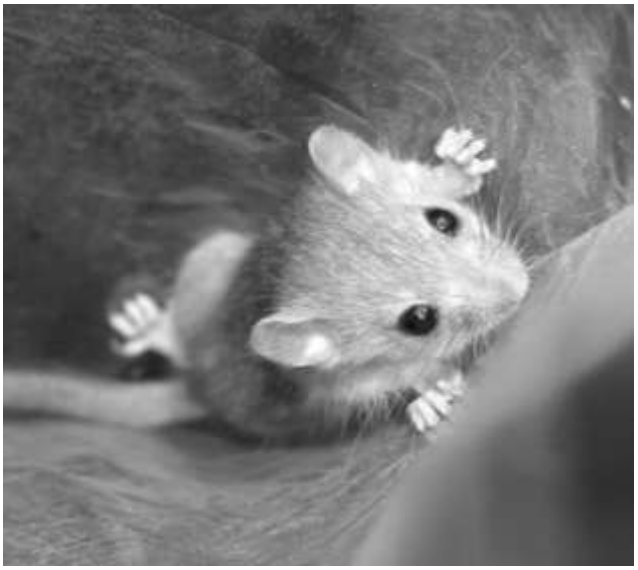
The winter of 2005-2006 was forecast to be very long and very hard. Cold need not be a problem for dormice, but a very long winter can be hard on them if it delays the start of spring significantly. As it turned out, apart from one very cold spell and the odd downpour, the winter was rather mild and very dry.

Our first nest box check of the year was on 27th May. It yielded six healthy adults, two male, two female and two that got away! June and July had seen some record temperatures and very little rain, and the box check on 22nd July yielded no dormice, just a few nests. Late summer remained warm, but plentiful rain meant a bumper drop of fruit and mast – food was plentiful if

the dormice were still there to take advantage of it. On 23rd September we recorded 8 dormice: three adults and five good size juveniles, plus nine possible empty nests of varying quality.

Juvenile Dormouse
Photo: David Jakes

Other mammals found making use of the boxes included wood mice, common and pygmy shrews. Over 120 bird nests were recorded in the spring – mainly those of wrens, blue tits and great tits. These were let be until September, when old nesting material and dead eggs and nestlings were removed.



Juvenile Dormouse
Photo: David Jakes

One of the most striking trends this year was the success of the boxes along the south side of the disused railway, in rows RA and RB – these represent just 6% of the total boxes, and yet this year yielded 36% of the dormice recorded and 62% of empty nests. This is encouraging, as the railway path extends east and west from the release site and is a potential dispersal route.

We were amused to read that Paul Bright of the National Dormouse Monitoring Programme is seeking records of volunteers being bitten by dormice. Received wisdom has it that dormice do not bite. Most of the time, we've found this to be true, but not always. Last year both Ann and Rob were bitten by the same animal, a female with young. In September this year, Ann was bitten by another mother and Amy was nipped by an ingrate adult male as she tried to post it back into its box. Despite this, we fully intend to be back next year!

Thanks to all our volunteers over the last year. If you wish to join us on a box check in 2007, please contact
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Ann Hanson 01132 811286 ann.hanson@fwag.org.uk

Small Mammals of Strensall Common 2005-2006.

Derek Capes

Introduction

Strensall Common, situated North East of York, is the largest remaining area of lowland heath in Yorkshire and supports a wide range of species of plants, insects and animals in its individual habitat of predominantly heathland with woodland, wetland and ponds. It is a relic of a much greater area of this habitat which covered a wide area of the Vale of York prior to the enclosure and subsequent intensive development of agriculture which took place in the 19th century. Approximately 600 hectares are owned by the Ministry of Defence and were originally acquired about 1880 for military training purposes. Defence Estates together with English Nature have worked

together to manage the area to maintain and improve its important diversity. A further 40 hectares is owned and managed by the Yorkshire Wildlife Trust.

Part of the work undertaken is the provision of care for Barn Owls and over the past two years, pellets have been submitted for analysis to determine the prey species gathered on or in the vicinity of the Common. The results of this work provide a comprehensive picture of the small mammals of the area.

Method

Three samples of varying numbers of barn owl pellets were received for analysis at the end of May 2005, early February 2006 and the end of May 2006. Each pellet was broken down in water in a fine sieve to remove the fine fur and dust, dried and the skulls and jaw bones extracted for closer examination. In each case, the majority of pellets were intact, but a proportion had broken either due to damage in transit or through the action of clothes moth larvae. All pellets including the fragmented ones were examined to identify the prey species present, although only those pellets which were intact could be used to establish a value for the number of prey items /pellet.

The results are presented in Table 1.

Discussion

The work carried out on the initial sample taken in the spring of 2005, clearly showed the Field Vole (*Microtus agrestis*) to be the principal prey item, representing almost 56% of the total, more than three times the next significant prey, the Common Shrew (*Sorex araneus*) which made up 17% of the total. The Wood Mouse (*Apodemus sylvaticus*) and the Pygmy Shrew (*Sorex minutus*) formed 10% and 9% of the diet respectively.

If the 2005 results are taken as a baseline, the results of the analysis of the two 2006 samples show a marked change although it has to be said, on much smaller samples. The proportion of field voles in the pellets showed a decline to 25% in the latest sample, less than a half of the value recorded in the previous year. This reduction was compensated by a doubling of the proportion of common shrews consumed, from 17% in 2005 to almost 35% a year later. Lesser increases were also recorded in the percentages of Bank Vole (*Clethrionomys glareolus*), Wood Mice, and Pygmy Shrew present in the sample.

The change to a diet of smaller sized prey is reflected in the greater mean number of prey items /pellet, from 3.43 in 2005 to 4.27 in 2006, and is probably the most significant factor in the failure of the Strensall barn owls to lay eggs this year. Similar breeding failures have been reported from all over the country, and 2006 would seem to be one of the cyclical years when field vole numbers show a marked decline.

The analysis of owl pellets is a very effective means of establishing small mammal presence over the owl's feeding territory. Owl pellets give a more representative sample than would be obtained by live trapping, because they include prey which is often too small eg harvest mice and pygmy shrews, or too large eg brown rat, to be taken in Longworth traps. Furthermore, the sample is taken over a wider area, over a longer time period than the average live trapping session and in a variety of seasons and weather conditions.

Conclusion

The results show a fair representation of the small mammals which might be anticipated in such a habitat, the same nine mammalian species occurring in all three samples. The proportion of field voles which form the most important prey item of the barn owl however, showed a marked variation, declining from 55.9% to 25.1% in the respective periods of 2005 and 2006.

The continuation of structured seasonal monitoring at Strensall Common is to be encouraged, and would provide more data on the magnitude and frequency of field vole population fluctuations and the effects it may have on barn owl breeding success.

Acknowledgments
Major (ret'd) Tony Crease and Mark Hewitt for providing these and other pellets over the last few years, Ann Hanson and Alisdair Love for help with the analysis of the large sample of 2005.

Results

Table 1: Barn Owl Pellet Analysis – Strensall Training Area – 2005 & 2006

	May 2005		Feb 2006		May 2006	
Prey Item Species	No.	%	No.	%	No.	%
Field Vole	501	55.85	78	40.6	86	25.1
Bank Vole	23	2.56	18	9.4	20	5.8
Wood mouse	92	10.25	39	20.3	45	13.2
House mouse	3	0.33	1	0.5	2	0.6
Harvest mouse	9	1.00	8	4.2	12	3.5
Brown rat	9	1.00	3	1.6	4	1.2
Common shrew	153	17.05	31	16.1	119	34.8
Pygmy shrew	81	9.03	12	6.2	41	12.0
Water shrew	13	1.45	2	1.0	7	2.0
Bird species	9	1.00	0	0	4	1.2
Amphibian species	4	0.44	0	0	2	0.6
Total prey items	897		192		427	
No. of pellets	150 (& 111)*		25 (& 26)*		55 (& 25)*	
Mean prey item/pellet (whole pellet only)	3.43		3.76		4.27	

Note: * The bracketed figure is a calculated estimate of the number of whole pellets that the fragmented material would equate to, and is derived using the mean prey items/pellet value for the actual whole pellets in the sample, and applying it to the total number of prey items identified from the fragmented material.

National Mammal Week event at Raincliffe Woods, Scarborough.

Ann Hanson

Introduction

Raincliffe Woods is an area of mixed ancient woodland covering about 400 acres at the end of the Forge Valley near Scarborough, managed by Scarborough Council's Parks and Countryside Department. In July 2006 the Yorkshire Mammal Group were asked to carry out a small mammal survey in Raincliffe Woods as part of National Mammal Week. We met at Hazelhead car-park at the top end of the valley, grid reference SE984875.

Methods

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

Trap locations:

1. Pine trees with bramble ground cover (10 traps)
2. Deciduous trees with bramble ground cover (10 traps)
3. Pine trees with bracken ground cover (10 traps)
4. Stream in mixed woodland, tussock sedge alongside (5 traps)
5. Wet ditch in deciduous wood, bramble alongside (5 traps)
6. Deciduous trees with rhododendron understory (10 traps)
7. Young silver birch with bracken ground cover (5 traps)
8. Birch scrub, long grass and bracken near picnic area (10 traps)

Traps were set on the evening of Saturday 8 July and checked on Sunday 9 July from 9.30am onwards

Results

Summary of small mammals captured at Raincliffe Woods.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8
Common shrew		1						
Bank vole	1							
Wood mouse		2				3	1	1

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

Discussion and conclusions

Three different species of small mammal were caught at Raincliffe Woods overnight, including seven wood mice (*Apodemus sylvaticus*), one bank vole (*Clethrionomys glareolus*) and one common shrew (*Sorex araneus*). Animals were caught in a variety of habitats, all with good ground cover. Fifteen members of the public came along to see the small mammals and a good time was had by all.

Thanks are due to Helen Percival and David Renwick from Scarborough Council and Derek Capes and Rob Masheder from the Mammal Group for helping with this survey.

Appendix I

Table of results: small mammal survey at Raincliffe Woods, July 2006.

Weather: Heavy rain showers overnight, followed by a warm, dry morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Pine trees with brambles (1)	Bank vole	M	A	23.0
Deciduous trees with brambles (2)	Wood mouse	M	A	21.0
	Wood mouse	F	J	11.0
	Common shrew	?	A	11.0
Deciduous trees with rhododendron (6)	Wood mouse	M	A	23.0
	Wood mouse	F	SA	17.0
	Wood mouse	M	A	28.0
Silver birch with bracken (7)	Wood mouse	M	A	22.0
Birch scrub at picnic area (8)	Wood mouse	M	SA	14.5

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

A small mammal survey of Allerthorpe Common Nature Reserve, near Pocklington.

The Dennis Aspinall Memorial Trap 2006

Ann Hanson

Introduction

The Yorkshire Wildlife Trust reserve on Allerthorpe Common near Pocklington, grid reference SE761475, covers 6.5 hectares and contains some valuable remnants of lowland heath, along with areas of mire, acidic grassland and woodland. On a warm day, the common is a good place to see basking adders and lizards. Sadly, despite taking place in mid-August, our weekend mammal survey was more than a little damp and the adders were probably curled up asleep somewhere dry!

Methods

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

Trap locations:

1. Mosaic of gorse, bracken and heather (10 traps)
2. Log pile adjacent to birch woodland (2 traps)
3. Bramble patch adjacent to birch wood (8 traps)
4. Large patch of soft rush (5 traps)
5. Mosaic of gorse, bracken and long grass (10 traps)
6. Clumps of soft rush adjacent to pond (5 traps)
7. Reed canary-grass adjacent to pond (5 traps)
8. Heather patch (10 traps)
9. Birch woodland with buckler fern (5 traps)
10. Mosaic of gorse, bracken and long grass (5 traps)

Traps were set on the evening of Friday 11 August and checked on Saturday 12 August from 9.30am onwards. They were reset on the Saturday evening and checked again on Sunday 13 August from 9.30am onwards.

Results

Summary of small mammals captured at Allerthorpe Common.

	Site 1		Site 3		Site 4		Site 5	
	Sat	Sun	Sat	Sun	Sat	Sun	Sat	Sun
Common shrew	1	1						
Wood mouse		1	4	3		1		
Toad							1	1

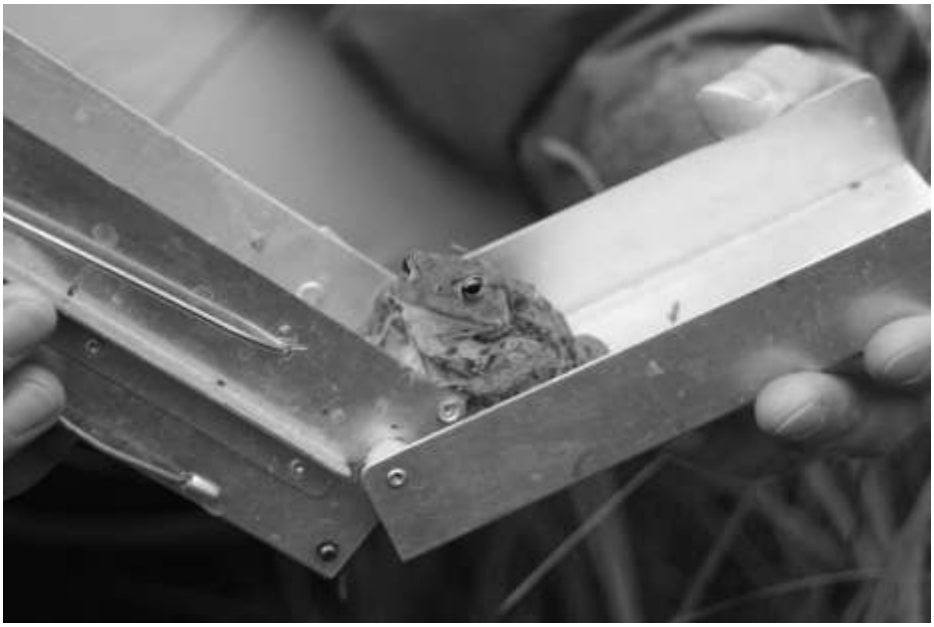
	Site 9		Site 10	
	Sat	Sun	Sat	Sun
Common shrew				
Wood mouse	1	5	1	
Toad				

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

Woodmouse
Photo: Jonathan Proud

Discussion and conclusions

Only two different species of small mammal were caught at Allerthorpe Common over two nights: wood mice (*Apodemus sylvaticus*) and common shrews (*Sorex araneus*). Animals were mainly caught in the drier areas of the reserve such as gorse scrub, bramble patches and birch woodland, with only one wood mouse being found in a trap in a patch of soft rush. Two pregnant and one lactating female wood mouse were caught, showing that breeding was well underway. A trap happy toad was found in the same trap at site 5 on both mornings and seemed to appreciate the blowfly pupae we had provided for him. An additional mammal record was the discovery of a newly dug badger hole behind a gorse bush also at trap location 5.



Trap happy toad
Photo: Jonathan Proud

Thanks are due to all Mammal Group and Yorkshire Wildlife Trust volunteers who helped with this survey, with special thanks to Meg Stark for helping to arrange the trap.

Appendix I

Table of results: small mammal survey at Allerthorpe Common nature reserve, August 2006.

Weather: Cloudy, cool and showery on Saturday morning and wet, windy and warm on Sunday morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
12/8/06				
Gorse/bracken/heather mosaic (1)	Common shrew	?	A	7.0
Bramble patch (3)	Wood mouse	M	A	30.0
	Wood mouse	F	A	23.5
	Wood mouse	M	A	25.0
	Wood mouse	M	A	21.0
Gorse/bracken/long grass mosaic (5)	Toad			
Birch woodland (9)	Wood mouse	M	SA	13.0
Gorse/bracken/long grass mosaic (10)	Wood mouse	M	A	21.0
13/8/06				
Gorse/bracken/heather mosaic (1)	Common shrew	?	A	7.0
	Wood mouse	F	A	26.0
Bramble patch (3)	Wood mouse	F	A	26.0
	Wood mouse	M	SA	17.0
	Wood mouse	M	A	26.0
Soft rush patch (4)	Wood mouse	M	A	27.0
Gorse/bracken/long grass mosaic (5)	Toad (again)			
Birch woodland (9)	Wood mouse	M	A	28.0
	Wood mouse	F	A	25.0
	Wood mouse	F	A	22.0
	Wood mouse	M	J	13.0
	Wood mouse	M	SA	21.0

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

A small mammal survey of Wheatlands Educational Community Woodland (WECW), near York – Oct. 2006.

David Tanner
Wheatlands Educational Community Woodland Group

Introduction

Wheatlands woodland lies 4 miles north west of York and is situated off the A59 with its entrance on Northfield lane, grid reference SE560530. Planted in the winter of 1999 and being laid down over cultivated ground, it is a relatively new woodland. A mixture of British native grasses and wild flowers cover a 5 acre area along with 4,000 native broadleaf trees and shrubs that now gives a developing range of habitats for wildlife. The adjoining arable fields with their associated headlands and hedgerows form part of the 15 acre site and are managed to maintain biodiversity, offering nesting locations for a wide range of birds, butterflies, bees, insects and small mammals.

Methods

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

Trap locations:

1. Long grass at base of trees in young deciduous wood (5 traps)
2. Long grass at base of shrubs abutting arable field edge (5 traps)
3. Open grassy glade (5 traps)
4. Long grass at base of trees in young deciduous wood (10 traps)
5. Log and brush piles under Leylandii hedge (5 traps)
6. Open grassy glade (5 traps)
7. Long grass at base of shrubs abutting arable field edge (5 traps)
8. Long grass, arable field margin leading to woodland (10 traps)

Traps were set at 5.30 on the evening of Saturday 28th October and checked on Sunday 29th October from 9.30am onwards.

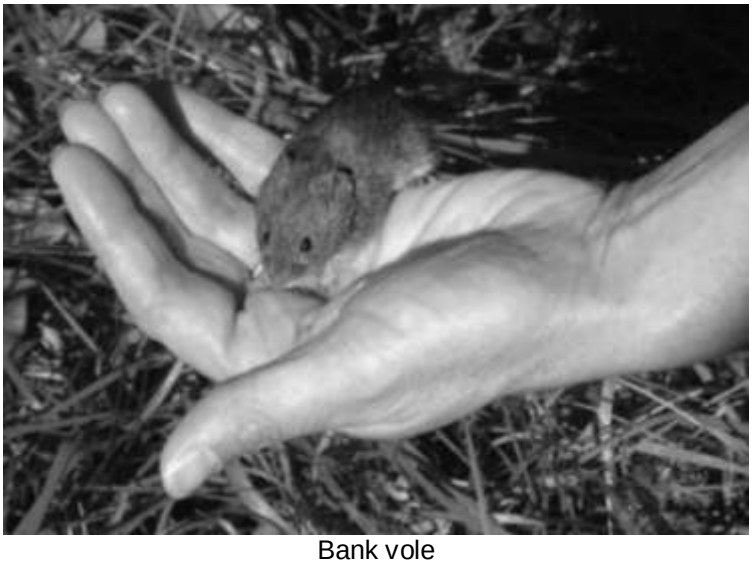
Results

Summary of small mammals captured at Wheatlands in October 2006.

	Young wood (1)	Field edge (2)	Open glade (3)	Young wood (4)	Log pile (5)	Open glade (6)	Field edge (7)	Field margin (8)
Common shrew			1	1		1	2	1
Bank vole	2	1	1		1			
Wood mouse	2	2	1	4	2			4

See Appendix 1 for a comprehensive table of results.

Discussion and conclusions



Bank vole
Photo: Dave Tanner

In all, three different species of small mammals were caught at Wheatlands overnight; common shrew (*Sorex araneus*), bank vole (*Clethrionomys glareolus*) and wood mouse (*Apodemus sylvaticus*).
A greater proportion of wood mice were caught, which is to be expected with the type of terrain. It is still a young woodland and the habitats are still being established, though after six years, a good foundation for mammals to exist in should be in place. 50% of the traps were successfully activated with two others having been visited, but not tripped, and evidence of droppings on

another two. The survey was taken in the autumn season and the vegetation varied in length from site to site due to the grass dying back. This could be due to it being mown on a yearly basis between the trees (every other strip) to promote an impoverished soil so as to encourage wild flowers to grow. The barley fields had also been cut leaving only short stubble. It will be interesting to monitor if there are any other species of mammals within the woodland with future trapping during the summer months whilst the grass is lush and the field crop is in full growth. Sightings of weasel have been seen along with fox, sparrow hawk and kestrel, which would indicate a healthy population of small mammals within the woodland.

Woodmouse
Photo: Dave Tanner

Thanks are due to all Mammal Group and Wheatland Woodland Group volunteers who helped with this survey.

Appendix I: Table of results: small mammal survey at Wheatlands Woodland October 2006

Weather: Days of rain followed by a drop in overnight temperature (whilst the traps were operational), leading to a cold clear sunny morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Young wood (1)	Bank Vole	F	SA	12.0
	Bank Vole	F	A	14.5
	Wood mouse	M	SA	14.5
	Wood mouse**	F	A	29.0
Field edge (2)	Wood mouse	M	J	11.0
	Wood mouse	M	SA	16.0
	Bank Vole	F	A	13.0
Open glade (3)	Common shrew	?	A	7.5
	Wood mouse	F	SA	14.0
	Bank Vole	F	A	12.5
Young wood (4)	Wood mouse	F	A	18.5
	Common shrew	?	A	7.0
	Wood mouse	M	SA	190
	Wood mouse	M	A	21.0
	Wood mouse	M	SA	18.5
Log pile (5)	Bank vole	M	A	16.0
	Wood mouse	M	A	21.0
	Wood mouse	M	SA	17.0
Open glade (6)	Common shrew	?	A	7.0
Field edge (7)	Common shrew	?	A	6.5
	Common shrew	?	A	7.0
Field margin (8)	Wood mouse	M	SA	10.5
	Wood mouse	F	A	16.0
	Wood mouse	F	A	13.5
	Common shrew	?	A	8.0
	Wood mouse	F	SA	12.5

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

A small mammal survey at Ledsham Banks nature reserve.

Ann Hanson

Introduction

Ledsham Banks is a lovely area of limestone grassland with patches of scattered hawthorn scrub and brambles just outside the village of Ledsham, near Castleford, grid reference SE460298. Managed by the Yorkshire Wildlife Trust, the site is grazed by cattle and Hebridean sheep. The Mammal Group carried out a small mammal survey on the site in September 2006, to which local people were invited.

Methods

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

Trap locations:

1. Hawthorn scrub and brambles – top of bank (7 traps)
2. Small bramble patch within grassland (4 traps)
3. Large bramble patch – top of bank (15 traps)
4. Woodland edge – bottom of bank (5 traps)
5. Grassy bank – mid-slope (5 traps)
6. Bramble patch – top of slope (6 traps)
7. Hawthorn scrub by field edge - no ground cover (8 traps)

Traps were set on the evening of Friday 15 September and checked on Saturday 16 September from 9.30am onwards.

Results

Summary of small mammals captured at Ledsham Banks.

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

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

Discussion and conclusions

Four different species of small mammal were caught at Ledsham Banks overnight, including nine wood mice (*Apodemus sylvaticus*), one bank vole (*Clethrionomys glareolus*), one field vole (*Microtus agrestis*) and four common shrews (*Sorex araneus*). Most of the animals were caught in bramble patches within the grassland, with a solitary bank vole being found in the grassland itself. Three wood mice were caught in the edge of the woodland adjacent to the reserve, where there was no ground cover at all. Several locals from Ledsham village came along to the trap and were treated to a good turn-out of small mammals.

Thanks are due to all Yorkshire Mammal Group volunteers and locals from Ledsham village who helped with this survey.

Appendix I

Table of results: small mammal survey at Ledsham Banks, September 2006.

Weather: Clear, dry night, followed by a warm, dry morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Hawthorn scrub and bramble (1)	Wood mouse	F	A	21.0
	Common shrew	?	A	8.0
	Wood mouse	M	A	26.0
Bramble patch (3)	Wood mouse	F	SA	15.0
	Common shrew	?	A	7.0
	Wood mouse	M	SA	15.0
	Field vole	F	J	15.0
	Common shrew	?	A	7.0
Woodland edge (4)	Wood mouse	M	J	13.0
	Wood mouse	M	A	20.0
	Wood mouse	F	SA	13.0
Grassy bank (5)	Bank vole	F	SA	11.0
Bramble patch (6)	Common shrew	?	A	7.0
	Wood mouse	M	J	14.0
	Wood mouse	F	A	27.0

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

A small mammal survey with Norton Watch group at Norton Ings, near Malton.

Ann Hanson

Introduction

This joint event with Norton Watch Group found us in an area of rough grassland and marsh alongside the River Derwent at Norton-on-Derwent, grid reference SE794716. This site used to flood regularly, but the flood banks were increased in size a few years ago and this no longer happens. One side effect of the new flood banks is that the site no longer drains into the river as effectively as it used to and the area of ponds and reedbeds has increased in recent years. Several different habitats are available for small mammals and harvest mouse nests have been found in the reeds in the past.

Methods

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

Trap locations:

1. Old railway embankment, brambles (6 traps)
2. Old railway embankment, rough grass (4 traps)
3. Marsh, tufted hair grass (10 traps)
4. Rushes alongside pond (5 traps)
5. Reedbed edge (10 traps)
6. Marsh edge, great willowherb and meadowsweet (10 traps)
7. Long grass at edge of old orchard (5 traps)

Traps were set on the evening of Saturday 16 September and checked on Sunday 17 September from 9.30am onwards.

Results

Summary of small mammals captured at Norton Ings.

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

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

Discussion and conclusions

Five different species of small mammal were caught at Norton Ings overnight, including two wood mice (*Apodemus sylvaticus*), five bank voles (*Clethrionomys glareolus*), six common shrews (*Sorex araneus*), one water shrew (*Neomys fodiens*) and one harvest mouse (*Micromys minutus*). Animals were found in several different habitats, with the brambles along the old railway embankment and the reedbed edge having the most successful catches. The water shrew and harvest mouse were especially exciting and the overall impression is that this site is an excellent location for several species of small mammal. Two of the common shrews captured had white ear tufts, a coat pattern that seems to occur quite often in shrew populations. In addition to the small mammals, we also recorded one toad, one frog and a clouded yellow butterfly on Norton Ings.

Thanks are due to Sue Holmes and Norton Watch Group and all Mammal Group volunteers who helped with this survey.

Appendix I

Table of results: small mammal survey at Norton Ings, September 2006.

Weather: Dry overnight, with a warm, slightly misty morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Railway bramble (1)	Common shrew	?	A	8.0
	Wood mouse	M	SA	13.0
	Bank vole	F	A	14.0
	Bank vole	F	A	14.0
Marsh (3)	Common shrew	?	A	7.0
Reedbed edge (5)	Bank vole	F	A	15.0
	Wood mouse	M	J	10.0
	Harvest mouse	M	A	4.0
	Common shrew	?	A	7.0
Marsh edge (6)	Bank vole	F	A	13.0
	Water shrew	?	A	10
	Common shrew	?	A	7.0
Orchard edge (7)	Common shrew	?	A	8.0
	Bank vole	F	A	15.0
	Common shrew	?	A	8.0

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

"There and back again" – a report of YMG mammal recording walks 2006.

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

Wandering along the Wharfe at Tadcaster – 11th March 2006

Our first walk of the year started off well when eagle-eyed Rob spotted some fresh otter spraint under the bridge that crosses the Wharfe in the centre of Tadcaster. Spraint has been found up-river from Tadcaster previously, but not this far downstream, showing that otters are coming over or round the weir. Next to be spotted was the body of a wood mouse, also under the bridge and probably the victim of a local cat. We started to walk along the river towards Newton Kyme and found numerous mole hills on the floodbank next to St Mary's Church. Just past the viaduct we were treated to an excellent sighting of a large mink running along the opposite bank of the river, threading in and out of the bankside trees. Not sure how the local fishermen will feel about him! Rabbits and a curlew were spotted in fields further along the river and a fox scat was located on a mole hill just before Newton Kyme. We turned away from the river at this point to walk back round to Tadcaster through the fields. A grey squirrel was seen in the trees in Newton Kyme village and a large mixed flock of goldfinches and greenfinches on the hedges along Rudgate. Last sighting of the day was two hares in the fields near Smaws Farm as we headed back to town and the local tea shop!

Following on at Fountains Abbey – 9th April 2006

April found a few YMG members meeting at Fountains Bridge car park for a circular walk around Fountains Abbey. On the track just off Fountains Lane, we found an owl pellet containing a field vole tooth alongside the Abbey Wall. Further along by Stanks Pond we noticed badger and rabbit tracks in the mud and rabbit droppings and squirrel eaten fir cones in the edge of Robin Hood's Wood. We stopped in the wood to eat our lunch and were treated to a scolding grey squirrel on the wall alongside the wood.

Red deer
Photo:Robert Masheder

After lunch, we crossed part of the deer park and admired the herd of handsome red deer. We also admired some mole hills down by the lake. Following the river up from the lake, we found some brown rat droppings on the riverbank and a dead hedgehog floating in the river near the first foot bridge. The distinctive smell of fox was noticed by the middle foot bridge and a stoat scat was found next to the wall in the edge of the woods a bit further along. Last sighting of the day was again two hares (surely not the same two hares) in the fields by the visitor's centre, where we stopped for a well-earned cup of tea and a cake.

Many thanks to all who came along on this year's rather limited selection of walks. Any tea shop (sorry – walk) suggestions for 2007, just let me know and I'll be happy to try and oblige.

Bats, bat detectors and echolocation.

John Drewett

In this article I will attempt to give some background information about bats and echolocation and some guidance on the advantages and disadvantages of different types of bat detector. This is in response to the growing number of enquiries I receive from members and others thinking about buying a detector. This information will be expanded upon at a talk to the Yorkshire Mammal Group in autumn 2007. By having some information now you will have the chance to first gain some experience over the next summer!

There are approximately 1000 species of bats in the world. Roughly 20% are classed as Megachiroptera, the fruit bats, the rest being Microchiroptera which are predominantly insect eaters. Other than some simple (but effective) echolocation in the Egyptian Fruit Bat, the Megachiroptera do not echolocate. All the Microchiroptera echolocate. Only Microchiroptera are found in Britain.

Whilst bats have perfectly good eyesight, if you imagine trying to find tiny insects whilst flying in total darkness through the vast open space that is the air, you will appreciate how difficult that would be by sight alone. So bats have evolved echolocation which, very simply, is making sounds, listening for the echoes bouncing off objects around them and building up a 'sound picture' of their surroundings.

Sound in air travels at approximately 340 m/sec. The pitch depends on the wavelength and is measured in Hertz (Hz). At one cycle per second (1Hz), the wavelength is 340m. Such very low sounds can travel long distances and bend around objects. High pitched sounds are attenuated in air, so travel relatively short distances and are reflected by objects. Sounds are reflected best if the wavelength of the sound is roughly the same size as the object. For a small bat calling at 50kHz (50,000Hz), the wavelength is 6.8mm, which is roughly the size of a small insect which might provide food. Bigger bats, such as Noctules, prefer bigger insects. This means a lower pitched call, around 20kHz (wavelength 17mm – similar to a large beetle or moth).

As humans cannot hear above 20kHz (most of us don't even come particularly close to that) we call the high pitched sounds that bats make,

ultrasound. They are above our hearing range, so we need special devices to hear them. For 'listening' to bats, we use bat detectors.

There are three main types of bat detector; heterodyne, time expansion and frequency division.

The heterodyne detector is the commonest and cheapest. The detector converts the bat call to an electronic signal which is compared with a variable internal signal that is adjusted by turning the tuning dial. We hear the difference, which is within our hearing range. Such detectors are very sensitive and emphasise the differences between calls in the field which, with a bit of practice, enables the easy identification of some species. The disadvantages of heterodyne detectors is that you have to be tuned to the right frequency for your bat, you miss bats on other frequencies and it is hard (impossible?) to distinguish a number of species from each other.

Time expansion detectors store the whole of the incoming call and play it back at a slower speed, making the sound audible. Remember back to when vinyl records had to be played at the correct speed. Playing your record at too low a speed reduced the pitch. This has the advantage that time expanded sounds are 'real', albeit slower. Also, the detector scans all the frequencies, so there is no need for tuning. As all the components of the call are real, if the output is recorded onto tape or disk, the sounds can later be analysed on a computer. The resulting sonograms for many species can be quite distinctive and as experience grows more species can be identified. However, because the detector needs time to process the slowed down call, not all calls will be recorded.

Frequency division detectors transform the whole ultrasonic signal into audible sound without tuning. The incoming signal is checked by the detector counting 'zero crossings' of sound waves and producing a single wave for every ten. This system retains all the amplitude and frequency information in the call and the bat call can be heard in real time. Like time expansion, recordings can be analysed on a computer to produce sonograms. The disadvantages of this system include the loss of call harmonics. Also, you really need to analyse your recordings later, as field identification is difficult to impossible.

So, if you want to identify bats in the field you really need to practice hard using a heterodyne detector. You can buy CDs with bat calls to listen to and

you can go out with an 'expert' to get practice in. You have to be careful. If you start off convincing yourself that you have heard a Pipistrelle when it's really a Whiskered bat, then the chances are you'll always think that.

For serious work you'll eventually want to use time expansion or frequency division. Then you can record calls, look at them on a computer, email them to others for their opinion and compare them with reference sonograms of known bats. And don't forget, there are detectors on the market that combine heterodyne with time expansion or frequency division, so you have both options available.

Even then, don't expect to identify every bat you hear. Like us, they vary in the clarity of their voices, they make different calls in different circumstances or in unusual places, so there will always be a proportion of bats that you can't identify unless they are in the hand. Good luck!

Mammal Snippets.

Compiled by Mary Youngman

New mouse species found in Cyprus.

A new endemic species of the subgenus *Mus* (Rodentia, Mammalia) on the Island of Cyprus. Zootaxa 1241: 1-36 (2006) Cucchi, T. et al.

A new species of mouse has been discovered on Cyprus, apparently the first new terrestrial mammal species to be discovered in Europe in decades. It has been named *Mus cypriacus*, the Cypriot mouse. This new species of mouse has bigger ears, eyes, teeth and a longer tail than other European mice and is found only on Cyprus. DNA analysis indicates that the species arrived on the island during the Middle Pleistocene.

Mus cypriacus (Photo Durham University)

Estimating the relative abundance and temporal activity patterns of wood mice (*Apodemus sylvaticus*) by remote photography in Mediterranean post-fire habitats.

Torre, I., Peris, A., Tena, L. Galemys 17 (special issue): 41-52, 2005.

This was a study to evaluate whether remote photography can be used to assess relative abundance and activity patterns of wood mice. A grid of compact cameras with remote sensors (infrared beam) and bait was established in two types of post fire succession habitat; shrublands and pinewood, within the Garraf Natural Park, Barcelona, Spain.

Photographic contacts results were found to be comparable to results from concurrent live trapping. Thus remote photography was found to be a valid and alternative method to estimate abundance and activity patterns in these habitats. The photography also revealed exploratory behaviour by the mice of the new structures (cameras etc) in their territories, and communal feeding at the baiting stations.

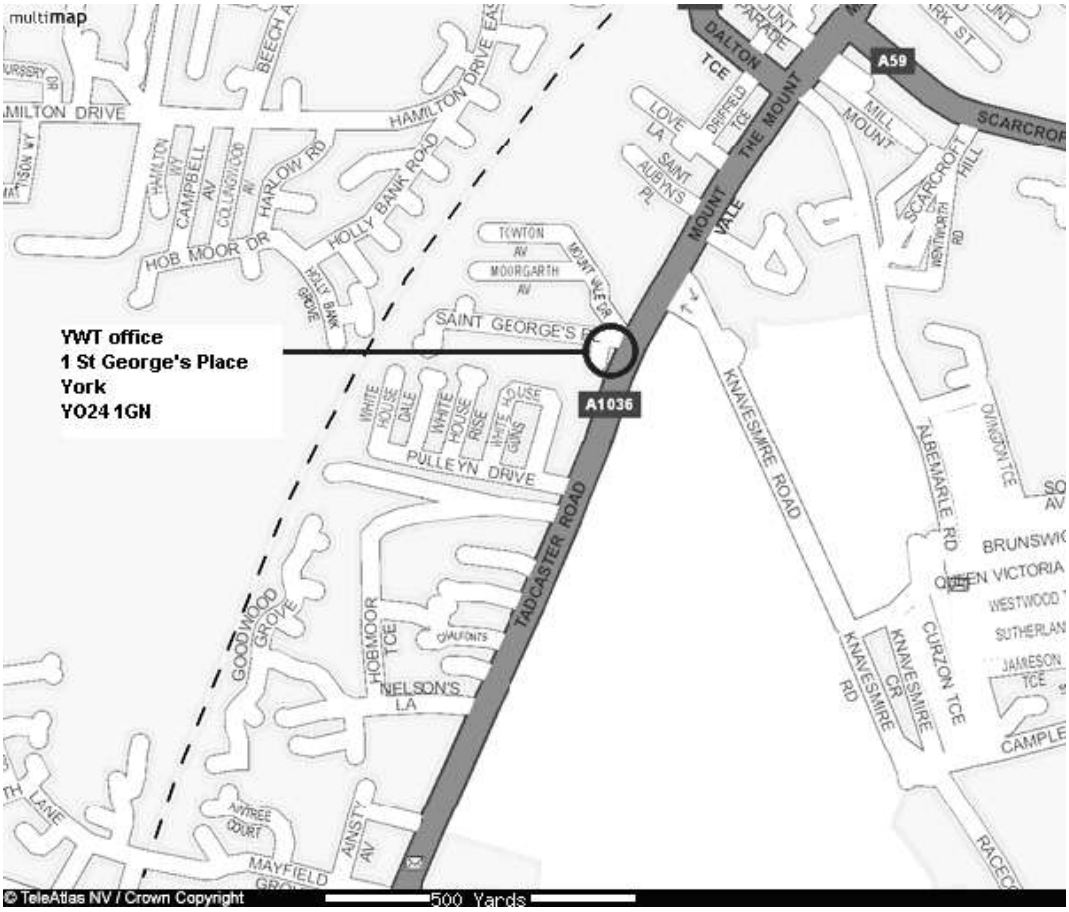
Non-intrusive monitoring of otters (*Lutra lutra*) using infrared technology.

C. Garcia de Leaniz, D. W. Forman, S. Davies & A. Thomson
Journal of Zoology 270: 577-584, 2006

This study was the first to demonstrate the utility of using submerged infrared beam counters for remote monitoring of Eurasian otters *Lutra lutra* under natural river conditions. Infrared counters were deployed in tributaries of the River Dee, Scotland. Silhouette images were produced each time an infrared beam was interrupted by a passing object. Adult otters could be identified from the silhouettes by the shape and size of the images, plus silhouettes were initially compared with images taken of otters with underwater video cameras. The authors were able to extrapolate minimum census estimates, diel and seasonal activity patterns and body size and swimming speed estimates from the silhouette images. This non-intrusive monitoring method has potentially a number of applications for ecological and conservation studies of this and other elusive riparian mammals.

Yorkshire Mammal Group programme 2007.

January 4th	AGM & Quiz night
February 1st	Peter Lurz – Red squirrels
March 1st	Alastair Ward – Badgers and farmland usage
April 5th	Andrew Cleave – title to be confirmed
May 3rd	Penny Rudd - Harvest mice
October 4th	John Drewett – Bat detectors
November 1st	Sugoto Roy – Mink on the western Isles
December 6th	To be confirmed



YMG Indoor meetings are held at the Yorkshire Wildlife Trust office, 1 St George's Place, Tadcaster Road, Road, York. From 7pm (talks starting at 7.30pm).

YMG Membership: Individual £15; Joint £20; Students/unwaged/OAPs £7.50.