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John Ray

There was a full complement of events during the year.

Guest speakers in the cooler months included Daniel Franks on the Menopause in Orcas, Ann Hanson and Rob Mashedor with a Canadian Mammalogue, Ian Court on the Reintroduction of Dormice, Rachel Midgley on the Bats of Malawi, Johnny Birks about Pine Martens (organised by Yorkshire Wildlife Trust) and Barry Wright on the Foraging Behaviour of Bats. We thank Natasha Hambly for arranging them.

Throughout the year there were walks in the North and West Ridings, organised by Ann and Rob. In the warmer months, small mammal trapping surveys were conducted at Pocklington Canal, Hagges Wood Meadow, Keswick Marsh and Ravenscar. Thanks again to Ann and Rob for organising them, assisted in the field by Mary Youngman amongst others.

YMG were represented with a stand demonstrating owl pellet analysis at Stillingfleet Lodge Gardens, Hagges Wood and Dalby Forest wildlife days. Thank you to Natasha for keeping us advised of forthcoming events via our newsletter, circulated by John Drewett, to whom we are grateful for continuing to administer membership.

Thanks to Amy Jane-Ber for publicising our activities via traditional and social media.

We are again grateful to Rob for keeping our accounts up to date.

Our 2018/2019 season of talks will take place in St. Olave's Church Hall, Marygate Lane, York, YO30 7BJ on the second Thursday of the month. Members are encouraged to attend to listen to the speakers, who are interesting, give their time freely and in some cases travel a long way.

Finally, thank you to the contributors to Imprint, and particularly to Andrew Halcro-Johnston for editing it.

[And thanks to John for taking on the role of Chairman for 2017 – Ed.]

Harvest mice in the North York Moors National Park and the consequences of a field vole population crash

Derek Capes

1) Introduction

This brief note gives the results of work carried out in 2017 on the continuing search for evidence of Harvest Mice in the pellets of Barn Owls from the North York Moors National Park. The survey started in earnest in 2013, and arose from queries about the current status of harvest mice in view of the few recent records in the area. These were generally from the periphery of the Park with few records coming from the interior. Accounts of earlier work on the survey can be found in Imprint No. 41 (2014) and No. 42 (2015).

2) Results

Thirty one samples of barn owl pellets have been analysed to identify the skeletal remains of the prey items. The samples mostly submitted by pellet donors, came from 25 sites within the National Park, and with second samples taken from 6 of these sites. The number of pellets analysed was in excess of 1200 (imprecise due to the fragmented nature of some pellets from a number of sites). The mean number of pellets/sample was 39, ranging from 2 to 195.

A total of 37 prey items identified as harvest mice were found in 15 samples from 11 of the sites, 6 of these being new positive records.

Including results from earlier years, the overall totals for the work to date stand at 78 sites from where pellet samples have been analysed, 27 of which were found to contain positive evidence of harvest mice (34.6%). It is of interest to note also that 9 of these positive sites have continuity spanning 2 or more years.

3) Comments

Only 31 samples were analysed in 2017 due to time constraints, significantly fewer than in 2015 and 2016 when 51 and 68 were processed. However, the fact that 6 sites where harvest mice were recorded for the

first time in this work was a favourable outcome. Two of the new sites were located in Eskdale, 2 in Rosedale, 1 near Goathland and 1 at Appleton-le-Moors.

The work has also generated a substantial set of data on other barn owl prey, the most important of which is the field vole, and it was interesting to notice that their consumption tended to be generally lower in some areas and to varying extents, than for the past few years. A most outstanding example of this was seen in a series of samples from a site in upper Rosedale. Examination of the analysis of these samples (Table 1), provides a good example of the development of a characteristic field vole population crash over time. In the last of the three samples, the percentage of field voles had fallen to a mean value of 6.1% and of the 72 pellets making up the sample, no evidence of field voles was found in 45 of them.

It is clear that as a consequence of the lack of field voles, energy demand was met by increased consumption of alternative prey (Table 1). The percentages of common and pygmy shrews increased markedly to 46.6% and 36.6% respectively. One pellet contained 17 prey items, 8 common shrews and 9 pygmy shrews, and a further 32 pellets had prey items also into double figures. Furthermore, not all foraging flights will be successful. It can be seen that this represents a considerable increase in energy demand for foraging, compared with that needed to catch 3 or 4 field voles under more normal conditions.

The field vole is not only a major prey item for barn owls but also for many other predators such as stoats, weasels, foxes, many avian raptors and adders, and it would be interesting to learn how their diet has been adapted in these times. It may be significant that the highest number of harvest mice recorded from a single sample in the whole of this project to date, were the 8 found in this sample. In less demanding times they may have been passed over for the more substantial field vole.

4) Conclusion

Work has continued to establish the distribution of the harvest mouse in the North York Moors National Park. There are still many areas which remain to be surveyed, but where samples of owl pellets have been obtained, approximately one third have provided positive evidence of harvest mouse presence. The middle reaches of the Esk and Murk Esk valleys have provided most records to date and this is a reflection of the endeavours of the pellet donors in that area.

5) Acknowledgements

My sincere thanks go to Brian Nellist, Wilf Norman, Mags Walshaw, and Geoff Myers for their interest in the work, and invaluable assistance as pellet donors.

Table 1: Development of a Field Vole Population Crash & Resultant Changes in Composition of Barn Owl Diet.

Date		6.7.16	6.2.17	9.10.17
No of Pellets		38	195	72
Field Vole	No %	86 68.8	325 31.1	38 6.1
Bank Vole	No %	2 1.6	7 0.7	4 0.6
Wood Mouse	No %	6 4.8	52 5.0	47 7.5
Harvest Mouse	No %	- -	4 0.4	8 1.3
House Mouse	No %	- -	- -	- -
Brown Rat	No %	5 4.0	33 3.2	2 0.3
Common Shrew	No %	13 10.4	363 34.8	291 45.6
Pygmy Shrew	No %	9 7.2	237 22.7	229 36.6
Water Shrew	No %	1 0.8	7 0.7	- -
Other Mammal	No %	1 Mole 0.8	1 Mole 0.1	- -
Bird	No %	2 1.6	14 1.3	7 1.1
Amphibian	No %	- -	1 Frog / Toad 0.1	- -
Mean Prey Items per Pellet		3.29	5.21	8.69

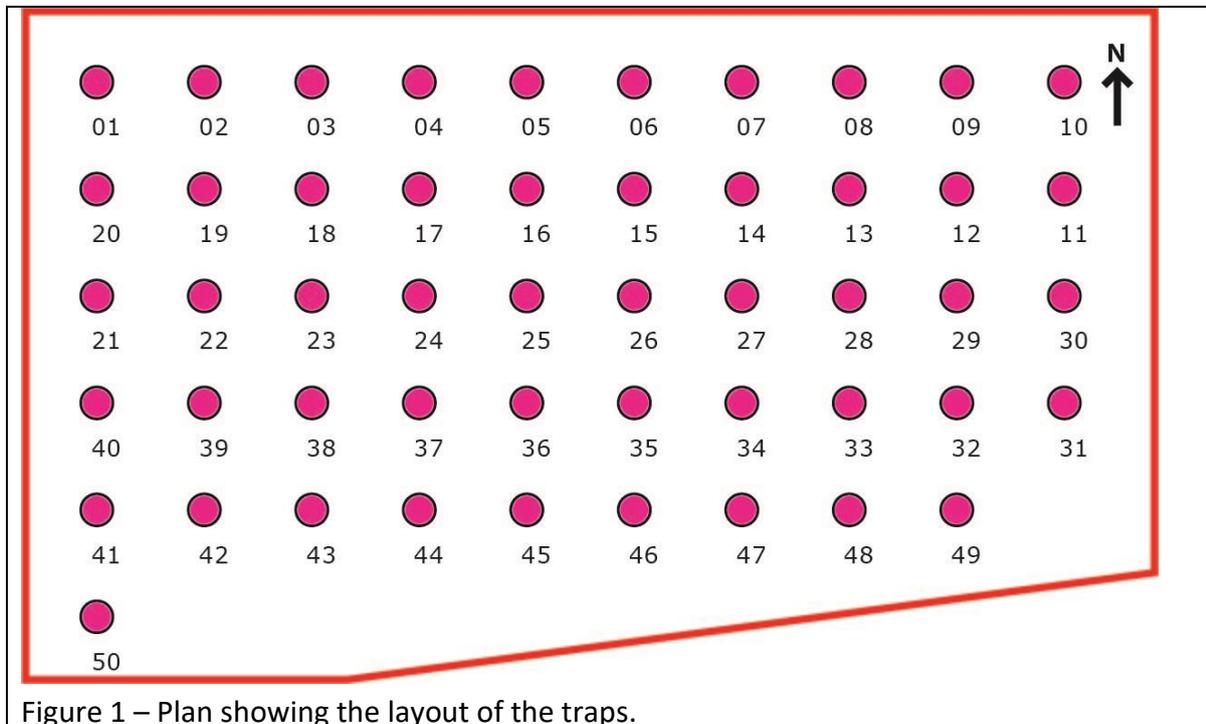
Small mammal trapping at Sandhole Wood Nature Reserve, Tockwith

Barry Wright

During the half term at the end of October 2017 the Ainsty Conservation Society repeated a small mammal trapping survey of the nature reserve at Sandhole, Tockwith. The wood was originally planted in 1996 and has now achieved full canopy cover and is surrounded by tall hedgerows. The canopy varies in density as the wood was planted with a wide variety of native trees as a demonstration. Some areas are particularly shaded e.g., towards the NE there were Hornbeams planted that are deep shade-casters. Also, towards the mid-line the canopy was dense enough to suppress ground flora (see Figure 5).

The earlier survey was done when the woodland was relatively new and the trees were small and a complete canopy had not yet established. Because of this we recovered unusual species like Harvest Mouse as well as abundant Pygmy and Common Shrews. Now that the canopy has fully closed it was a good opportunity to revisit the reserve and find out what was there now. In addition to our aims of finding out what was there, we timed the work to be during the school half-term to give an opportunity for pupils to come along and see what was being done and hopefully see a range of our small mammals. We also invited the Youth Club and Scout Group in addition to our own membership and readers of our parish magazine.

As previously, we set out a grid of Longworth traps. These were spaced out at 10m intervals across the entire reserve. The reason for doing this is that we would be able to determine which parts of the wood were being used by which species and also we would be able to see whether individual animals were moving from one trap group to another and get some idea of the range of movement of individual animals. The traps were set for 5 trap-nights on 23 October with the first am results on the 24th. The final inspection and removal was on the 29th. The layout of the trap grid within the wood is shown at Figure 1.



To enable individual animals to be identified each was given a unique combination of small fur clips as shown on the picture at Figure 2. Initially we predicted a relatively low number and planned on using a the various combinations from using 4 marks – Front Right - FR, Front Left - FL, Rear Right - RR and Rear Left - RL but quickly had to go to six, adding in Mid Right - MR and Mid Left - ML. This allows for 56 permutations. After this the whole process would start again using a punk hairdo mark on the head, giving 112 total marks.



Initially each of the trap group comprised two traps. If only one trap was occupied all was well. But if both traps were occupied, this may indicate that there were more individuals in the area and that we may have failed to catch a third or even fourth individual. To remedy this we installed a third or fourth trap and continued increasing the number until we always had at least one trap still open when they were inspected (see Figure 3). The maximum we needed to go to was four at trap group 24. The trap groups where we had to go to three traps were 1, 7, 11, 20, 23, 26, 31, 39, 43, 44, 45 and 48. These were mainly in the well vegetated areas, except 7 that was leaf litter.



Figure 3 – A trap group augmented to 3 because previously both original traps were occupied.

The results were largely as expected, being a mixture of Wood Mice and Bank Voles. Unfortunately we did not recover any shrews of either species. The most abundant species was the Wood Mouse at 44 individuals with five Bank Voles being recovered as well. Surprisingly there were still 4 new Wood Mice caught on the last morning. Perhaps we should have

continued until we had no new animals for a couple of nights. The number of new captures of Wood Mice each morning was 6, 7, 10, 9, 2, 4. This indicated possibly that it either takes time for the mice to find the traps or it takes time for the human smell to dissipate?

The Wood Mice were nearly always caught on the morning session. Bank Voles, were also caught in the evening sessions. To popularise the captures for the public the animals were given their individual marks and also name. One that was very popular was 'Graham the Bank Vole'; he loved trap point 50, being caught there four days on the trot including being caught am and pm on day 4 (see Figure 4).

SPECIES: BANK VOLE									
	M/F	Name	24	25	26	27	28	29	30
1	M	GRAHAM				50C	44B	44C	
FR			50B	50B	50C	50B	44C		

Figure 4 – the records for Graham showing his mark (FR) and where he was caught. Top row are am and bottom row pm captures for each trap group number and trap letter.

But then he went to see friends for a couple of days over at number 44 where, again he was turfed out am and pm, much to his displeasure. Although there were 44 Wood Mice caught only 37 (see Table 1) were identified to sex as some 'slipped' the net and escaped. But there was a good balance between the sexes of those that didn't mind having a new hairdo.

Many individual were caught all week in the same trap group and quite often in the same trap. We labelled each trap in the groups a, b, c, d etc., for that reason to see if they preferentially went back into their initial trap that would presumably have their scent on after the first encounter. Animals like Nat who was always in trap group 39 but moved from trap B, to C to A, to B. Albert liked 48A for a couple of days but didn't like the view and couldn't settle so he moved to 48C for the rest of the week.

As for animals moving between trap groups there were not many confirmed instances. Unfortunately the 'hairstylist' was a bit amateur and some marks were not very clear and some animals appeared to make long excursions when all it probably was, was that it was marked FR, but on

recapture it was taken as MR. Most confirmed movements were only one trap group or 10m, with a few genuine movements of 20-30m.

Species	Males	Females
Bank Vole	3	2
Wood Mouse	18	19

The main interest was the correlation between captures and vegetation cover. Each trap group was photographed and the vegetation around the traps given an estimate of the percentage cover of vegetation in 10% classes, with the unvegetated ground being leaves.

The map at Figure 5 shows the cumulative captures at each trap point along with the cover of vegetation at each trap point as shown by the size of circle. There is a strong relationship between cover and captures. The captures are cumulative per trap group where the captures could be the same animal day after day or different animals on different occasions i.e., a value of 5 could be one animal on each of the five days and 2 could be two animals in the same, or different days. Where there is little cover and just leaf litter there were very few captures, e.g., to the top right (NE) and a belt left to right in the middle. The greatest numbers of captures were in areas with dense vegetation covers (large circle and high numbers).

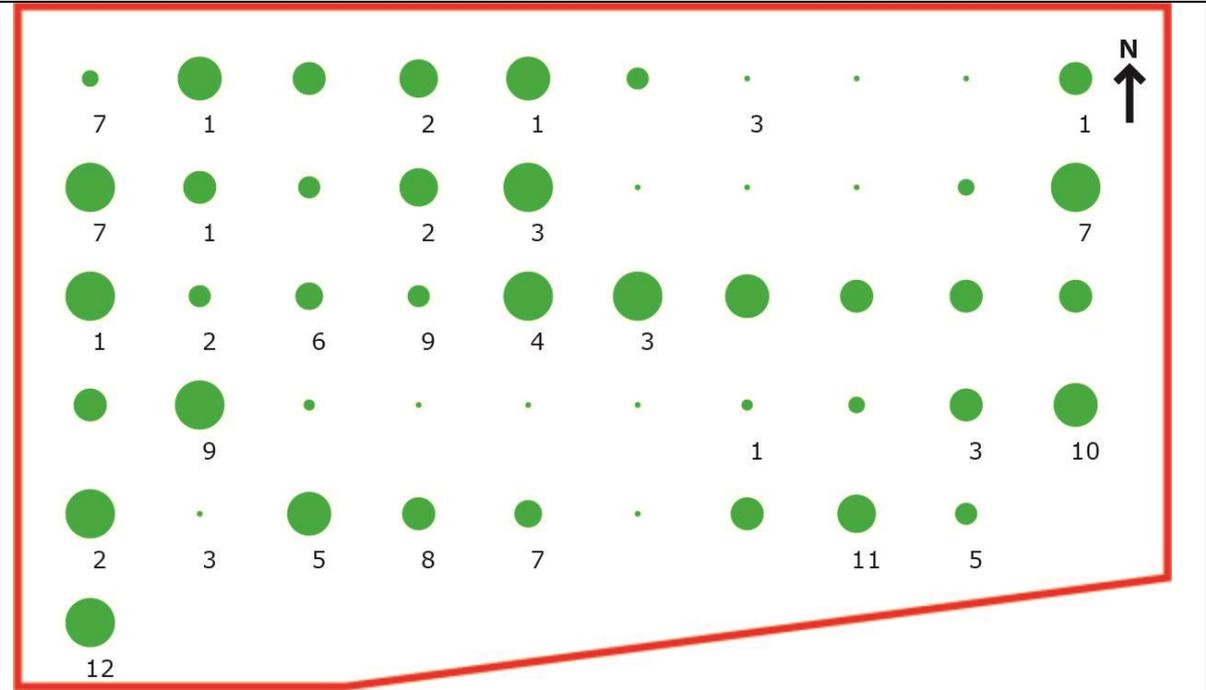


Figure 5 – The number of cumulative captures at each trap point along with the cover of vegetation represented by the size of circle.

It was a very useful and informative exercise. If anyone would like more detailed data please visit my website at www.dryadecology.co.uk or contact me at barry.wright@me.com (tel: 07817 564954) to discuss. They are lovely creatures. Wood Mice are like miniature kangaroos. Bank Voles are much more 'English'. Both have very sharp teeth and don't like going to the 'hairdressers'! And, sad in a way, if we didn't have small mammals like these we wouldn't have owls, Kestrels and Stoat and Weasels.

BATPODS – A method for monitoring the foraging and directional movement of bats along linear features

Barry Wright

Introduction

Bats are difficult to survey, they don't stick to normal daylight working hours and they don't make any noise that we can normally hear as they happily fly around in total darkness. BATPODS were developed out of a combination of boredom and frustration. The boredom from sitting on damp grass next to hedgerows in the dead of night attempting to determine if, and how bats were using hedgerows scheduled to be severed by a road scheme. The frustration was the frustration of hearing bats flying above you and not knowing which direction they were travelling.

The method I was initially taught to use involved sitting with a heterodyne bat detector for fixed periods of 1 or 2 hours recording all bat passes. One of the major drawbacks was that it would be unreasonable to expect someone to sit from dusk till dawn and record every passage of bats above them throughout the night. You were only sampling for a fraction of the hours of darkness that was not giving a full picture of the night's activity. But the main issue was that there was no means of knowing the direction the bat was flying; whether the bat passes were the same bat moving in one direction and then returning, or whether it was a sequence of bats flying out from a roost site in the same direction early in the night and returning later. The answer was BATPODS.

BATPODS were designed primarily to monitor bats using hedgerows, but can be applied to any linear feature, canal, river, road, railway or even walls and fences. The basic principle is simple. Two bat detectors are set in the hedgerow separated by at least 3m, preferably 5m (see Figure 12.6).



Figure 12.6 – Two BATPODS set into a hedgerow (closer together than normal for clarity in the photo)

The output from the two detectors are directed into a stereo digital sound recording device, the output from one detector being sent to the left channel and that of the other being sent to the right channel. As long as you record where each detector, left or right is in the hedgerow, when you listen to the recording you might hear a bat in the left speaker (or headphones) first then you will hear it move across to the right speaker.

Knowing where each detector was tells you which way the bat moved down the hedge and across the BATPODS. The technique has adopted the name of BATPODS because of the need to keep the equipment dry if it rained (unexpectedly) during the night. The equipment is housed inside a modified 2L clear plastic drinks bottle (re-cycled Great Crested Newt bottle traps) to make the POD. This was tested on rain-free nights to ensure that the thickness of plastic did not affect the sound getting to the microphones in the detectors. The thin plastic has little impact on the intensity of the sound passing to the detectors. These PODS can be stuffed into the top of hedges, strapped to shrub stems, or mounted on special bat stakes either near ground level or higher up.

Equipment

In terms of using the equipment one of the fundamental issues is ensuring that the battery life and the recording capabilities are sufficiently long to continue to work from dusk until dawn throughout the bat activity season with the changing length of darkness during the summer. The equipment is capable of running for a minimum of 15 hours continuously. The batteries in the detectors are capable of lasting for 15 hours and the batteries in the recorder – an Olympus LS-12 – are capable of recording continuously for 18 hours. Depending on the length of darkness this can mean that the detectors can be set in place relatively early in the evening and left to run until late morning. Both the detectors and recorder have been tested using rechargeable NiMH batteries. It is also important to check the recorder you buy that, should the batteries become exhausted, is the file in the recorder closed and saved rather than being lost.

Another practicality of installing the detectors is to ensure they perform their function and are not interfered with. Ideally they should be placed as high in the hedge as practicable and as far apart as possible. Our detectors are fitted with 5m long leads, but longer leads could be used if needed. This might be the case if the objective of the survey was to monitor the movement, or lack of movement, of bats across significant gaps in hedgerows. Although a 20m lead might be advantageous, the same data could be obtained by placing a pair of BATPODS at one side of a gap only. Using this option any bat crossing the BATPODS, either entering or leaving the gap would be recorded as a single passage in one direction. If the bat entered the gap and immediately turned and returned this would feature as two registrations in quick succession in opposite directions.

It is obviously very important to know the layout of your detectors as this will reflect in the directional movement that can be presented as the result. The convention we have adopted is that the detectors are installed from one side of the hedge. Whichever side that is, the BATPODS are placed with the left channel POD (this one normally houses the recorder) to the left and the right channel POD to the right. The detectors point upwards as most bat passes are expected to be above the top of the hedgerow. The angle of detection of the Batons is wide, unlike the 45° cone that an Anabat delivers.

Having been developed in Yorkshire it is obvious that no expense has been spent in developing this equipment. The plastic drinks bottles cost around 10p each (or free if you know someone with a cheap Coke craving), the

BATPODS are held together by elastic bands dropped by the local postman and are held into the hedgerow by further elastic bands. The detectors used are Batbox Batons, which are relatively inexpensive at approximately £70 each (less than the Batbox duet that used to be one of the cheapest frequency division detectors at £250). The Olympus LS-12 recorder (one of very few devices with the stamina to last the necessary 15 hours for recording all night) costs around £100 each (or the LS-14 at £135). A lot cheaper to lose than two Anabats! It is important to get a recorder that can:

1. Accept 'line in' signal strength. Some recorders quote microphone/line in. Be careful, a microphone input is too sensitive for the line output from a Baton and there will be too much signal for the recorder to cope with and it will be distorted or over-cooked.
2. The recorder must have a manual override for the recording level. Auto recording levels will crank up the gain when there are no bat calls and produce a lot of white noise or hiss that will drop off when a bat is detected and the auto-gain drops to accommodate the relatively loud noise made by the bat. I find that the Olympuses are normally OK in the middle setting e.g., if the range of adjustment is 1-10, try 5.

The sensitivity of the Baton microphones, coupled with the manual tuning of the recorded input signal mean that BATPODS can detect very faint records either from quiet bats like Brown Long-eared or distant bats. Experiments with Batons, Batbox Duets and the Anabat and Echometer SM2 showed that the latter two, that use a threshold-based sound level system, could not be set at a level low enough to pick up these faint calls. Roughly 50% of the calls picked up by the Baton and Duet were recorded by the threshold based systems. So, being a Yorkshireman and not wanting to throw anything away, Anabats and SM2 were not in the frame.

Very importantly don't forget to put a note on the BATPODS if the public might see them and report them as Improvised Explosive Devices (IED). Something like 'This is a bat detector – Phone 07770 123456 for information'. It is also good practice to tell the landowner what they are and where you put them, especially if they might turn stock out into the field after you have installed the BATPODS and left the site.

Analysis

The analysis of the output is relatively simple and not unduly time-consuming (it normally takes less than 1 hour to analyse 15 hours of data unless the site is particularly 'busy'). To obtain good quality recordings the

Olympus LS-12 is set to record in WMA format at 160Kbps. Another consideration in selecting the equipment is having a memory card large enough to record the memory-hungry high quality necessary. 8GB is normally large enough.

The data are downloaded onto a computer into music editing software that shows the waveform of the recordings. With a little experience the waveform peaks caused by bats can be recognized if you have set the recording level correctly. If you have, you will see a narrow line of 'noise' and distinct peaks when bats (or rain) are detected. These peaks can be 'zoomed' in on to confirm and record as a registration with the timing logged. This visual check removes the need to sit through recordings listening to them in real time. It is more difficult if you are looking for bat calls in rain noise, but rain is a very short duration peak, bats are a gradual rise and fall. Also rain is often more evident in one channel only, so a peak in the left that is not in the right would be rain. Peaks in both left and right will more likely be a bat.

The bat sound blips are then identified to species if possible, the direction of movement determined and other information recorded such as a feeding buzz or how loud or faint the registration was. BATPODS can be fitted with 'woolly hats' (hand-crafted black fleece covers) to deaden the sound of raindrops. This worked well and again does not adversely affect sensitivity. It is desirable that sessions should be timed to avoid nights when rain is forecast.

It is often possible to 'see' the passage of a bat across the BATPODS by looking at the audio peaks. In the example at Figure 16.7 there is clearly a bat passing left to right (L>R). This is fine if the bat passes right overhead, but not if it is either out in the field somewhere, or is high up. The differential in the channels become unclear and there are a number of, normally very faint, registrations where the direction cannot be assigned to a passage across the BATPODS.

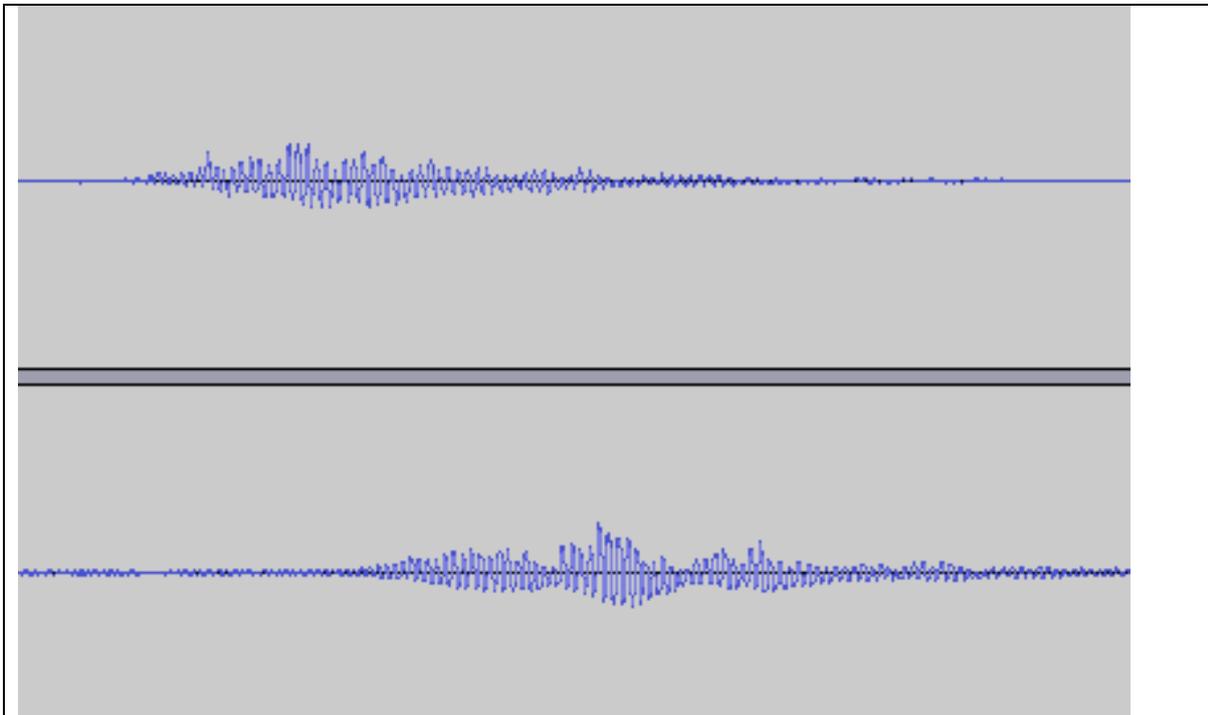


Figure 16.7 – Audio trace showing a clear pass left to right (L>R).

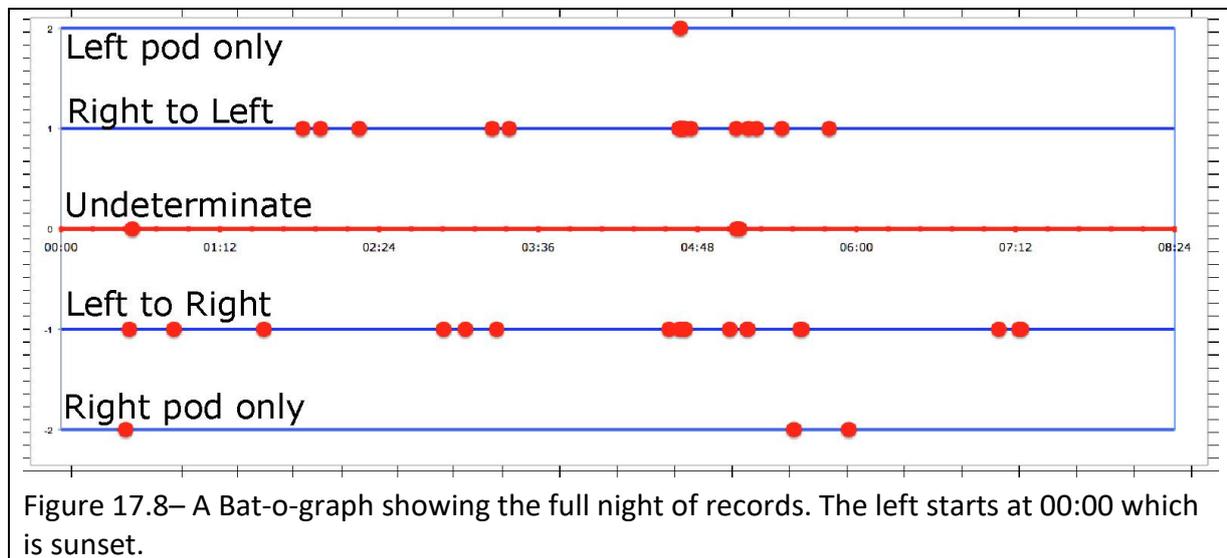
Other instances are where a bat is heard only in one BATPOD, either left (L>L) or right (R>R) and the call does not pass across the BATPODS (L>L and R>R). These are valuable off-stage records as they indicate activity at one end of the hedgerow. This may stimulate the need to move the BATPODS that way to investigate further.

The outcomes of the analysis are:

1. Species
2. Distance from BATPODS – loud>faint
3. Passes – Left to right (L>R) and right to left (R>L)
4. Off-stage records – Left only (L>L) and right only (R>R)
5. Unknown direction of movement (UK)

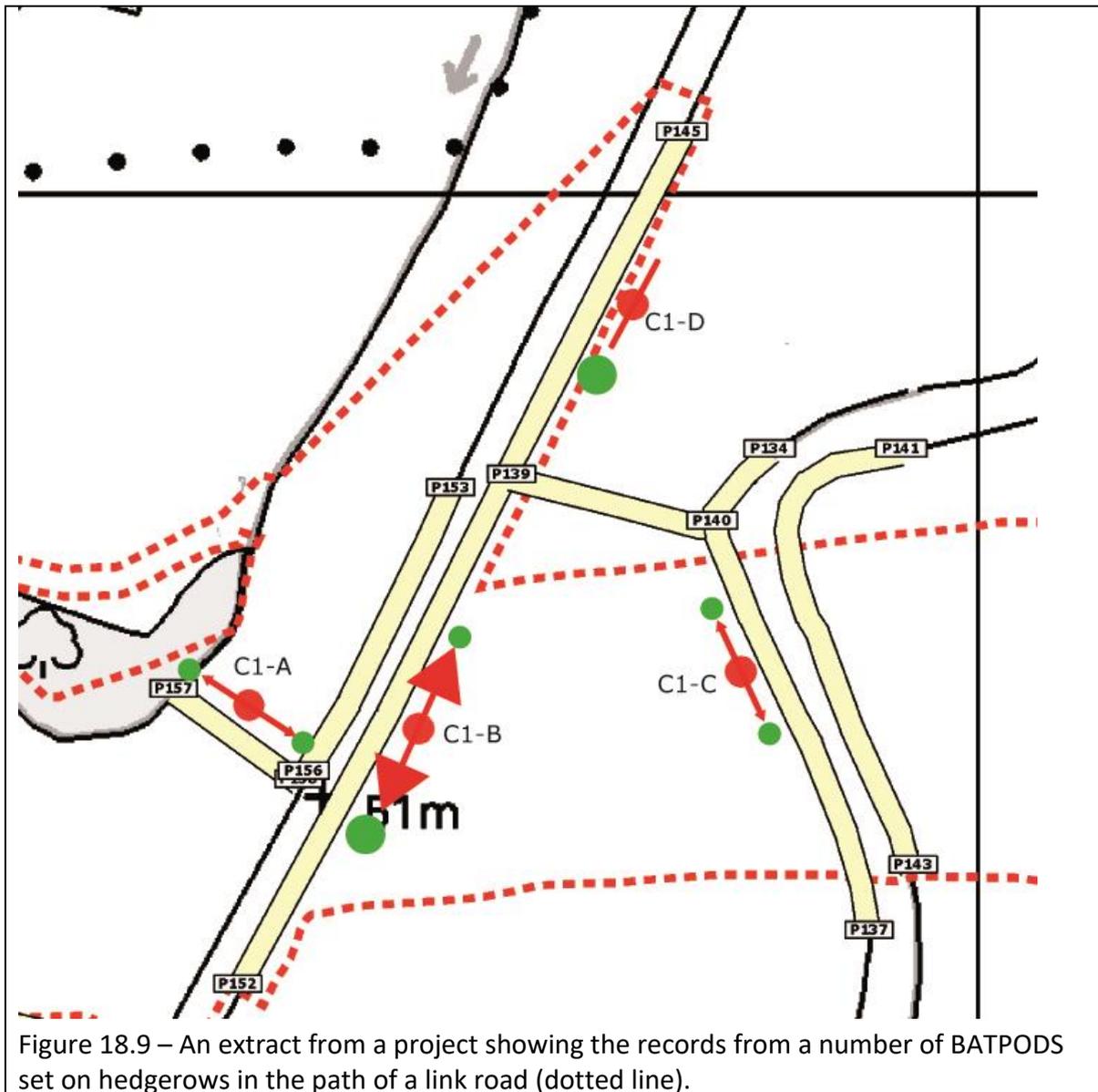
This can be converted into a Bat-o-graph, an example of which is at Figure 17.8. This shows a mix of passes and off-stage records, with a potentially feeding block between 4 and 6 hours after sunset.

The records can also be mapped to show the passes and off-stage records visually.



Mapping the movements produces maps like the one at Figure 18.9. This was a project looking at bat movements along hedgerows that were to be removed to make a link road. The dotted line shows the road scheme boundary. The red dots are the BATPOD positions with their reference numbers (on the actual side of the hedgerow being monitored). The red arrows are sized to reflect the number of passes in each direction. For C1-B there were a lot of movements, but they were balanced, suggesting foraging behaviour rather than a deliberate movement away from a roost. A red line without arrow points indicates no bats actually passed across the BATPODS. The size of the green dots next to the arrows indicates the number of off-stage calls. For example C1-D had no bat passes over the BATPODS, but a number of records to the south towards the high activity at C1-B. C1-A and C1-C show low levels of activity, both across the BATPODS and off-stage. Detailed interrogation of the records for C1-B showed that the large number of passes were from a small number of bats patrolling up and down the hedgerow.

Although it can never be certain, the analysis of BATPOD data can be used to 'count' bats and is not limited to being merely an activity monitor as mono recording systems are. An example from a later study showed 79 passes right to left and only 34 passes left to right. Most of the R>L were just after sunset. This was a roost emergence with many bats flying one way and not returning via the same route i.e., no reverse, with many L>R passes near dawn. Another example recorded 397 passes but this was one bat foraging around a tree for nearly an hour!



Stereo recording

As a consequence of developing BATPODS the potential for using two detectors in a stereo configuration became a viable option that could enable on-the-fly BATPOD-like directional movements to be detected. The initial system strapped two Batons to a 'T'-shaped piece of wood made from a recycled Ikea coffee table. This was dubbed the BATSTICK as shown at Figure 19.10. The detectors are closer than the BATPOD minimum of 3m, but the microphones are pointing in opposite direction and this creates enough separation of the left and right channels to hear the movements in the headphones



Figure 19.10 – The patent pending recycled Ikea coffee table or BATSTICK for listening to bats in stereo live and recording their movements.

This setup had the disadvantage that you had to hold the kit in your hand and couldn't very easily make notes. The answer was the BAT HAT as modelled at Figure 20.11. This system is useful on transect surveys along hedgerows. As you walk along you hear a bat approaching. Turn and face the hedge and you should be able to hear where it is coming from, log where you are on a GPS and the direction and time and you have a valuable record. Either stay there and wait to see if the bat comes back or carry on and wait to hear the next approaching bat. Either way you will continue to get good data on the landscape use by bats. Basically bats hear in stereo; so do you and so should you. It also has the massive advantage when you are in a swarm of bats that you can pick out individuals in the clutter of calls and, in some cases, count the number of bats flying around your head. Something a mono system cannot do.

The two systems are adaptable and can greatly increase the value of bat data recording. Bats hear in stereo, so do you. Place your orders for BAT HATS and get out there and confirm Joe public's opinion that bat people really are BATTY! See www.dryadecology.co.uk for latest developments.



Figure 20.11 – The must have bat fashion accessory. The BAT HAT.

Small-mammal survey at Bempton RSPB reserve, August 2017

Jack Whitehead

Background

RSPB Bempton held a Bioblitz on Sunday 27th August 2017 and Yorkshire Mammal Group was invited to take part. Being close by, and having a supply of live traps, the Filey team offered to cover the event. The event was advertised by the RSPB and the Yorkshire Mammal Group and proved most popular, attracting many visitors.

Method

Thirty Tube traps and fourteen Longworths were put in place on Thursday 24th August, loaded with hay and baited with a seed and grain mix, and mealworm pupae, and locked open. Habitats used included rough pond-

side vegetation, hedgerows and newly planted woodland. The traps were re-baited on Saturday evening, 26th August and set to catch. Traps were inspected on Sunday 27th August, from 9am. The public event attracted a keen group of adults and children some of whom helped to process and record the catch, after which everything was cleaned and removed.

Predicting a large catch of animals we decided not to sex the individuals. This saved time and meant we were able to concentrate on identification features and photography.

Results

SUNDAY 27th August 2017

TRAP NUMBER	SPECIES	WEIGHT	TRAP NUMBER	SPECIES	WEIGHT
T7	Bank Vole	15 g	T24	Bank Vole	20 g
T8	Bank Vole	8 g	T25	Bank Vole	11 g
T9	Bank Vole	13 g	T28	Bank Vole	17 g
T10	Bank Vole	19 g	T29	Bank Vole	14 g
T11	Bank Vole	18 g	T30	Common Shrew	8 g
T12	Bank Vole	18 g	L32	Bank Vole	17 g
T13	Common Shrew	6.5 g	L33	Bank Vole	14 g
T14	Bank Vole	16 g	L34	Bank Vole	23 g
T15	Water Shrew	11.5 g	L35	Wood Mouse	escape
T16	Bank Vole	14 g	L36	Bank Vole	12 g
T17	Bank Vole	14 g	L37	Bank Vole	20 g
T18	Field Vole	16 g	L39	Common Shrew	7 g
T19	Bank Vole	18 g	L40	Bank Vole	13 g
T20	Bank Vole	15 g	L41	Bank Vole	17 g
T21	Bank Vole	8 g	L42	Bank Vole	24 g
T22	Bank Vole	11 g	L43	Bank Vole	12 g
T23	Bank Vole	10 g	L44	Bank Vole	12 g

T = Tube trap L = Longworth trap

Thanks to Hilary Cunningham-Atkins for her help with this trap.

Small-mammal survey at Living Seas Centre, Flamborough, September 2017

Jack Whitehead

Background

The Living Seas Centre at Flamborough is operated by the Yorkshire Wildlife Trust and runs events for the public throughout the year. We were invited to run a small-mammal trap on Sunday 10th September. The event was advertised by the YWT and attracted a good number of visitors.

Method

Thirty Tube traps and fourteen Longworths were put in place on Thursday 7th September, loaded with hay and baited with a seed and grain mix, and mealworm pupae, and locked open. Habitats used were limited to bramble thicket, rank grassland and fairly new woodland. The traps were re-baited on Saturday evening, 9th September and set to catch. Traps were inspected on Sunday 10th September, from 9am. As with the Bempton trap, in August, we decided not to sex the individuals. This saved time and meant we were able to concentrate on identification features and photography; this helps hold the public interest.

Results

SUNDAY 10th September 2017

TRAP NUMBER	SPECIES	WEIGHT	TRAP NUMBER	SPECIES	WEIGHT
T1	Common Shrew	10 g	T21	Common Shrew	dead
T2	Wood Mouse	18 g	T22	Common Shrew	7 g
T3	Bank Vole	13 g	T28	Pygmy Shrew	4 g
T4	Bank Vole	15 g	T29	Water Shrew	11 g
T7	Bank Vole	16 g	T30	Common Shrew	dead
T8	Bank Vole	18 g	L31	Bank Vole	22 g
T9	Bank Vole	14 g	L33	Bank Vole	16 g
T10	Bank Vole	22 g	L34	Bank Vole	16 g
T11	Bank Vole	17 g	L35	Water Shrew	11 g
T12	Water Shrew	12 g	L36	Bank Vole	14 g
T13	Common Shrew	dead	L37	Bank Vole	16 g
T14	Wood Mouse	23 g	L38	Bank Vole	22 g

T15	Bank Vole	12 g	L39	Bank Vole	18 g
T16	Bank Vole	21 g	L40	Bank Vole	18 g
T17	Bank Vole **	16 g	L41	Bank Vole	16 g
T18	Bank Vole	16 g	L42	Bank Vole	24 g
T20	Bank Vole	13g	L43	Bank Vole	18 g

T = Tube trap L = Longworth trap

** Trap also included four young (pinkies), the family were repatriated into the grassland together.

This was a very successful trap, with five species caught. At one time we had three shrew species together; these were caught consecutively in traps less than two metres apart in rank grassland with odd hawthorn and no apparent watercourse.

Thanks to John Sadler and Mike Richardson for help with processing, cleaning and fielding complicated and difficult questions!

A small mammal survey along Pocklington Canal, East Yorkshire

Ann Hanson

Introduction

Pocklington Canal is nine and a half miles long and begins in the foothills of the Yorkshire Wolds at Canal Head near Pocklington, finally entering the River Derwent at East Cottingwith. The canal was built between 1815 and 1818 to carry coal, lime, fertiliser and limestone to the market town of Pocklington and the surrounding area. After the advent of the railways, the last cargo was carried along the canal in 1932 and then the canal gradually fell into disuse. The Pocklington Canal Amenity Society was founded in 1969 and its members have restored the towpath and several of the bridges and locks along the canal, although much of the canal is still unnavigable.

Meanwhile the canal has become a haven for wildlife with unusual aquatic plants and an excellent range of birds, insects and mammals including otters and water voles. The stretch of canal from Canal Head to Church Bridge is a Site of Special Scientific Interest (SSSI), as are adjacent Melbourne and Thornton Ings and Derwent Ings.

The Canal and River Trust organised a series of wildlife events along Pocklington Canal in summer 2017, aimed at the general public, and invited YMG to carry out a small mammal survey from Melbourne Arm to Church Bridge (central grid ref. SE75594440).

Methods

Fifty Longworth traps were placed in a variety of habitats alongside the canal. Traps were baited with wheat, peanuts, sunflower seeds, carrot and blowfly pupae, and had a ball of hay for bedding.

Trap locations:

1. Canal bank at Melbourne Arm – reed sweet-grass and foals watercress (10 traps).
2. Canal bank between Melbourne Arm and Church Bridge – long, rough grass (5 traps).
3. Canal bank between Melbourne Arm and Church Bridge – reed sweet-grass (10 traps).
4. Canal bank near Church Bridge – long, rough grass (10 traps).
5. Field adjacent to Church Bridge – long grass, meadowsweet, black knapweed (15 traps).

Traps were set on the evening of Saturday 22nd July and checked on Sunday 23rd July from 9.30am onwards.

In addition, 15 water vole (*Arvicola amphibious*) rafts were placed in the canal and an adjacent drainage ditch alongside Derwent Ings SSSI near Hagg Bridge (grid ref. SE71674512) to look for signs of water voles in this location. The rafts were put in place on 24th June and checked for signs of use on 23rd July.

We also looked for signs of otters (*Lutra lutra*) along the canal from Hagg Bridge to Church Bridge on 24th June by looking for spraint under bridges and on various structures associated with locks.

Results

Summary of small mammals captured alongside Pocklington Canal.

	Site 1	Site 2	Site 3	Site 4	Site 5
Wood mouse	0	0	0	0	2
Bank vole	0	1	5	3	4
Field vole	3	0	0	2	0
Common shrew	2	2	0	1	3

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

The water vole rafts resulted in one positive water vole dropping on a raft in the canal close to Hagg Bridge and several with possible water vole droppings in both the canal and the adjacent drainage ditch.

The otter survey yielded fresh and old spraint under Hagg Bridge and several more spraints on structures associated with locks down towards Melbourne Arm.

Discussion and conclusions

Four different species of small mammal were caught during the survey including wood mice (*Apodemus sylvaticus*), bank voles (*Myodes glareolus*), field voles (*Microtus agrestis*) and common shrews (*Sorex araneus*). Bank voles, field voles and common shrews were caught at several different locations along the canal and in the field at Church Bridge, with wood mice only being found in the field. The small mammals showed a good range of ages indicating healthy breeding populations.

The water vole rafts indicated that water voles are present in the canal adjacent to Derwent Ings SSSI and water vole signs have also been found near Canal Head in the past. In addition, otters appear to be using the canal with spraint being found under Hagg Bridge and on various structures associated with locks along the canal to Melbourne Arm.

Thanks are due to Lizzie Dealey and Phillippa Baron of the Canal and River Trust for help with organising the survey and to Rob Mashedor, Mary Youngman and Chris Scott of YMG for helping with the small mammal trapping.

Appendix I

Table of results: small mammal survey from Melbourne Arm to Church Bridge, Pocklington Canal, July 2017.

Weather: Warm and dry, heavy rain previous evening and overnight.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Canal bank (1)	Field vole	M	SA	24.0
	Field vole	F	J	16.0
	Common shrew	?	A	8.0
	Field vole	M	SA	17.0
	Common shrew	?	A	8.0
Canal bank (2)	Common shrew	?	A	8.0
	Common shrew	M	A	10.0
	Bank vole	F	J	15.0
Canal bank (3)	Bank vole	M	SA	16.0
	Bank vole	F	SA	19.0
	Bank vole	M	J	14.0
	Bank vole	M	A	21.0
	Bank vole	M	A	21.0
Canal bank (4)	Bank vole	M	A	22.0
	Bank vole	M	A	22.0
	Field vole	?	J	10.0
	Field vole	?	J	11.0
	Common shrew	?	A	9.0
	Bank vole	F	A	28.0
Church Bridge field (5)	Bank vole	F	A	25.0
	Common shrew	?	A	13.0
	Wood mouse	F	SA	21.0
	Bank vole	F	SA	16.0
	Common shrew	?	A	12.0
	Bank vole	M	A	24.0
	Wood mouse	M	A	27.0
	Bank vole	M	SA	16.0
	Common shrew	?	A	8.0

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

** Escaped during handling

Small mammal survey at Three Haggas Wood, Escrick, 2017

Ann Hanson

Introduction

A fourth annual survey was carried out by YMG in August 2017 as part of a long term study on changes in small mammal populations at Three Haggas Wood, a recently created wood-meadow, located at Escrick Park Estate, near York (grid ref. SE626395).

See Imprint 41 (2014), Imprint 42 (2015) and Imprint 43 (2016) for the results of previous surveys on the site.

Methods

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

Trap locations were the same as in previous years (see map in **Appendix I**):

1. Coup 12 (downy birch and alder), cut late 2016/early 2017 with dense re-growth beneath the young trees (10 traps).
Grid ref. SE6279939456 to SE6776939422
2. MG4 meadow, recently cut for hay with very little re-growth (10 traps).
Grid ref. SE6273839477 to SE6269639464
3. Coup 9 (oak, hazel and wild orchard), cut late 2016/early 2017 with substantial re-growth (10 traps).
Grid ref. SE6275039502 to SE6273439541
4. Coup 6 (oak, hazel, wych elm), cut late 2016/early 2017 with substantial re-growth (10 traps).
Grid ref. SE6267239586 to SE6265239623
5. Pond edge. Pond constructed spring 2014. Water level low. Area around pond recently cut for hay. Dense un-cut vegetation at bank top, 2m wide (10 traps).
Grid ref. SE6268139929 to SE6269439938

Traps were set on the evening of Friday 11th August and checked on Saturday 12th August from 9.30am onwards. Traps were re-set on the Saturday evening and checked on Sunday 13th August from 9.30am onwards.

Results

Summary of small mammals captured at Three Haggas Wood, Escrick, August 2017.

	Site 1		Site 2		Site 3		Site 4		Site 5	
	Sat	Sun								
Wood mouse	1	2	0	0	0	0	1	1	0	0
Bank vole	0	0	0	0	0	0	0	0	0	0
Field vole	4	6	0	0	4	6	5	4	2	3
Common shrew	2	2	0	0	1	3	0	3	0	0
Water shrew	0	0	0	0	0	0	0	0	0	0

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

Ten reptile/amphibian refuges were set out on the site in July 2015 (see map in **Appendix III**) and these were checked on the afternoon of 13th August 2017, with the following results:

Refuge number	Record
1	Refuge missing
2	Nothing present
3	Nothing present
4	Several vole runs
5	Nothing present
6	Ant nest
7	Vole runs
8	Ant nest
9	Ant nest and vole runs
10	Ant nest

Discussion and conclusions

Three species of small mammal were caught at Three Haggas Wood, Escrick, in 2017, including wood mouse (*Apodemus sylvaticus*), field vole (*Microtus agrestis*) and common shrew (*Sorex araneus*). These are the

same species that were caught in 2015 and 2016 and were present in similar numbers to 2016. Field voles were the most numerous species in 2017 with very few wood mice being captured. Common shrews were also relatively common indicating a good supply of invertebrate food on the site. Animals were captured at all locations with dense vegetation providing cover and food, with no animals being captured at Site 2 which had been recently cut for hay.

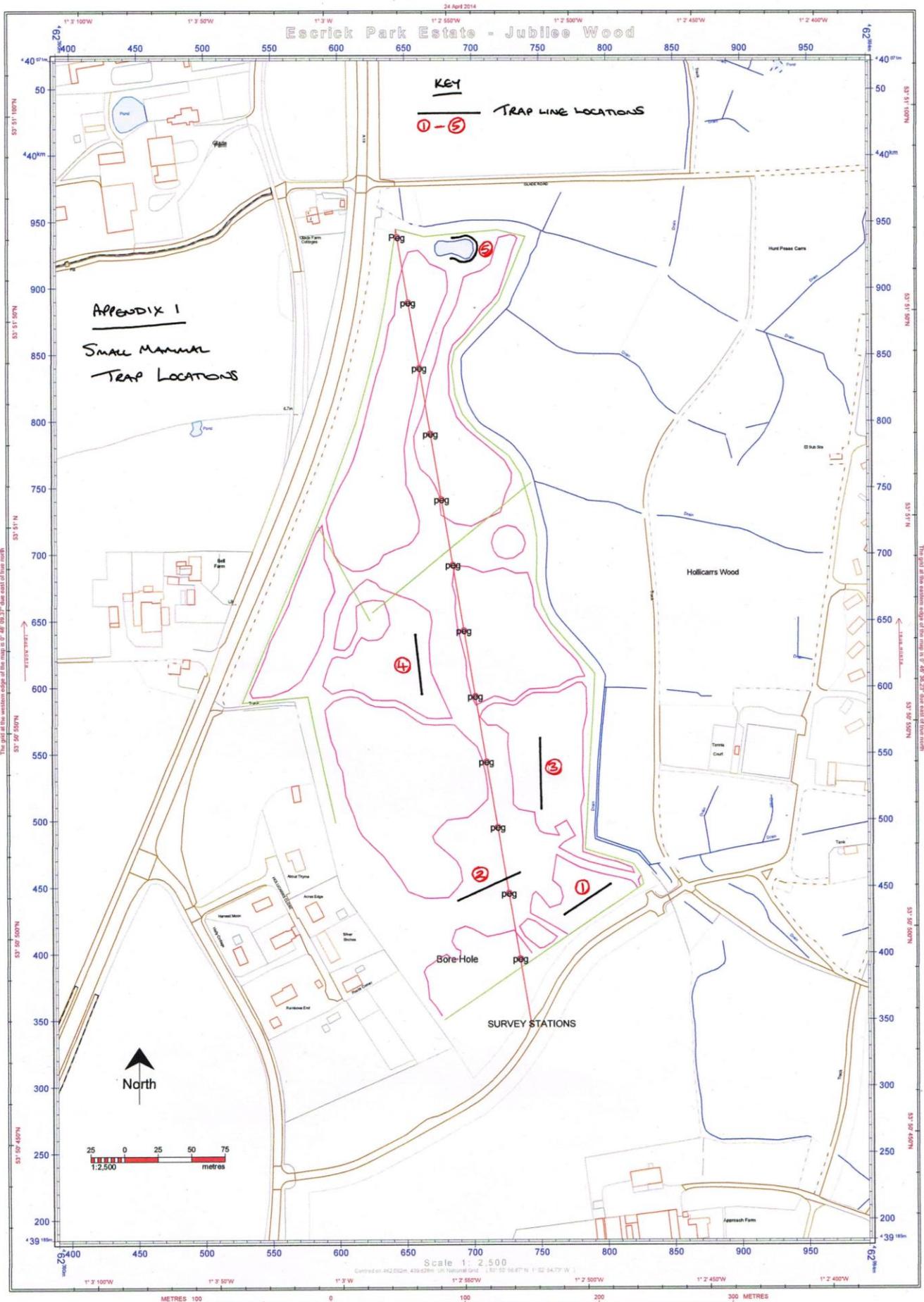
Additional mammal records for the site in 2017 include molehills in April and a family of stoats sighted near the bee hotel in June.

The reptile/amphibian refuges provided no records during the official checking session but had provided further grass snake (*Natrix natrix*) records when casually checked throughout the year.

A bat survey of Three Hagges Wood was carried out on the evening of Saturday 12th August, using heterodyne and frequency division bat detectors. Heavy rain meant that no bats were recorded over the wood meadow but several common pipistrelles (*Pipistrellus pipistrellus*) were recorded foraging under the shelter of mature trees near the tennis courts in adjacent Hollicarrs Wood.

Thanks are due to the Hagge Woods Trust for inviting us to take part in the project. Thanks also to Rob Masheder, Kate Wright, Rose Clay, Mary Youngman, Chris Scott and Andrew Halcro-Johnston of YMG for helping with the surveys and to everyone who came and joined in on both mornings.

Appendix I



Appendix II

Table of results: small mammal survey at Three Hagges Wood, Escrick, August 2017.

Weather: Warm, dry and cloudy Saturday morning; heavy rain overnight; fine, warm and dry Sunday morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
12/08/2017				
Coup 12 (Site 1)	Common shrew	?	A	8.5
Coup 12 (Site 1)	Field vole	F	SA	16.0
Coup 12 (Site 1)	Field vole	M	SA	16.0
Coup 12 (Site 1)	Field vole	M	SA	17.0
Coup 12 (Site 1)	Wood mouse	M	A	30.0
Coup 12 (Site 1)	Common shrew	?	A	8.0
Coup 12 (Site 1)	Field vole	M	A	25.0
Coup 9 (Site 3)	Field vole	M	SA	16.0
Coup 9 (Site 3)	Field vole	F	SA	17.0
Coup 9 (Site 3)	Field vole	M	SA	15.0
Coup 9 (Site 3)	Field vole	F	A	34.0
Coup 9 (Site 3)	Common shrew	?	A	7.0
Coup 6 (Site 4)	Field vole	M	SA	19.0
Coup 6 (Site 4)	Field vole	F	A	28.0
Coup 6 (Site 4)	Field vole	F	A	34.0
Coup 6 (Site 4)	Wood mouse	F	SA	20.0
Coup 6 (Site 4)	Field vole	F	SA	18.0
Coup 6 (Site 4)	Field vole	M	A	32.0
Pond edge (Site 5)	Field vole	M	A	34.0
Pond edge (Site 5)	Field vole	F	A	31.0
13/08/2017				
Coup 12 (Site 1)	Field vole	F	SA	18.0
Coup 12 (Site 1)	Common shrew	?	A	9.0
Coup 12 (Site 1)	Field vole	F	SA	17.0
Coup 12 (Site 1)	Field vole	F	SA	17.0
Coup 12 (Site 1)	Field vole	F	SA	18.0
Coup 12 (Site 1)	Wood mouse	M	A	29.0
Coup 12 (Site 1)	Field vole	F	A	25.0
Coup 12 (Site 1)	Common shrew	?	A	8.0
Coup 12 (Site 1)	Field vole	M	SA	16.0

Coup 12 (Site 1)	Wood mouse**			
Coup 9 (Site 3)	Field vole	M	SA	18.5
Coup 9 (Site 3)	Common shrew	?	A	9.0
Coup 9 (Site 3)	Field vole	F	A	30.0
Coup 9 (Site 3)	Field vole	F	SA	16.0
Coup 9 (Site 3)	Common shrew	?	A	8.5
Coup 9 (Site 3)	Field vole	M	A	33.5
Coup 9 (Site 3)	Field vole	F	SA	14.0
Coup 9 (Site 3)	Field vole	M	A	31.0
Coup 9 (Site 3)	Common shrew	?	A	8.0
Coup 6 (Site 4)	Field vole	F	SA	16.5
Coup 6 (Site 4)	Field vole	F	SA	14.0
Coup 6 (Site 4)	Common shrew	?	A	7.0
Coup 6 (Site 4)	Common shrew	?	A	10.0
Coup 6 (Site 4)	Field vole	F	SA	17.0
Coup 6 (Site 4)	Common shrew+			
Coup 6 (Site 4)	Field vole	F	SA	18.0
Coup 6 (Site 4)	Wood mouse	M	SA	19.0
Pond edge (Site 5)	Field vole**			
Pond edge (Site 5)	Field vole**			
Pond edge (Site 5)	Field vole	F	SA	21.0

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

** Escaped whilst handling

+ Dead in trap

Small mammal surveys at East Keswick Marsh and Ivy Grange

Ann Hanson

Introduction

YMG has carried out small mammal surveys previously with East Keswick Wildlife Trust in 2009, 2012 and 2013. East Keswick Wildlife Trust is a local group of wildlife enthusiasts who manage several sites within the parish of East Keswick, near Harewood, for their flora and fauna (see www.ekwt.org.uk). On this occasion we carried out small mammal surveys in East Keswick Marsh (Grid ref. SE36044407) and in a small wetland at Ivy Grange, East Keswick (SE35834400). The marsh and the wetland at Ivy Grange are connected by Keswick Beck.

Methods

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

Trap locations:

East Keswick Marsh:

1. Dry bank between two areas of wet fen, with nettle, bramble and meadowsweet (5 traps).
2. Edge of East Pond in fen meadow (5 traps).
3. Woodland edge with blackthorn and bramble (5 traps).
4. Woodland with oak, hazel and hawthorn (5 traps).
5. Edge of West Pond in fen meadow, dense vegetation including reed canary grass and yellow iris (5 traps).

Ivy Grange wetland:

6. Large area of dense reed canary grass (14 traps).
7. Edge of East Pond (6 traps).
8. Edge of West Pond (5 traps).

Traps were set on the evening of Friday 1st September and checked on Saturday 2nd September from 9.30am onwards. Traps were re-set on the Saturday evening and checked on Sunday 3rd September from 9.30am onwards.

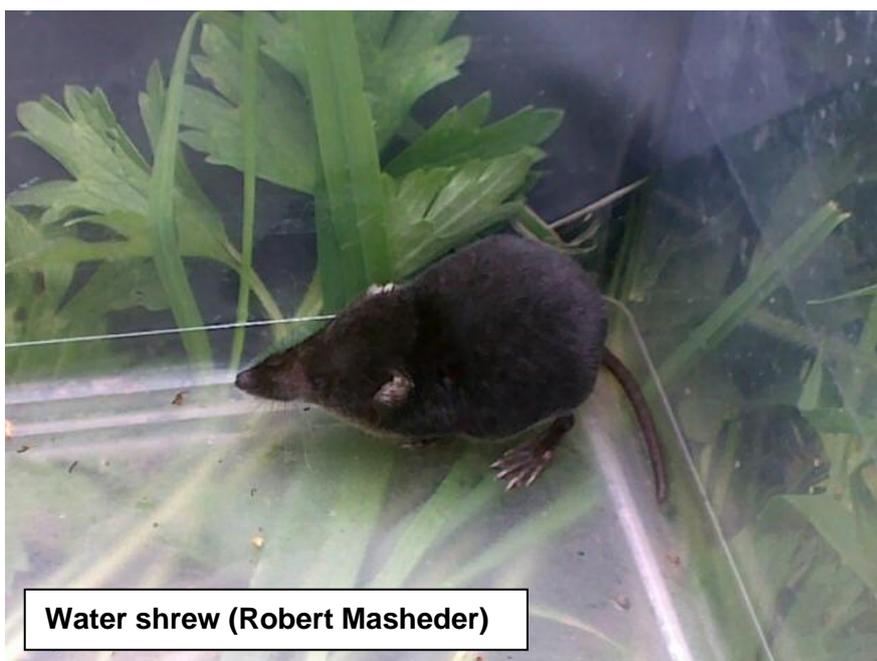
Results

Summary of small mammals captured at East Keswick Marsh and Ivy Grange wetland September 2017.

	East Keswick Marsh									
	Site 1		Site 2		Site 3		Site 4		Site 5	
	Sat	Sun	Sat	Sun	Sat	Sun	Sat	Sun	Sat	Sun
Wood mouse	1	0	0	0	1	2	0	2	0	1
Bank vole	4	4	1	1	2	1	0	0	1	1
Field vole	0	0	0	0	0	0	0	0	1	0
Common shrew	0	0	1	0	0	0	0	0	2	1
Pygmy shrew	0	0	0	0	0	1	0	0	0	0
Water shrew	0	0	0	0	0	0	0	0	0	0

	Ivy Grange wetland					
	Site 6		Site 7		Site 8	
	Sat	Sun	Sat	Sun	Sat	Sun
Wood mouse	0	0	0	0	0	0
Bank vole	0	1	1	1	0	0
Field vole	1	4	1	0	0	2
Common shrew	2	4	2	2	1	1
Pygmy shrew	0	0	0	0	0	0
Water shrew	1	2	0	0	0	0

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



Discussion and conclusions

Six species of small mammal were caught at East Keswick Marsh and Ivy Grange wetland, including wood mouse (*Apodemus sylvaticus*), bank vole (*Myodes glareolus*), field vole (*Microtus agrestis*), common shrew (*Sorex araneus*), pygmy shrew (*Sorex minutus*) and water shrew (*Neomys fodiens*). Bank voles, field voles and common shrews were captured across both sites, with wood mice only being recorded in East Keswick Marsh along with a single pygmy shrew in the woodland edge.

Water shrews were only captured in the dense stand of reed canary grass in Ivy Grange wetland. Field voles were more numerous in the wetland at Ivy Grange compared to East Keswick Marsh. This is probably because the marsh is now fenced and is managed by grazing with dexter cattle, resulting in less dense ground cover than in the wetland at Ivy Grange, which is currently unmanaged and has plenty of dense cover suitable for field voles. The pygmy shrew and water shrews were both first records for their respective sites.

Thanks are once again due to the members of East Keswick Wildlife Trust for another very enjoyable weekend of mammal surveys. Thanks also to Rob Masheder and several other YMG members for their help and enthusiasm.

Appendix I

Table of results: small mammal surveys at East Keswick Marsh and Ivy Grange wetland, September 2017.

Weather: Warm and dry.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
02/09/2017				
East Keswick Marsh				
Dry bank (1)	Wood mouse	M	J	11.0
Dry bank (1)	Bank vole	F	A	27.5
Dry bank (1)	Bank vole	M	J	15.0
Dry bank (1)	Bank vole	M	A	23.5
Dry bank (1)	Bank vole	F	J	15.5
East pond (2)	Common shrew	?	A	7.5

East pond (2)	Bank vole	F	SA	16.5
Woodland edge (3)	Bank vole	F	J	14.0
Woodland edge (3)	Wood mouse	M	A	27.0
Woodland edge (3)	Bank vole	F	SA	21.0
West Pond (5)	Field vole	M	A	24.0
West Pond (5)	Common shrew	?	A	8.0
West Pond (5)	Common shrew**			
West Pond (5)	Bank vole	M	SA	21.5
Ivy Grange wetland				
Reed canary grass (6)	Water shrew	?	SA	11.5
Reed canary grass (6)	Common shrew	?	A	8.0
Reed canary grass (6)	Field vole	M	J	14.0
Reed canary grass (6)	Common shrew	?	A	8.0
East Pond (7)	Common shrew	?	A	8.0
East Pond (7)	Field vole	F	A	21.5
East Pond (7)	Common shrew	?	A	7.5
East Pond (7)	Bank vole	F	A	22.5
West Pond (8)	Common shrew	?	A	7.0
03/09/2017				
East Keswick Marsh				
Dry bank (1)	Bank vole	M	SA	16.0
Dry bank (1)	Bank vole	F	J	14.0
Dry bank (1)	Bank vole	M	A	20.5
Dry bank (1)	Bank vole	M	A	19.0
East pond (2)	Bank vole**			
Woodland edge (3)	Wood mouse	M	A	30.5
Woodland edge (3)	Pygmy shrew	?	SA	2.5
Woodland edge (3)	Wood mouse	F	SA	16.5
Woodland edge (3)	Bank vole	F	SA	20.5
Woodland (4)	Wood mouse***	F	A	25.5
Woodland (4)	Wood mouse***	F	A	25.0
West Pond (5)	Common shrew	?	A	7.0
West Pond (5)	Wood mouse	M	A	27.5
West Pond (5)	Bank vole	M	A	23.0
Ivy Grange wetland				
Reed canary grass (6)	Common shrew	?	A	7.5
Reed canary grass (6)	Bank vole	F	A	22.5
Reed canary grass (6)	Field vole	F	SA	16.0
Reed canary grass (6)	Field vole	F	SA	15.5
Reed canary grass (6)	Common shrew	?	A	7.5
Reed canary grass (6)	Field vole	F	SA	16.5

Reed canary grass (6)	Water shrew	?	SA	11.5
Reed canary grass (6)	Field vole	M	A	34.5
Reed canary grass (6)	Common shrew	?	A	7.0
Reed canary grass (6)	Water shrew	?	A	12.0
Reed canary grass (6)	Common shrew	?	A	10.0
East Pond (7)	Common shrew	?	A	7.5
East Pond (7)	Common shrew	?	A	7.5
East Pond (7)	Bank vole	F	SA	13.0
West Pond (8)	Field vole	F	A	21.0
West Pond (8)	Field vole	M	A	38.0
West Pond (8)	Common shrew	?	A	8.0

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

** Escaped during handling *** Captured in same trap

A small mammal survey at Peak Alum Works, Ravenscar on the North Yorkshire coast

Ann Hanson

Introduction

YMG were invited to carry out a small mammal survey as part of the Ravenscar Mammal Bioblitz organised by the National Trust during National Mammal Week 2017. We decided to carry out a Longworth live trap on the site of the disused Peak Alum Works on the clifftops near Ravenscar (Grid ref. NZ97320216). The site contains areas of long grass and scrub as well as the remains of the alum works buildings.

Methods

Fifty Longworth traps were placed in a variety of habitats across the site. Traps were baited with wheat, peanuts, sunflower seeds, carrot and blowfly pupae, and had a ball of hay for bedding.

Trap locations:

1. Coastal scrub with hawthorn, blackthorn, oak, elder and goat willow (10 traps).
2. Long grass (cocksfoot) alongside a drystone wall (5 traps).
3. Rushes on the edge of Reservoir 2 (5 traps).

4. Long grass on the cliff top at the top of the incline (5 traps).
5. Long grass in the Coal Yard, including cocksfoot, false oat grass, angelica, bracken and bramble (10 traps).
6. Long grass in the Alum House Complex, similar habitat to site 5 with scattered gorse (10 traps).
7. Long grass alongside wall remains in the Alum House Complex with bramble and fern (5 traps).

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

Results

Summary of small mammals captured at Peak Alum Works, Ravenscar.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7
Wood mouse	3	2	1	3	1	4	1
Bank vole	4	1	0	0	4	0	1
Field vole	0	0	0	0	0	1	1
Common shrew	0	0	0	1	1	0	0
Pygmy shrew	0	0	0	0	0	1	0

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

Discussion and conclusions

Five different species of small mammal were caught during the survey including wood mice (*Apodemus sylvaticus*), bank voles (*Myodes glareolus*), field voles (*Microtus agrestis*), common shrews (*Sorex araneus*) and a pygmy shrew (*Sorex minutus*). Wood mice were the most numerous species and were caught at all the trapping sites. Bank voles were also reasonably numerous and widespread. Field voles were only caught in the long, dense grass around the Alum House Complex. A single pygmy shrew was also caught in this location with a couple of common shrews being found elsewhere on the site. The small mammals showed a good range of ages with predominantly sub-adults and juveniles, indicating healthy breeding populations.

Thanks are due to National Trust Ranger Bill Blake for help with organising the survey and to Rob Masheder, Mary Youngman and Jack and Hilary Whitehead of YMG (as well as Bill and Grace Blake) for helping with the small mammal trapping.

Appendix I

Table of results: small mammal survey at the disused Peak Alum Works, Ravenscar, October 2017.

Weather: Cool and windy with occasional showers; dry overnight.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Coastal scrub (1)	Wood mouse	F	SA	17.5
Coastal scrub (1)	Wood mouse	M	SA	20.5
Coastal scrub (1)	Wood mouse	M	SA	24.5
Coastal scrub (1)	Bank vole	M	SA	16.5
Coastal scrub (1)	Bank vole	M	J	15.0
Coastal scrub (1)	Bank vole	M	J	13.5
Coastal scrub (1)	Bank vole	F	J	15.0
Long grass – wall (2)	Wood mouse	F	J	15.0
Long grass – wall (2)	Bank vole	F	SA	17.0
Long grass – wall (2)	Wood mouse	F	J	14.5
Reservoir edge (3)	Wood mouse	F	J	13.5
Long grass – cliff top (4)	Wood mouse	M	SA	16.5
Long grass – cliff top (4)	Common shrew	?	A	7.5
Long grass – cliff top (4)	Wood mouse	M	J	14.5
Long grass – cliff top (4)	Wood mouse	F	J	12.5
Long grass – Coal Yard (5)	Common shrew	?	A	7.5
Long grass – Coal Yard (5)	Wood mouse	F	J	14.5
Long grass – Coal Yard (5)	Bank vole	F	J	14.5
Long grass – Coal Yard (5)	Bank vole	F	SA	15.5
Long grass – Coal Yard (5)	Bank vole	M	SA	16.5
Long grass – Coal Yard (5)	Bank vole	F	SA	16.5
Long grass – Alum House (6)	Wood mouse	F	SA	17.5
Long grass – Alum House (6)	Wood mouse	M	SA	15.5
Long grass – Alum House (6)	Wood mouse	M	SA	17.5
Long grass – Alum House (6)	Wood mouse	M	SA	16.5
Long grass – Alum House (6)	Field vole**	M		
Long grass – Alum House (6)	Pygmy shrew	?	SA	3.0
Long grass – Alum House (7)	Wood mouse	M	SA	18.5
Long grass – Alum House (7)	Bank vole	F	A	18.5
Long grass – Alum House (7)	Field vole	M	J	14.5

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

** Dead in trap

“Keep on tracking” – a report of YMG mammal recording walks 2017

Ann Hanson & Rob Mashedor

The first walk of the year was from **Bugthorpe in the Yorkshire Wolds on 15th January**. Molehills were again the first record, both in the village and in fields near Bugthorpe Beck. Live rabbits were spotted in fields near Bowbriggs, with a field vole nest in cocksfoot grass alongside the track. More field vole nests and feeding signs were found, again in cocksfoot along the footpath at Middle Field. Also recorded in this location were the sharp smell of a fox, some roe deer slots and badger hair caught on a wire fence. Further molehills were recorded at Lower Sleights Farm and roe deer droppings were found in long grass near Gilder Beck. The fields around Beck Leys yielded roe deer tracks, fox scat, rabbit droppings and yet more molehills. The road back to Bugthorpe revealed a last few molehills near Glebe Farm and another whiff of fox on Bugthorpe Lane.

February 19th found us in Grosmont in the North York Moors National Park heading towards Egton Bridge with the first record being molehills on the track running adjacent to the River Esk and again in fields near Beckside Farm. Grey squirrel dreys were spotted in woodland around the sewage works with more molehills in fields alongside the River Esk in Egton Bridge. Fresh otter spraint was recorded on a rock in the river in the middle of the village and further squirrel dreys in woodland near to Broom House Farm. Yet more molehills were recorded in fields north of Limber Hill Wood. At Carr End mink prints were found in mud alongside the River Esk and a female roe deer was spotted bounding away in East Arnecliff Wood as we turned back towards Grosmont. Last record of the day was a final batch of molehills in fields south of Egton Bridge before we headed for the Old School Coffee Shop in Grosmont for a bit of a rest.

Bishop Monkton near Ripon was the location for our walk on 19th March. We headed east out of the village along Ings Lane which yielded roe deer tracks, molehills, rabbit burrows and badger prints in some soft mud. An excellent start! At the bottom of Ings Lane some common reed along a ditch bank harboured field vole runs and feeding signs as well as a lovely harvest mouse nest. Joining Boroughbridge Road we spotted molehills in roadside fields and more molehills once we reached the River Ure. A well-used badger latrine was recorded alongside a footbridge

adjacent to the river and a small sett was found in some nearby scrub. Fresh fox scat and some rabbit burrows were also recorded in this location. A brief excursion along Ripon Canal located some fresh otter spraint near Ox Close Lock, along with a few more molehills. As we turned back towards Bishop Monkton the last records of the day were rabbits at Park Hill, off Pottery Lane.

April 9th found us in Ilkley where we quickly found some molehills in Riverside Gardens alongside the River Wharfe, followed by more molehills in Owler Park to the north-west and yet more molehills in fields at High Austby Farm. Rabbit burrows and a skull were recorded in Dean Wood along with some roe deer slots and badger prints. Further molehills were spotted near Upper Austby, at Chapel House Farm, near Leyfield Farm (along with some rabbit fur), at Black Foss Waterfall and in fields adjacent to the Suspension Bridge over the River Wharfe. Making our way back towards Ilkley along the River Wharfe we found two lots of otter spraint on rocks in the river near Cocking End. We also recorded molehills and rabbits in this location. Last records of the day were molehills and rabbit droppings in fields next to Ilkley Lawn Tennis and Squash Club, before we retired for tea and cake in Ilkley.



Some amusing signage correction, farmyard fowl and veteran oak trees provided extra interest on the Ilkley mammal walk (Andrew Halcro-Johnston)



Our evening walk on **2nd May** went from **North Barn, Scoreby near Stamford Bridge**, courtesy of John and Denise Ray. Our first record was an excellent view of a roebuck lying up in long grass on a track near The Hags with some possible water vole burrows and prints along a nearby drainage ditch. We were briefly distracted by two lovely big brown hares before finding definite water vole droppings on a raft which had been placed in the ditch a couple of weeks earlier. Moving on, a field margin alongside Hagg Wood provided molehills and the sharp smell of a fox. A female roe deer was spotted on the edge of the wood and heading back across the fields as dusk fell we noticed a fox sitting in the hedge bottom and then a badger in the edge of a small plantation. A badger sett and latrine were also evident in this location. Our final record before heading back to North Barn for some much appreciated refreshments was a common pipistrelle hunting along the edge of Wilson's Plantation.



Ann showing off the water vole signs (Andrew Halcro-Johnston)

After a summer break from recording walks, **19th November** found us at **Ripley near Harrogate**. Walking out northwards along the Nidderdale Way we recorded molehills and a row of killed moles hanging on a fence (a mole catcher had obviously been at work). A roadkill brown rat was also spotted near Birthwaite Farm. The Nidderdale Way running alongside Sir Henry Wood yielded the smell of a fox, some roe deer droppings, molehills and rabbit fur. A bit further along at Cayton Gill Wood some fox fur was found on a wire fence along with a badger sett under Rhododendron bushes. In fields near Cayton Gill Farm we recorded molehills, brown rat droppings in a hollow tree, roe deer slots and droppings, rabbit burrows, fox scat and field vole feeding remains in an area of cocksfoot grass.

Heading back towards Ripley we located another badger sett in Wood Hill Plantation along with a fast moving brown hare and some molehills. Last records of the day were molehills and rabbit droppings in fields near Newton Hall before a well-earned stop in Ripley Castle Tea Rooms.

A pre-Christmas walk on **16th December along the River Derwent from Kirkham Priory** first provided molehills in the car park at the priory. Walking along the edge of Oak Cliff Wood we recorded a grey squirrel drey, some roe deer slots, rabbit burrows and droppings, and a fox scat on a molehill (not as unusual as you might think...). A large badger sett was found within the wood, along with squirrel eaten pine cones and more rabbit droppings. Molehills were spotted in fields near Oakcliffe Farm with further molehills, rabbit burrows and a dead roe deer along Riders Lane. Molehills, fox scat and field vole feeding signs were recorded near Crambe Grange. Walking back along the River Derwent we found otter spraint on a log in the river opposite Howsham Hall, roe deer slots in soft mud on the river bank and molehills in nearby fields. A bit further along the river, an otter footprint was recorded on a molehill in a small wetland, with a fox scat on another molehill at Sandlands. Our final record of the day was an otter trying to compete with the foxes by leaving a spraint on a molehill alongside the river near Howsham Wood. Hot chocolate at Castle Howard was our reward for a hard days' mammal recording!



Badger sett in Oak Cliff Wood near Kirkham Priory (Chris Scott)

Many thanks to everyone came along on mammal recording walks in 2017 – there was certainly plenty to see.

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

Ian Court¹ & Ian White²

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and ²People's Trust for Endangered Species*



YORKSHIRE DALES
National Park Authority

Introduction

A reintroduction of 35 captive bred Hazel Dormouse *Muscardinus avellanarius* into Freeholders' Wood, Aysgarth was undertaken in 2008 and has previously been documented by White and Court (2012).

This report contains details of the monitoring work undertaken at Freeholders' Wood between 2009 and 2017 as part of the National Dormouse Monitoring Programme. In order to provide some context to the results, data is compared with results from the national dataset and Briddlesford Woods, a 160 ha semi ancient natural woodland on the Isle of Wight that is owned by PTES and is one of the key sites in the National Dormouse Monitoring Programme (NDMP).



Photo: © Ian Court YDNPA

Methodology

The monitoring work was undertaken in accordance with the National Dormouse Monitoring Programme (NDMP) survey guidelines (PTES, 2011), with licensed fieldworkers checking nest boxes once each month from May to October. The numbers of boxes that contained distinctive Dormouse nests but where no Dormice were present were also recorded. Where a Dormouse was found, the sex, weight, breeding condition and whether the animal was active or in torpor were also recorded. The Dormice were also aged as an adult (i.e. an animal that has survived at least one winter) by the orange-brown colour of the fur, or as a juvenile (i.e. independent young in their first year with a weight of >10g) with more brownish fur than an adult. The number of young were counted, weighed where appropriate, and classed as pink (no fur), grey (grey fur and eyes still closed) or eyes open (grey-brown fur and eyes open).

In order for comparisons to be made, the number of dormice found per 50 nest boxes checked is derived.

A summary of weather conditions during the season has been derived from national monthly summary data provided by the Met Office (2018).

Results

The monthly national weather summary for 2017 was as follows:

April

At the beginning of the month it was often warm with plenty of sunshine. From the 10th onwards temperatures were close to average, but there were some cool nights. This was followed by a brief cold snap with wintry showers and some overnight frosts. Mean temperatures were just above normal and rainfall totals were average.

May

A slackening low pressure system at the start of May resulted in dry and sunny weather in the north. More unsettled weather arrived mid-month with a mixture of rain showers and brighter periods. Overall it was the second warmest May, with mean minimum temperatures between 1 and 2°C above average in all regions. Rainfall was below normal across northern England.

June

It was an unsettled start to the month with significant amounts of rain, followed by a period of very warm weather from the 16th. This didn't last

long and was soon followed by a low pressure system bringing more unsettled weather and heavy rain at the start of the month. Overall it was a wet month with higher than average rainfall.

July

It was an unsettled month, with only brief periods of fine weather. The end of the month was particularly cool with some heavy and persistent rain at times. Temperatures were mostly below average with more than the normal amount of rainfall.

August

The westerly airflow continued into August resulting in mainly cool conditions with cloud and rain at times. Temperatures increased between 17th and 23rd in association with some fine weather but it was cool and showery again by the end of the month. Overall temperatures were average, with slightly higher than normal rainfall.

September

Apart from a brief period of dry and sunny weather at the start of the month, it was generally unsettled with an unusually high number of rain days across England in particular. North-westerly winds brought belts of rain, interspersed with bright showery conditions. After the passage of Storm Aileen it was generally warmer from 20th onwards with some cloud and rain.

October

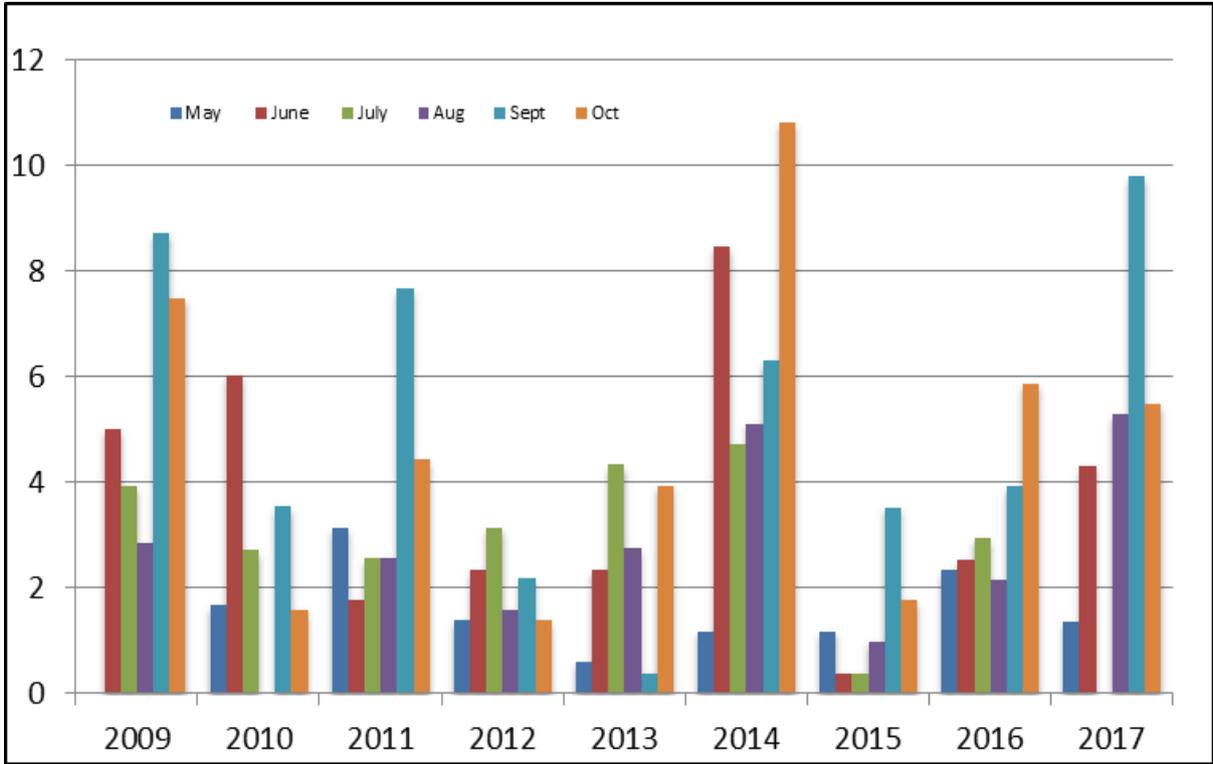
There was a succession of frontal systems moving across the country at the start of the month bringing a mixture of bright and showery weather. Although it remained cloudy through the middle of the month but rainfall levels were relatively low. It became colder towards the end of the month, with a ground frost on the last few days.

The number of Dormice found in Freeholders' Wood in 2018 is shown in Table 1. The number of Dormice found per 50 nest boxes between 2008 and 2017 is shown in Figure 1.

Table 1. The number of Dormice found during monitoring work in Freeholders’ wood in 2017.

Survey date	No. of Dormice found	No. of empty nests	No. of boxes checked	No. Dormice per 50 boxes checked
17/05/2017	7	2	255	1.37
21/06/2017	22	3	255	4.31
23/08/2017	27	14	255	5.29
20/09/2017	50	27	255	9.80
18/10/2017	28	17	255	5.49

Figure 1. The number of Dormice found per 50 boxes checked at Freeholders’ Wood, Aysgarth between 2008 and 2017.

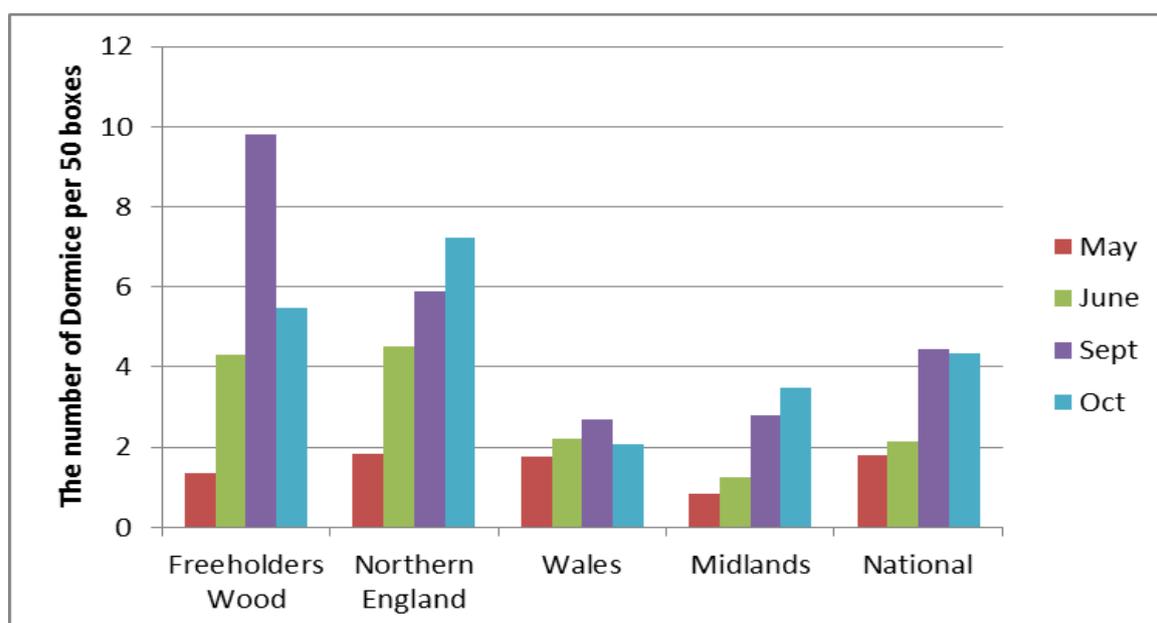


In order to give a context to the data from Freeholders’ Wood, NDMP results from other areas of the country in May, June, September and October are shown in Table 2 and Figure 2.

Table 2. The number of Dormice found per 50 boxes checked in Freeholders' Wood, the Northern Counties (Cumbria, North Yorks), Wales, the Midlands (Cheshire, Derbyshire, Shropshire, Warwickshire, Staffordshire and Nottinghamshire) and nationally as part of the NDMP in 2017.

No. of Dormice per 50 boxes in wood or area recorded for the National Dormouse Monitoring Programme (NDMP) in 2017					
	Freeholders' Wood	Northern England	Wales	Midlands	National
Max. no. sites checked	1	3	39	20	364
Total no. boxes checked	255	390	1569	1314	17851
Month					
May	1.37	1.82	1.76	0.84	1.79
June	4.31	4.51	2.21	1.25	2.13
Sept	9.8	5.90	2.68	2.79	4.45
Oct	5.49	7.24	2.08	3.49	4.33

Figure 2. The number of Dormice found per 50 boxes checked in Freeholders' Wood, the Northern Counties (Cumbria, North Yorks), Wales, the Midlands (Cheshire, Derbyshire, Shropshire, Warwickshire, Staffordshire and Nottinghamshire) and nationally as part of the NDMP in 2017.



The total numbers of Dormice found at Freeholders' Wood during monthly counts in 2017 and selected monthly counts from Briddlesford Wood are shown in Table 3.

Table 3. The number of Dormice and empty Dormice nests found during monthly monitoring work at Freeholders' Wood and selected months from Briddlesford Wood in 2017.

Freeholders' Wood				
Survey date	Total no. of Dormice	No. of empty nests	No. of boxes checked	No. Dormice per 50 boxes checked
17/05/2017	7	2	255	1.37
21/06/2017	22	3	255	4.31
July	No nest box checks completed.			
23/08/2017	27	14	255	5.29
20/09/2017	50	27	255	9.80
18/10/2017	28	17	255	5.49
Briddlesford Wood				
May 2017	35	38	549	3.19
Jun 2017	15	45	542	1.38
Sep 2017	45	75	548	4.11
Oct 2017	59	99	493	5.98

Discussion

Over-winter survival was reasonable with the number of Dormice found in May and June within the range of previous years.

Breeding success is assessed by determining the number of litters with young of age class pink or grey recorded each month. In 2017 there were three litters in June, three in August, and five in September with none in October. Unfortunately there were no nest box checks in July. The number of litters found in June and August were identical to those found in 2016, but there were three more litters found in September compared to the previous year. Although at the time it did not appear to be a particularly successful breeding season, the October count of 9.8 Dormice per 50 boxes checked (28 individual Dormice) was the second highest count at Freeholders' Wood.

Bright *et al.* (2006) indicate that juveniles need to reach a minimum weight of 15g by late October in order to survive hibernation, and so looking at

the weights recorded in autumn will give an indication of food supply and potentially over-winter survival.

The average weight of juvenile Dormice at Freeholders' Wood in October was 12.6g (n = 16 Dormice), lower than the mean weight of 16.9g (n = 5) in 2016. Only four of the juvenile Dormice weighed 15g or above.

The weights of the adults were exceptional, with a mean weight of 26g (n = 10), compared to a mean of 19.9g (n = 9) in 2016. The weights of a number of individual adults were the highest ever recorded at Freeholder's Wood and included weights of 36g, 30g and two at 28g, with the lowest weight at 21g. This would suggest that there was an excellent food supply and foraging conditions were good during the late autumn period.

Although annual fluctuations make determining a definitive population trend difficult, it would appear that the Dormouse population at Freeholders' Wood is stable.

As part of the monitoring work, two trainees have been working towards their Natural England licences, with one applying for an individual licence at the end of the survey season.

Acknowledgements

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