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### *John Ray*

Taking over from Charles Critchley, Gordon Woodroffe kindly acted as the YMG Chairman in 2016. The group is grateful to both gentlemen. There was a full complement of events during 2016.

Guest speakers in the months of darker nights included Gordon Woodroffe on Water Vole ecology, Lizzie Croose on the Pine Marten recovery project, Rob Young on Maned Wolves' behaviour and ecology, Sean Twiss on the behaviour of Grey Seals, Hugh Warwick on Hedgehog conservation (organised by CIEEM), Ellie Jones on House Mouse phylogeny, John Traill on mammals of the River Hull chalk streams, Roland Ennos on Orangutans' use of trees, Jackie Abell on Lion conservation and management and Emily Howard-Williams on Harvest Mouse detection. We thank Gill Sinclair for arranging them and Natasha Hambly for taking over that role from 2017.

There were frequent walks throughout Yorkshire and in the warmer months small mammal trapping surveys were conducted at Barmby Moor, Elland, Escrick, Selby, Otley, Filey, Easingwold and Goole. Thanks to Ann Hanson and Rob Masheder for organising them, assisted in the field by Mary Youngman amongst others.

YMG were represented with a stand demonstrating owl pellet analysis at wildlife days including at Dalby Forest, North York Moors National Park (Sutton Bank) and Three Hagges Wood near Escrick.

Regrettably checks of boxes near West Tanfield in May and September did not yield positive identification of dormice.

Natasha Hambly kept us advised of forthcoming events via our newsletter, circulated by John Drewett, who continued to find time in his busy North Yorkshire Bat Group work schedule to administer membership.

Amy Jane-Beer employed her creative talents to publicise our activities, via traditional and social media.

Mary Youngman compiled an index for all previous volumes of Imprint and scanned several volumes; they are now available via the Archive page on our website ([www.yorkshiremammalgroup.org.uk](http://www.yorkshiremammalgroup.org.uk)) with more to be added in future.

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

Our 2017/2018 season of talks will take place in St. Olave's Church Hall, Marygate Lane, York, YO30 7BJ. This venue is close to the previous one, The Bay Horse, whose function room was suitable, but was not always allocated to the group as agreed. Many of the speakers travel a long way, giving their time freely. Audience numbers have sometimes been embarrassingly low and members are urged to attend them.

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

## Reintroducing water voles to Malham Tarn

*Kate Wright*

In Summer 2016, the National Trust embarked on a project to reintroduce one of Britain's fastest declining mammals, the water vole, to Malham Tarn after a fifty year absence. Two hundred specially bred water voles are being released at Malham over two years. They are believed to have been wiped out in the 1960s by mink, which escaped from fur farms nearby.

In March 2017, Ranger Roisin Black reported there was not much to see of the voles, however as the days get longer and things begin to warm up they are getting more and more active, feeding and marking territories ready for breeding soon. So far it looks like the water voles are really making Malham Tarn their home, changing how the bank sides look and adding to the diversity of species in the area.

Floating platforms are useful in surveying for this sometimes elusive animal, as the water voles use them to mark their territory by leaving latrine piles, as seen in the photograph. The final phase of the water vole reintroduction will take place later in Spring 2017.

Rangers will monitor the health of the water vole population over the coming years. It is hoped that the animals will recolonise the Tarn and its surrounding streams in the Yorkshire Dales.



(Photo: Paul Dunn, National Trust volunteer photographer)

Read more about the reintroduction project on the National Trust website: <https://www.nationaltrust.org.uk/news/water-voles-return-to-malham-tarn-after-fifty-year-absence>

## Supplementary dormouse release in the Yorkshire Dales National Park

*Ian Court, Yorkshire Dales National Park Authority*

A supplementary reintroduction of 38 Hazel Dormice *Muscardinus avellanarius* into a woodland near Aysgarth in Wensleydale was undertaken in June 2016 by the Yorkshire Dales National Park Authority (YDNPA), the People's Trust for Endangered Species (PTES), Natural England, Zoological Society of London, Paignton Zoo, Common Dormouse Captive Breeders Group, and the Bolton Estate.

Post-release monitoring of nest boxes on site was undertaken in September following the National Dormouse Monitoring Programme guidelines, with a total of 32 Dormice located including 12 juveniles, three females with

young (two with ‘pinks’ and one with ‘eyes open’) and a further 13 boxes containing Dormice nests but no Dormice. In October, 31 Dormice were located including 15 juveniles, one litter of five dead young (pinks) and an additional 19 boxes containing Dormice nests.

The results were comparable to those at the Freeholders’ Wood site where a reintroduction took place in 2008. YDNPA and PTES are currently developing a project with key stakeholders to improve the habitat and habitat connectivity for Dormice in the mid-Wensleydale area.

Read more about the dormouse release at:

<https://ptes.org/rare-dormice-return-yorkshire-dales-national-park/>

## Pine marten caught on camera in North Yorkshire

*Andrew Halcro-Johnston*

Exciting news: the elusive pine marten *Martes martes* has been found in Yorkshire 35 years after the last confirmed sighting of a live animal.

The male marten was caught on a camera trap set on Forestry Commission land in the North York Moors in August 2017, following four years of monitoring by the Yorkshire Pine Marten Project. The project is run by social enterprise NatureSpy, from which James McConnell and Hannah Henshaw came to give a talk to Yorkshire Mammal Group in 2015. We are very pleased to add this record to the YMG database.

Pine marten is one of England’s rarest animals and news of the footage has made it into the national press, including The Guardian and BBC News. Once a common species in the UK, loss of woodland habitat and predator control have left small populations confined to the uplands of Northern England and Wales, with increasing numbers in the Scottish Highlands.

NatureSpy will now focus on finding out more about the North Yorkshire population and how it can be supported by conservation efforts. The project is currently raising funds to purchase more camera traps and hair traps which will allow DNA to be extracted. You can find out more and watch the pine marten video footage on the project website:

<http://www.naturespy.org/yorkshire-pine-marten-project/>

## Camera trapping badgers

*John and Denise Ray*

We had for some time considered getting a wildlife camera, commonly known as a “camera trap”. Following a talk on the subject, and having overcome my distaste of the model name, we purchased a Bushnell Trophy Cam, from the organisation who gave a talk to the group. Its passive infra-red sensor detects wildlife movement.

The primary intention was to photograph the nocturnal, therefore rarely seen by us, badger. Accordingly, we placed it on various trees overlooking known field signs, i.e. trails and an outlying sett. The camera was supplied with a strap with plastic buckles, of sufficient length to fasten around small trees. Obtaining the correct angle took some experimentation. We found tilting the camera slightly downwards worked best, which required wedging a stick between the back of the camera and the tree trunk.

It can be set to take stills or videos, the latter being our usual choice because they provide more interesting glimpses of behaviour. We accepted the default setting of 10 seconds video length, with an interval between successive triggering of 10 seconds minimum. We sometimes bait the area around the camera trap with food to keep the subject around for a little longer. The default image and video resolution size settings also seem acceptable.

The front of the camera incorporates a matrix of LED lights which act as a night vision infra-red flashlight. Their intensity settings are low, medium and high, the latter providing the best results for us. Photos taken at night appear in black and white.

The camera is powered by eight lithium AA batteries. Compared to normal alkaline AA batteries they are relatively expensive, but last a significant time, e.g. around one year for us. The photographs are recorded on SD cards. When one is retrieved to bring home, it's replaced with another. The video format is .AVI and still format is .JPG, both of which are readable on a PC running Microsoft Windows, without needing to install additional software. The .AVI files are not readable on a laptop running Apple OS X - extra software would be required. The SD card, formatted using the

Bushnell camera's in-built utility software, was also not readable in an Apple Mac.

As well as filming badgers, a sow and one cub last year, a sow, probably last year's cub, and two young cubs this year, we have "caught" foxes, roe deer, grey squirrels, pheasants, pigeons, cats, dogs and human trespassers.

We secure the camera with a lock and chain around the tree; the opening in the camera's handle is narrow, only allowing only a small lock shank to pass through it.

The highlight of our efforts has been to get a glimpse of this year's badger cubs' first foray above ground, which happened in early April. In mid-April the cubs are only above ground for a few minutes and still kept very close to the sett entrance.



## Wharfedale Naturalists' Society mammal talks

### *Gordon Haycock*

The Wharfedale Naturalists' Society winter 2017 programme has meetings with a mammal / conservation focus which may be of interest to YMG members. The meetings are:

Tuesday 12th September – Back to the Future with Beavers in Britain – Rosie Holdsworth

Tuesday 24th October – Future of Farming and Re-wilding in Yorkshire Dales – Dr Steve Carver and Chris Clark of Nethergill Farm

Tuesday 28th November – Red Squirrel Conservation in YDNP, and Birds of the National Park – Ian Court, Wildlife Conservation Officer

Meetings are held at 7.30pm at Christchurch, The Grove, Ilkley LS29 9LW. All are welcome to attend, however, non-members will need to pay £2.50 on the door. Further details are on the WNS website: [www.wharfedale-nats.org.uk](http://www.wharfedale-nats.org.uk)

## Conserving the hedgehog – Hugh Warwick talk

### *Andrew Halcro-Johnston*

In November 2016 YMG and the Yorkshire and Humber section of CIEEM (Chartered Institute of Ecology and Environmental Management) held a very successful evening on the theme of hedgehog conservation, with over 80 attendees filling the lecture theatre at York College. Our main speaker was author and hedgehog champion Hugh Warwick, who gave an amusing talk on the cultural significance of the creatures as well as the national Hedgehog Street campaign to protect them. Toni Bunnell also spoke about her work rehabilitating animals at the York Hedgehog Rescue Centre, and both authors signed copies of their hedgehog-themed books.

Thanks go to Amy-Jane Beer, Bernadette Lobo and Ben Whitworth for helping organise the evening, and to Tim Hall of Yorkshire Wildlife Trust for providing a display. We hope to organise more joint events in future.

# The past, present and future of private rhino conservation in South Africa

*Laura Chapman, University of York*

The rhinos of Africa have suffered extensive persecution historically for their horns. Concerted conservation efforts in South Africa brought the southern white rhino (*Ceratotherium simum simum*) back from the brink of extinction in the early 20<sup>th</sup> century, but now these charismatic megaherbivores once again face population decline due to poaching. Whilst the efforts of international NGOs are widely publicised, the daily struggle of private rhino owners to protect their stock, and their role in the recovery of rhinos throughout the 20<sup>th</sup> century, are often overlooked. Whilst most rhinos in South Africa are protected either in South African National Parks (SANParks) or provincial parks, around a quarter are under private ownership. The potential for private ownership to contribute to the future protection of these animals must not be ignored.

## **The Past**

Black (*Diceros bicornis spp.*) and white rhinos are one of South Africa's "big five"; the most difficult to hunt on foot and therefore the most valued by hunters. Whilst the rest of the big five (lions (*Panthera leo*), leopards (*Panthera pardus*), buffalo (*Syncerus caffer*) and elephants (*Loxodonta africana*)) were also heavily hunted throughout the 19<sup>th</sup> century, rhinos faced additional problems due to land clearances. The black rhino was historically more numerous and may have numbered up to 850,000 across the whole of Africa at one stage. Black rhinos were also affected by the land clearances that reduced white rhino populations, with an estimated 100,000 remaining by 1960. By 1900, the number of white rhinos had dropped to fewer than 50. At that point, all white rhinos were in one population under the ownership of the then Natal Parks Board and intensive breeding programmes were started; resulting in over 1,800 white rhinos by 1968.

The intensive breeding and conservation programme known as "Operation Rhino" was instigated to sell some of these animals to private owners in order to ensure the carrying capacity of the region was not exceeded. The first sales of white rhinos from Natal Parks Board to private owners occurred in 1986, with black rhino sales following in 1990. Trophy hunting

of white rhinos was legalised in 1968. The ability to now own white rhinos and offer them as hunting trophies once again allowed private white rhino owners to offer hunters a big five experience. Since this legalisation of trophy hunting of white rhinos, the population in South Africa has increased six-fold, due to the now strong financial incentives to keep and breed these animals. The total white rhino population of South Africa is now around 20,375 and the continental black rhino population is approximately 5,000.

All species of rhino were placed on the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I (which restricts all commercial international trade in listed species and their parts) in 1977. After this listing on Appendix I, the final end market price of rhino horn increased significantly; triggering poaching and stockpiling of rhino horn by producers. The international trade ban was in place until 1994, when the export of white rhino trophies, from South Africa only, was legalised



**Black rhino (Laura Chapman)**

by the downgrading of these populations to CITES Appendix II. Since this move to CITES Appendix II, the white rhino population of South Africa has increased by 50%.

Throughout the 1970s to the mid-1990s (whilst international trade was prohibited), the white rhinos of South Africa suffered their first poaching epidemic; primarily due to the demand for traditional medicine in Asia and dagger handles in Yemen. This first major poaching epidemic was not exclusive to South Africa and resulted in the loss of around 100,000 rhinos across the continent. Black rhinos in Kenya were particularly heavily persecuted throughout this time and total black rhino numbers decreased by 96% across Africa between 1970 and 1992. Total numbers of black rhinos across Africa had dropped to only 2,410 by 1995.

## The Present

By 2012, the South African population, of around 18,800 white rhinos, represented almost 95% of the total wild population, with approximately 25% of these in private hands. South Africa was also estimated to hold around 1,915 black rhinos (40% of the total population), with about 22% of these in the private sector. Private sector ownership of these animals therefore represents a sizeable proportion of the total population. Private owners regularly buy and sell stock, both from the private sector and from SANParks and provincial bodies, with the South African Government selling 581 rhinos between 2005 and 2008, generating £11.8 million. Whilst the prices achieved by state and provincial animals are not as high as those from privately reared animals, this still represents a sizeable contribution to the income of these state conservation organisations.

As previously mentioned, rhinos suffered from heavy poaching through the 1970s to the mid-1990s, but this had mostly stabilised with an average of fourteen rhinos poached per year in South Africa between 1990 and 2005. However, the development of the Vietnamese market has increased this number to over 1,000 per year for the last four years (as shown in Fig. 1). At almost 5% of the population, such poaching levels (combined with natural mortality) have reversed the population increase and white rhinos are now known to be in decline again.

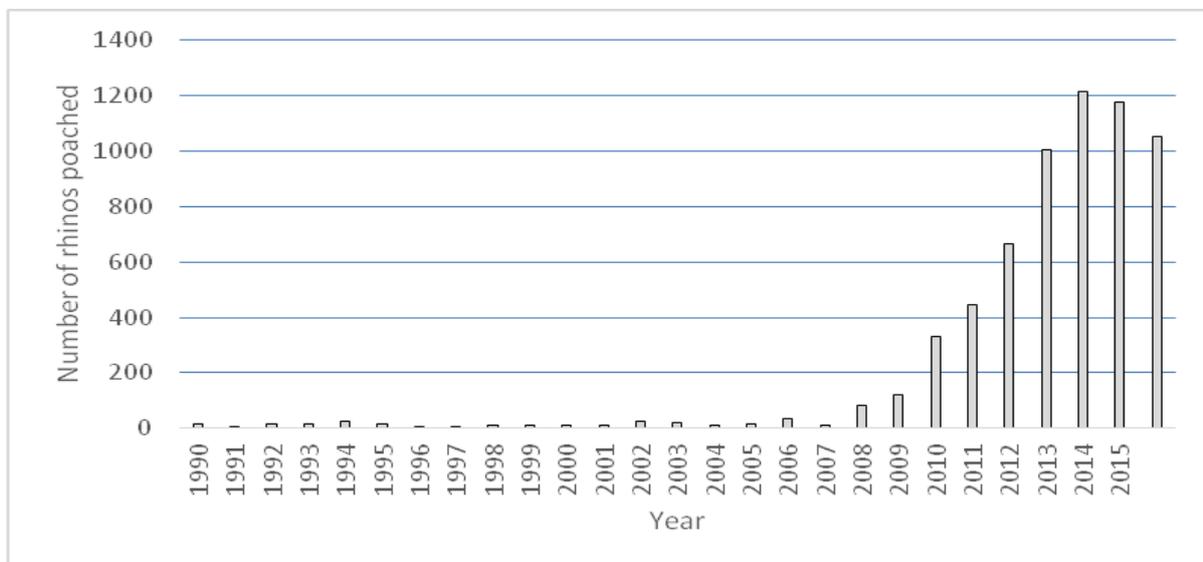


Figure 1: Rhinos poached in South Africa, 1990-2016

Whilst rhino poaching has increased significantly, it appears that it is still treated as a low priority crime by South African law enforcement, who are also known to be involved in the corruption surrounding rhino poaching. The HAWKS, a specialised priority crime division of the South African

Police Service (SAPS) have developed standardised procedures for dealing with poaching events, but it is clear that these are not always being followed. On one occasion, in 2014, police officers called to the scene of a poaching incident took selfies with the carcasses, brought coolers of beer with them and cut meat from the poached animals to braai (barbeque).



Understanding market forces that drive the trade for rhino horn are complicated by the illegality of the market. Rhino horn is made from compressed keratin, the same material as human hair and finger/toenails and has no medicinal properties. However, rhino horn has been used in traditional Asian medicine since 2600 BCE as a cure for everything from fevers and headaches to measles and strokes. Whilst this traditional market has existed for a significant length of time, it has expanded in recent years with the newfound, previously mostly dormant, Vietnamese market. The Milliken and Shaw (2012) review of the trade in rhino horn between South Africa and Vietnam found that, alongside its traditional use as a general tonic, rhino horn has also been promoted as a cure for cancer and is commonly used, mixed with water, as a hangover cure. They also found that whilst it has long been the case that Western society linked rhino horn use in the East with its supposed aphrodisiac qualities (debunked by traditional exponents of Asian medicine) it has now come full circle and men are now embracing horn for these reasons in “aphrodisiac rhino wine”. They also highlight that horn is being used in Vietnam as an expensive gift or partial payment for luxury items (sometimes involving political officials), as well as a way to conspicuously flaunt wealth.

In 2015, rhino horn was trading for approximately £47,000 per pound, which is around £21,000 per kilogram; more than cocaine or gold. Were horns able to be legally traded internationally this would represent a substantial income for a rhino horn trader, or indeed a private owner, given that the average African rhino carries 4kg of horn. This figure is likely to be an underestimate, as the average adult male white rhino carries 8.31kg of horn (across both anterior and posterior horns) and the average adult female white rhino has 5.23kg of horn. Even the smaller black rhinos still carry enough horn to make them incredibly valuable, with the average adult black rhino carrying 2.65kg of horn. Since rhino horn grows back, rhinos (unlike many animals used in traditional medicine) do not need to die in order for their useful product to be collected; they can simply have the horns cut. This would provide a constant supply of horn as even the horns of old adults (those over 25 years of age) grow on average 36.5mm per year. Based on a price of only £1,500 per kilogram, an adult male white rhino over 20 years of age will produce over £2,000 of horn annually. Even without dehorning of rhinos, the natural death rate, of around 2.6%, would generate a significant number of horns each year.

In light of this demand and very high value, the calls from private owners to legalise the trade in rhino horn could be interpreted in two ways: the way in which they claim, which is in the interests of species preservation, or in the interest of their own financial situation. Irrespective of their motives, it is noted that a lack of legal trade in rhino horn runs the risk of reducing incentives for private rhino owners and so may increase the rate of disinvestment in rhinos, which is already occurring. What is clear is that conservation has an economic value and rhinos are very valuable animals, both dead and (potentially) alive.

One of the most significant economic benefits of rhino ownership comes in the form of trophy hunting. Whilst it is understandable that some find trophy hunting in general (and trophy hunting of rare species in particular) distasteful, the potential income derived from this activity is not inconsequential. When an animal is very rare, it may be necessary to completely restrict all hunting of that species, or significantly restrict it. This is the case with black rhinos, which can only legally be hunted (in very small numbers) in South Africa and Namibia. Hunting must remain sustainable in order to maintain the quality of the trophies and so hunting offtakes are usually lower than the reproductive rate of the population. Trophy hunting of rhinos has been restricted to varying extents in South Africa, but is currently permitted for white rhinos and five male black rhino hunting trophies per year. Trophy hunting in sub-Saharan Africa has

over 18,500 clients per year, generating over £156 million per annum (based on 2007 estimates); money which can then be utilised for further conservation. The CITES Trade Database indicates that 22 white rhino horns and trophies and only one black rhino trophy were exported from South Africa in 2015 and so the legal international demand for these trophies is currently low. However, 74% of the total income from trophy hunting and other consumptive use of wildlife in South Africa comes from the 300,000 South African hunters, so national demand for the sport is still very high. Trophy hunting of many species, including rhinos, is used to control surplus males and prevents populations exceeding the carrying capacity of the habitat, but specifically in the case of rhinos, it has given the animals value and made it profitable to keep them.

Unfortunately, it is the case that legal trophy hunting of white rhinos has been used as a cover for the illegal trading of rhino horn. Milliken and Shaw (2012) provide a detailed discussion of these issues, pertaining to illegal activity producing rhino horn for the Vietnamese markets. This report highlights the increase, since 2004, of non-traditional hunters buying permits to shoot rhinos (particularly from Vietnam), with five Vietnamese syndicates believed to have conducted 203 hunts between 2005 and 2007. From 2007 to 2009, Vietnamese hunters were second only to Americans in the number of rhino hunts conducted and in 2006 they were third behind Spanish hunters. Prices increased significantly during this time, suggesting that there was an attempt to price traditional hunters out of the market; Vietnamese rhino hunters paid a total of £17 million between 2003 and 2010. The report also highlights the use of pseudo-hunters; inexperienced or naïve hunters, including Thai prostitutes, with no interest in having their trophies mounted. The authors suggest that these pseudo-hunters were used in order to allow syndicates to continue to collect rhino horn without hunting themselves, after changes to the regulations pertaining to rhino hunting were brought in to prevent individuals conducting multiple hunts. In 2009, the Professional Hunters Association of South Africa (PHASA) advised its members against taking on Vietnamese hunters due to their concerns over the legality of such hunts. Further legislative changes in 2012, which includes a requirement for evidence of a hunting background, have largely controlled this issue of pseudo-hunting.

It is not optimal for small scale, subsistence poaching operations to poach rhinos or elephants, but it does pay for larger groups. Rhino poachers are however known to hire subsistence poachers; paying them £800-7,000 per kilogram in South Africa. These huge financial rewards make it cost effective to use sophisticated technology, such as helicopters and

immobilisation darts to target rhinos. The use of immobilisation drugs and rhinos being killed with well-placed bullets, fired by skilled marksmen, indicate the involvement of wildlife industry professionals in rhino poaching. Some suggest that these corrupt veterinarians, game farm owners, game capture professionals, professional hunters and pilots may be up to 3% of the industry. These professionals may act as local middlemen, whilst poachers may be from the local community, the wildlife industry or may be former police or military. Members of the military have also been implicated in rhino poaching in Nepal and highly trained former civil war soldiers from Mozambique are known to be involved in rhino poaching in South Africa. Even considering only individuals who are not former civil war soldiers, poachers from Mozambique are known to be a significant factor in the poaching of rhinos in South Africa, particularly in Kruger National Park (KNP), where the open border is very close and allows an escape route for poachers beyond which South African law enforcement cannot follow.

Once a rhino has been poached and its horn removed, which can be done in minutes, the horn is usually passed to middlemen, of which there may be several levels. In South Africa, these middlemen are usually South African nationals, often of Asian descent, who conduct a considerable amount of trade in horn. A single Thai man exported 300 kilograms in 2007 and 2008, 80% of which came from a single businessman of Vietnamese descent. These middlemen then use a series of cover mules, primarily air passengers including students and workers with the Vietnamese Embassy in Pretoria, to smuggle the horn out of South Africa. In the past, wildlife poachers were not usually associated with international crime syndicates, with the exception of abalone (any genus and species of the family Haliotidae) poaching, which was controlled by the triads, but it is now recognised that organised crime syndicates are playing a role in rhino poaching and smuggling, including European groups.

Protecting these animals from poaching is an additional prohibitive expense on top of the already high cost of protecting endangered species. In 2012, private rhino owners spent, on average, £1,800 to £2,300 per month on extra security even though the average annual South African household expenditure in 2011 was only £5,660.

Some of the ways that private owners have tried to protect their rhino stock include dehorning and the injection of poisoned dye into the horns. Dehorning has also been carried out in a few provincial parks, but is not used by other provincial parks or by SANParks. Dehorning is a simple

process, using chainsaws or cross-cut wood saws to cut horizontally through the horn above the growth plate. It can cost as little as £15 per animal to shave the horn. Complete dehorning costs on average £758, reduced to £97-195 if the animals can be darted from the ground, and highs of up to £1,250 per rhino in difficult terrain or where populations are widely dispersed. Dehorning also needs to be repeated on a regular basis, with most recommendations suggesting that older animals and males are dehorned slightly more regularly than females and younger animals. Rhinos under severe threat of poaching should be dehorned every 12 to 24 months and those under intermediate threat, every 24 to 36 months. With very large populations, dehorning therefore becomes impractical and uneconomic as a poaching deterrent.



An alternative to dehorning rhino is to inject the horns with a poison which would make them unsuitable for consumption, but this is unlikely to work on a large scale, and also carries ethical considerations regarding the poisoning of end-users. As with dehorning, poisoning horns is an ongoing process as the horn grows, and the efficacy is unclear as yet. Poisoning horn also reduces the saleability of the product and so may actually drive prices even higher, potentially making rhino poaching even more attractive. Both dehorning and poisoning horns require rhinos to be sedated regularly, which carries an immediate low risk of mortality and has unknown long term implications.

These strategies may not even actually act as deterrents to poachers, as the poison is not visible and in some areas, poaching is so profitable that removing the small pieces of horn left after dehorning is still worth the risks associated with poaching. Unfortunately, this small piece of horn cannot be removed as cutting too close to the germinal layer can cause damage to the underlying vascular tissue, introduce infections and lead to horn deformities. Therefore, effective anti-poaching activity is still required in order for dehorning to be an effective deterrent to poachers.

Most reserves employ anti-poaching units (APUs), which may conduct regular foot patrols day and night, or may be deployed strategically in response to poaching threats. These APUs may consist of trained, armed, paid staff, or may be made up of volunteers. Whilst state backed reserves fund their APUs through their government funding as well as tourist generated income and donations from NGOs, private reserves must fund their anti-poaching activities from only the income they generate themselves. APUS with limited funding (as is the case on private reserves or those solely supported by NGOs) are under financial and manpower limitations which reduce their patrolling ability. Even in state backed reserves, funding limitations can still apply and result in inadequate staffing or staff who are not adequately trained in order to be effective. Private sector APUs face some more difficulties in dealing with poachers than those in state backed reserves as they are limited in the use of force they can apply due to restrictions on their use of semi-automatic weapons. Some also fear murder charges if they were to kill a poacher. South Africa does permit the use of lethal force to deal with poachers, but private APUs and volunteers are often unclear as to how this applies to them. Nevertheless, some private APUs are being trained in military techniques in the use of firearms, tracking, arrest procedures etc. by former military personnel. Indeed, some former South African Defence Force (SADF) soldiers moved into the conservation field after the end of apartheid as their skills in survival, planning and tracking and their understanding of weapons are easily transferable to that field.

As well as adopting military style techniques, reserves are also applying technology in the fight against rhino poachers. Drones are being deployed regularly to monitor animals and provide aerial surveillance; as are helicopters, microlights and mikroopters, which are similar to drones. Camera traps, GPS trackers and thermal imaging technology are also being increasingly used and are slightly more affordable pieces of technology, which may make them more accessible to private rhino owners. Even more advanced technologies include the use of radio frequency identification

(RFID) tags, which are microchips that can be attached or implanted into individuals to track their movements, acoustic traps that allow for the triangulation of noise sources (some are even able to deploy drones or other aerial equipment capable of recording video footage or still images) and military-style (mesh) networks that allow transmissions from chipped or radio tagged animals to be scrambled and then decoded preventing them from being picked up and interpreted by poachers.

Regardless of the effectiveness of anti-poaching activities, management and the utilisation of technology, high levels of poaching will only continue without effective law enforcement and penalties. The penalties applied to poaching must be effective as small penalties do not act as deterrents, especially when poachers perceive a low risk of being caught. It has been suggested that if the penalty is related to output then poaching is less likely, but if it is consistent regardless of poaching level then poaching is high. However, in areas where wages are very low, a small fine may be just as impossible to pay as a large one and so simply increasing fines does not necessarily act as a deterrent to poaching. Currently, rhino poachers in South Africa face penalties of over £2,370, which is likely to be far beyond their ability to pay. The South African justice system does appear to be considering rhino poaching a serious offence, with a stated current conviction rate of 88.8%. Of the 48 convicted of offences relating to rhino poaching between April 2015 and March 2016, 24 were imprisoned, 21 were fined and 3 were handed suspended sentences. Most were convicted of firearms and trespassing offences, but 16 were convicted of charges directly relating to rhino poaching; including possession of rhino horn, dealing in rhino horn and illegal hunting of rhinos. Whilst this conviction rate is high, it must be noted that 317 people were arrested for rhino poaching related offences in 2015 and 1,175 rhinos were poached, so whilst those who are charged are often convicted, it is clear that many are not caught and many who are caught, are not charged. The international aspects of this criminal activity mean that arrests and prosecutions are not just happening in South Africa, with arrests undertaken in at least eight incidences pertaining to the illegal trade in rhino horn between May and August 2015 in Czech Republic, Hong Kong, India, Kenya, Mozambique, Vietnam and the United States of America. The International Criminal Police Organization (INTERPOL) has also executed arrests around the world under the auspices of “Project Wisdom”, directed at curbing the trade in elephant ivory and rhino horn.

One suggested alternative to prosecuting poachers and fining them is to increase the use of shoot-on-sight policies. During the elephant poaching

of the 1970s to 1990s, Botswana, South Africa, Tanzania and Zambia did not implement shoot-on-sight policies and their elephant populations decreased, whilst the populations in Kenya and Zimbabwe, which did employ shoot-on-sight policies, increased over the same time period. There is also generally public and NGO (including Born Free, International Federation for Animal Welfare (IFAW) and Care for Wildlife International) support for shoot-on-sight policies for anti-poaching, with WWF even funding anti-poaching efforts in Zimbabwe which has a shoot-on-site policy. South Africa does not endorse shoot-on-sight policies and there are no indications that such a move is forthcoming. The South African Government has tried to encourage local communities to work against rhino poachers in their areas, with cash rewards of £6,000 available for information leading to the arrest of heads of poaching gangs and a further £59,500 for their subsequent conviction.



Private rhino owner with a pregnant, poached white rhino (Charles Theron)

## The Future

The future of private rhino ownership in South Africa does not appear to be positive. Some believe that rhino may end up reared in intensive farms for horn production; whilst others feel extinction is inevitable. The increased rarity of rhinos would increase the value of their horn and so

further increase their drive towards extinction. Increasing value before extinction would make it beneficial for rhino owners themselves to contribute to the decline. In order to prevent such outcomes, many owners are strongly in favour of international trade in rhino horn.

Alongside the international trade in white rhinos and their parts, South Africa also permitted national trade in rhino horn, until that was banned on the 13<sup>th</sup> February 2009. After multiple appeals, the moratorium on domestic trade was lifted and trade in horn within South Africa became legal on 7<sup>th</sup> April 2017. Some private owners have claimed that these restrictions (CITES and the national moratorium) are responsible for the poaching of rhinos. They have suggested that the large scale poaching of rhinos through the 1970s to the mid-1990s was driven by the CITES international ban and that the current poaching situation has been driven by the national moratorium. They believe that by cutting off the legal supply, poaching became the only option to meet the demand. It may be the case that the lifting of the national moratorium may see a decrease in rhino poaching, as it has been claimed that the national trade had previously, illegally, supplied international demand for rhino horn, but that is, as yet, unknown.

The Department of Environmental Affairs (DEA) had been investigating the feasibility of submitting a request to the 17<sup>th</sup> CITES Conference of Parties (CoP), held in Johannesburg in September 2016, to remove the South African white rhino population from Appendix II and place it on Appendix III. This would further reduce restrictions on the international trade of rhinos and their parts. However, at a cabinet meeting on 13<sup>th</sup> April 2016, it was agreed that South Africa would not apply to CITES to change the status of the rhino population and so will continue to oppose the international trade in rhino horn, despite this proposal being included in the DEA 2016 budget. This decision from the DEA has been generally welcomed by conservation charities and widely condemned by private rhino owners. Currently, the DEA is in a consultation process regarding the possibility of new legislation; the Regulations for the Domestic Trade in Rhinoceros Horn, and Products or Derivatives of Rhinoceros Horn, 2017. These regulations would apply to all rhino sub-species found in South Africa and would permit international sale of a maximum of two horns for personal use, subject to appropriate permits and regulations in the destination country to ensure CITES requirements are met. Due to the difficulties associated with detection and monitoring, shaved and powdered horn will not be eligible for export under these new regulations. Whether these regulations will pass and become law is currently unclear.

Trade would not only generate income for private owners which could be directed towards enhanced anti-poaching activities, but would also increase the total supply of horn and so reduce the profitability of illegally obtained supplies. It has been widely suggested that such trade could be regulated through a central selling organisation (CSO) with certified buyers. With trade through a CSO with funds directed back into anti-poaching and law enforcement, populations of over 35,000 and a generated income of almost £78 million by 2023 have been estimated. It has however been suggested that this idea is overly simplistic, with issues found by the De Beers diamond CSO in controlling the illegal trade in diamonds highlighted. Permitting systems and a national database to monitor stocks, or downlisting by CITES and national protocols for trade may provide the strict regulation of trade desired by owners; regardless of the involvement of a CSO or otherwise.

Most conservation NGOs are not in favour of trade and argue that increased anti-poaching activity, improved enforcement and demand reduction are better ways of protecting the rhino. Private owners counter this argument by highlighting a lack of funding for anti-poaching activities, lack of government will to protect rhinos and failure of previous demand reduction campaigns. Whilst a reduction in demand would be an ideal situation, without trade to supply the existing demand rhinos may not live long enough for such campaigns to have an impact.

Milliken, T. and Shaw, J. (2012). *The South Africa – Viet Nam Rhino Horn Trade Nexus: A deadly combination of institutional lapses, corrupt wildlife industry professionals and Asian crime syndicates*. Johannesburg: TRAFFIC.

## Small mammal surveys at Bempton RSPB reserve, Filey Country Park and Hunmanby Gap

*Jack Whitehead*

### **Small-mammal survey at Bempton RSPB reserve, May 2016**

#### **Background**

RSPB Bempton held a Bioblitz on Sunday 8<sup>th</sup> May 2016 and Yorkshire Mammal Group was invited to take part. Being close by, and having a

supply of live traps, the Filey team offered to trap the area over the weekend. The event was advertised by the RSPB and the Yorkshire Mammal Group and attracted public interest on the Sunday morning.

### Method

Thirty Tube traps and fourteen Longworths were put in place on Wednesday 4<sup>th</sup> May, loaded with hay and baited with a seed and grain mix, carrot, and mealworm pupae, and locked open. Habitats used included rough grassland, hedgerows and newly planted woodland. The traps were re-baited on Friday evening, 6<sup>th</sup> May and set to catch. Traps were inspected on Saturday 7<sup>th</sup> May, from 9am; following this rehearsal the traps were re-loaded and set to catch over Saturday/Sunday night. 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.

### Results

#### SATURDAY 7<sup>th</sup> May 2016

TRAP NUMBER	SPECIES	WEIGHT	SEX / AGE
T 1	Bank Vole	18 g	Male
T 3	Wood Mouse	26 g	Male
T 6	Common Shrew	7 g	
T 20	Common Shrew	10 g	
T 22	Pygmy Shrew	5.5 g	
T 27	Pygmy Shrew	5.5 g	
T 29	Pygmy Shrew	4 g	
L 33	Bank Vole	18 g	Male
L 40	Bank Vole	20 g	Male
L 42	Bank Vole	17 g	Male

T = Tube Trap, L = Longworth Trap

Three Longworth traps had false-dropped, all the remainder were empty.

#### SUNDAY 8<sup>th</sup> May 2016

TRAP NUMBER	SPECIES	WEIGHT	SEX / AGE
T 5	Wood Mouse	28 g	Pregnant
T 7	Bank Vole	18 g	Female

T 13	Bank Vole	18 g	Male
T 15	Bank Vole	22 g	Pregnant
T 18	Wood Mouse	20 g	Male
L 40	Bank Vole	20 g	Male
L 42	Bank Vole	16 g	Male
L 44	Bank Vole	18 g	Female

T = Tube Trap, L = Longworth Trap

One Longworth trap had false-dropped, all the remainder were empty.

### **Summary**

A quiet period of weather with overnight temperatures falling to 8<sup>0</sup>C; cool in the sea-mist on Saturday but sunny and much warmer for the public event on Sunday. The amount of animals caught (ten on Saturday and eight on Sunday) was disappointing, possibly reflecting a slow start to the breeding season. The Bempton Bioblitz is all about tallying the number of species; we managed to add a mere two as our shrews all deserted us on the day of the count.

I am very grateful to Mike Day, Gill Sinclair, Jackie Holder and Hilary Atkins who handled everything confidently, entertained the children and still had time to clean the traps.

## **Small-mammal survey at Filey Country Park, June 2016**

### **Background**

The Festival of Filey Committee asked Yorkshire Mammal Group to run a small-mammal survey for the public during the 2016 Festival. The Filey team offered to trap the area in conjunction with Friends of Filey Parks. The event was advertised in the Festival programme and locally, using posters.

### **Method**

Thirty Tube traps and fourteen Longworths were put in place on Wednesday 22<sup>nd</sup> June, loaded with hay and baited with a seed and grain mix, and mealworm pupae, and locked open. Habitats used included rough grassland, hedgerows adjacent to rape fields, and newly planted scrub and woodland. The traps were re-baited on Saturday evening, 25<sup>th</sup> June and set to catch. Traps were inspected on Sunday 26<sup>th</sup> June, from 9am; This 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.

**Results**  
**SUNDAY 26<sup>th</sup> June 2016**

<b>TRAP NUMBER</b>	<b>SPECIES</b>	<b>WEIGHT</b>	<b>SEX / AGE</b>
T1	Common Shrew	8 gms	
T2	Field Vole	25 gms	Male
T3	No trap		
T4	Field Vole	31 gms	Male
T5	Bank Vole	19 gms	Male
T6	Wood Mouse	32 gms	Female
T7	Bank Vole	19 gms	Male
T8	Common Shrew	8 gms	
T9	Bank Vole	21 gms	Male
T10	Bank Vole	15 gms	Female
T11	Field Vole	23 gms	Male
T12	Bank Vole	17 gms	Male
T13	Common Shrew	5 gms	
T14	Field Vole	20 gms	Male
T15	Bank Vole	21 gms	Male
T16	No trap		
T17	Bank Vole	20 gms	Female
T18	No trap		
T19	Common Shrew	9 gms	
T20	No trap		
T21	Common Shrew	8 gms	
T22	Common Shrew	7 gms	
T23	No trap (slug)		
T24	Common Shrew	7 gms	
T25	Bank Vole	21 gms	Female
T26	Common Shrew	7 gms	
T27	No trap		
T28	Bank Vole	16 gms	Male
T29	Bank Vole	18 gms	Male
T30	Common Shrew	7 gms	
L31	Bank Vole	15 gms	Male
L32	Bank Vole	Four individuals, released without sexing or weighing.	
L33	Bank Vole		
L34	Common Shrew	6 gms	
L35	Bank Vole	25 gms	Female

	Common Shrew	7 gms	Same trap as above
L36	Bank Vole	12 gms	Female
L37	Bank Vole	16 gms	Female
L38	Bank Vole	22 gms	Female
L39	Bank Vole	19 gms	Male
L40	Bank Vole	13 gms	Female
L41	Common Shrew	8 gms	
L42	Bank Vole	11 gms	Female
	Bank Vole	16 gms	Male
False drop			

T = Tube trap, L = Longworth trap

### Summary

Unexceptional weather in the few days before the trap lift, with overnight temperatures in double figures, some showery rain, but dry during the event with sunny periods. The amount of animals caught (40 in 44 traps) was exceptional; highlights were the two traps with multiple occupancy: one held a slightly dishevelled Bank Vole and a noisy Common Shrew, and the other, four Bank Voles, clearly a family group.

I am very grateful to Mike Day and Hilary Atkins for their help and to the Friends of Filey Parks for all their support (and supplying a brand-new gazebo). Nice also to see three YMG members helping with the glut of voles and shrews.



## Small-mammal survey at Hunmanby Gap, August 2016

### Background

This garden, about one mile from the coast at Hunmanby Gap, has been designed for wildlife, and though merely 10 metres by 10 metres, has a rich fauna. Bats are seen, Grey Squirrel, Brown Rat and Red Fox occur and Badger visit almost nightly; so we were asked to add to the species count by live trapping.

### Method

Thirty Tube traps and fourteen Longworths were put in place on Sunday 21<sup>st</sup> August, loaded with hay and baited with a seed and grain mix, and mealworm pupae, and locked open. Habitats used included unmanaged garden shrubbery, hawthorn hedgerows adjacent to ripe wheat fields, and waterside vegetation. The traps were re-baited on Tuesday evening, 23<sup>rd</sup> August and set to catch. Traps were inspected on Wednesday 24<sup>th</sup> August, from 9am.

### Results

#### WEDNESDAY 24<sup>th</sup> August 2016

TRAP NUMBER	SPECIES	WEIGHT	SEX / AGE
T1	Common Shrew	8 gms	
T2	Field Vole	23.5 gms	Male
T5	Bank Vole	25.5 gms	Female
T6	Common Shrew	8.5 gms	
T7	Wood Mouse	26 gms	Female
T8	Wood Mouse	12 gms	Juv
T9	Wood Mouse	10 gms	Juv
T11	Field Vole	32 gms	Female
T13	Field Vole	12.5 gms	Juv
T21	Bank Vole	28 gms	Male
T25	Bank Vole	23 gms	Female
L31	Wood Mouse	8.5 gms	Juv
L34	Wood Mouse	22 gms	Male
L36	Wood Mouse	10.5 gms	Juv
L39	Bank Vole	20 gms	Male
L40	Common Shrew	8 gms	

T = Tube trap, L = Longworth trap

One Longworth trap false-dropped, all other traps failed to catch, including three placed in a flowerbed in the front garden. Several Longworth traps were re-baited and put back in place in an attempt to trap a suspected Water Shrew; less than three hours later the animal was caught, weighing in at 12 gms, a happy conclusion to a very productive session.

### **Summary**

Mild, fairly dry conditions preceded a muggy overcast trapping night and helped us to a total of seventeen animals of five species; it was particularly gratifying to see so many healthy young animals and the results confirm what a fine job the ‘gardeners’ are doing.

I am very grateful to Mike Day and Hilary Atkins for their help and to Nick and Sandra Carter for welcoming us into their little Paradise.

### **Additional trap: October 2016**

In early October an additional trap was held. The trap locations and techniques replicated those of the August trap; the weather was autumnal with a dry, clear, cold night prior to the survey which took place on 2<sup>nd</sup> October. Very little activity was evident, the total catch being four Wood Mouse and one Bank Vole.

## **Small-mammal survey at Filey Country Park, September 2016**

### **Background**

The Filey mammal trappers carried out a small mammal trap at Filey Country Park in conjunction with Friends of Filey Parks. The event was advertised locally as a ‘Friends’ event.

### **Method**

Thirty Tube traps and fourteen Longworths were put in place on Wednesday 14<sup>th</sup> September, loaded with hay and baited with a seed and grain mix, and mealworm pupae, and locked open. Habitats used included rough grassland, hedgerows adjacent to ploughed fields, and newly planted scrub and woodland. The traps were re-baited on Friday evening, 16<sup>th</sup> September and set to catch. Traps were inspected on Saturday 17<sup>th</sup> September, from 9am. This process was repeated over Saturday night and Sunday morning, 18<sup>th</sup> September. This public event attracted no-one in the poor weather on Saturday but a keen group of adults and children on a sunny, warm Sunday morning.

**Results****SATURDAY 17<sup>th</sup> September 2016**

<b>TRAP NUMBER</b>	<b>SPECIES</b>	<b>WEIGHT</b>	<b>SEX / AGE</b>
T1	Field Vole	19 gms	Male
T2	Bank Vole	15 gms	Male
T3	Bank Vole	21 gms	Female
T4	Bank Vole	15 gms	Female
T5	No trap		
T6	Bank Vole	20 gms	Female
T7	False drop		
T8	Bank Vole	18 gms	Male
T9	Bank Vole	10 gms	Juv
T10	Bank Vole	15 gms	Male
T11	Wood Mouse	14 gms	Female
T12	Wood Mouse	14 gms	Female
T13	Field Vole	24 gms	Female
T14	Bank Vole	17 gms	Female
T15	Wood Mouse	14 gms	Male
T16	False drop		
T17	False drop		
T18	Wood Mouse	21 gms	Female
T19	Field Vole	17 gms	Male
T20	False drop		
T21	Bank Vole	13 gms	Male
T22	Bank Vole	14 gms	Male
T23	False drop		
T24	False drop		
T25	Wood Mouse	22 gms	Female
T26	False drop		
T27	False drop		
T28	False drop		
T29	False drop		
T30	Wood Mouse	14 gms	Female
L31	Field Vole	12 gms	Juv
L32	No drop		
L33	Bank Vole	Escaped	
L34	No drop		
L35	Wood Mouse	18 gms	Male
L36	Wood Mouse	13 gms	Male

L37	Field Vole Bank Vole	25 gms 11 gms	Male Juv
L38	False drop		
L39	Bank Vole	9 gms	Juv
L40	Bank Vole	9 gms	Juv
L41	Wood Mouse	14 gms	Female
L42	Wood Mouse	15 gms	Female
L43	Bank Vole	15 gms	Male
L44	Wood Mouse	17 gms	Male

T = Tube trap, L = Longworth trap

### SUNDAY 18<sup>th</sup> September 2016

TRAP NUMBER	SPECIES	WEIGHT	SEX / AGE
T1	Wood Mouse	21 gms	Male
T2	Bank Vole	14 gms	Male
T3	Bank Vole	20 gms	Female
T4	Bank Vole	14 gms	Male
T5	Wood Mouse	16 gms	Female
T6	Bank Vole	18 gms	Female
T7	Bank Vole	22 gms	Male
T8	Bank Vole	13 gms	Male
T9	Bank Vole	14 gms	Juv
T10	Bank Vole	10 gms	Juv
T11	Wood Mouse	15 gms	Male
T12	Bank Vole	16 gms	Male
T13	Field Vole	22 gms	Female
T14	Wood Mouse	13 gms	Female
T15	Wood Mouse	13 gms	Male
T16	Wood Mouse	12 gms	Juv
T17	Field Vole	19 gms	Female
T18	Wood Mouse	21 gms	Male
T19	Wood Mouse	21 gms	Female
T20	Common Shrew	8.5 gms	
T21	Bank Vole	15 gms	Male
T22	Bank Vole	13 gms	Female
T23	Wood Mouse	Escape	
T24	Wood Mouse	18 gms	Female
T25	Wood Mouse	17 gms	Male
T26	Bank Vole	21 gms	Female

T27	Bank Vole	17 gms	Male
T28	Bank Vole	22 gms	Female
T29	Bank Vole	13 gms	Male
T30	Wood Mouse	15 gms	Male
L31	Bank Vole	7 gms	Juv
	Bank Vole	10 gms	Juv
L32	No drop		
L33	No drop		
L34	Wood Mouse	22 gms	Male
L35	Bank Vole	13 gms	Male
L36	Wood Mouse	13 gms	Three-legged. Juv
L37	Field Vole	25 gms	Male
L38	Wood Mouse	17 gms	Male
L39	Bank Vole	16 gms	Male
L40	Bank Vole	14 gms	Male
L41	Bank Vole	12 gms	Male
L42	Wood Mouse	16 gms	Female
L43	Wood Mouse	Escape	
L44	Bank Vole	12 gms	Juv

T = Tube trap, L = Longworth trap

### Summary

A fresh northerly wind and some rain on Friday night probably explains the number of False Drops; calmer weather on the Saturday night brought a more productive trap on Sunday. Large numbers were trapped on both sessions: 31 animals of three species on Saturday, and 43 animals of four species on Sunday. Yet again, voles predominated, shrews hardly getting a look in. Ironically, the Barn Owls using the two nest boxes at Filey both failed to lay eggs this year.

I am very grateful to Mike Day and Hilary Atkins for their help and to the Friends of Filey Parks for all their support.

## Small mammal survey in St Catherine's churchyard, Barmby Moor – wildlife in the parishes

*Jackie Jeffery*

*Secretary, Friends of Barmby Moor Wildlife Areas*

Members of the Yorkshire Mammal Group (YMG) visited the churchyard over the weekend of 4<sup>th</sup> and 5<sup>th</sup> June 2016, to carry out a survey of small mammals. YMG are interested in all things mammal and have around 70 members. Talks are held monthly over the winter period in York and fieldwork is also undertaken. For more information, their website is <http://www.yorkshiremammalgroup.org.uk/>.

Longworth live capture traps were laid in the evening in a range of locations. These traps are designed to minimise distress to the animal, by having a nest chamber where food and bedding are placed. They were baited with a variety of food appropriate to the animals that might be captured: corn and mixed birdseed for mice and voles, casters (blowfly pupae) for shrews and carrot for field voles. A few seeds were scattered outside the trap entrance to tempt them in.

Results – opening the traps the following morning revealed two adult female bank voles in the vegetation of the hedge nearest Hall Spout. Two wood mice were caught under a large holly bush; one was a sub adult male and the other a pregnant female. Nothing was caught in the long grass in the south of the churchyard. I have seen field voles, distinctive by their short tails, there in the past so this absence may be explained by various facts – it was still early in the breeding year for these animals and the waterlogging of the soil over the past wet winter could have driven them out. In addition, a single trapping session, with no time for the animals to get used to the traps by leaving them open for a few nights, will yield a lower number of catches. Finally, field vole populations are cyclic and at a low this year.

Thanks to Ann Hanson and Rob Mashedder of YMG for carrying out the survey. Their enthusiasm, broad knowledge and dedication does them a great credit. Our wildlife group appreciates the data generated for the church interpretation board.

## **Postscript**

Hedgehogs were also using the churchyard at Barmby Moor, as evidenced by their droppings in the short grass. In addition, a bit of evening bat detecting after setting the traps revealed foraging common pipistrelle and noctule bats. The churchyard really is lovely with plenty of areas of long grass and flowers, sensitively managed by the Friends group, who we would also like to thank for the excellent tea and cake they provided after the trapping session.

Ann Hanson



**Bank vole (Clive Jeffery)**



**Wood mouse (Jackie Jeffery)**

# A small mammal trapping training session at Cromwell Bottom Local Nature Reserve, West Yorkshire

*Ann Hanson*

## **Introduction**

Cromwell Bottom, previously known as Elland Gravel Pits, is a lovely urban nature reserve, situated between Brighouse and Elland in West Yorkshire (grid ref. SE127222). The reserve is an ex-industrial site, bordered on one side by the Calder and Hebble Canal and on the other by a steep wooded hill, and with the River Calder curving through it. Habitats include willow carr, birch scrub, open grassy meadows, reed beds, ponds, lagoons and a small lowland sphagnum bog. There are three main areas on the reserve lying within the loops of the River Calder, known as Tag Cut Loop, Brookfoot Loop and North Loop.

YMG carried out previous small mammal traps with local volunteers at Cromwell Bottom in 2001 (Imprint no. 28, 2001), and in 2008 (Imprint no. 35, 2008), concentrating on habitats in Tag Cut Loop and Brookfoot Loop. In 2016 we were asked to carry out a small mammal training trap for the current Cromwell Bottom Wildlife Group, this time surveying the newly restored North Loop as well as the more established habitats on Tag Cut Loop.

## **Methods**

Forty-four Longworth traps were placed in a variety of habitats. Traps were baited with wheat, peanuts, sunflower seeds, carrot and blowfly pupae, and had a ball of hay for bedding.

Trap locations:

1. North Loop, semi-mature birch/willow woodland adjacent to disused wheel-wash (5 traps).
2. North Loop, grassy bank between areas restored to nectar mix (10 traps).
3. North Loop, rock pile on grassy bank (2 traps).
4. North Loop, grassy bank on edge of site (8 traps).
5. Tag Cut Loop, dense grassy bank with scattered scrub (6 traps).
6. Tag Cut Loop, first pond, reed canary grass on banks (3 traps).

7. Tag Cut Loop, second pond edge (4 traps).
8. Tag Cut Loop, new pond edges (6 traps).

Traps were set on the evening of Saturday 23 July and checked on Sunday 24 July from 9.30am onwards.

Volunteers were trained in how to bait and set traps, especially regarding avoiding shrew deaths in traps, and how to handle and identify small mammals with an emphasis on animal welfare.

## Results

Summary of small mammals captured at Cromwell Bottom.

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8
Wood mouse	1	1	1	0	0	0	1	2
Bank vole	2	0	0	0	0	1	0	1
Field vole	0	1	0	0	0	0	0	0
Common shrew	0	0	0	0	0	0	1	0

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

## Discussion and conclusions

Four different species of small mammal were caught in a variety of habitats at Cromwell Bottom, including wood mice (*Apodemus sylvaticus*), bank voles (*Myodes glareolus*), field voles (*Microtus agrestis*) and common shrews (*Sorex araneus*). Wood mice were caught at the most locations, including the woodland edge and the grassy bank and rock pile out in the open nectar mix at North Loop, as well as next to the ponds at Tag Cut Loop. Bank voles were caught at three locations, including the woodland edge at North Loop and next to the ponds at Tag Cut Loop. Field vole and common shrew were only caught once, in the grassy bank out in the open nectar mix at North Loop and beside one of the ponds at Tag Cut Loop respectively. Rather surprisingly, no small mammals were captured at sites 4 and 5, both of which comprise dense grassy banks at North Loop and Tag Cut Loop.

The species captured on this occasion were the same as those captured in 2001 and 2008. It will be interesting to see if future trapping by the wildlife group starts to record more unusual species such as water shrew

(*Neomys fodiens*) and harvest mouse (*Micromys minutus*). A bonus record on the Saturday evening was the appearance of a young fox (*Vulpes vulpes*) under the bird feeders near the volunteers shed, who seemed inordinately fond of rich tea biscuits!

Thanks are due to Allan Wolfenden and the members of Cromwell Bottom Wildlife Group who came along for training and to help with the trap, and to Rob Masheder of YMG and Robin from Calderdale Council who also helped out.

## Appendix I

**Table of results:** small mammal survey at Cromwell Bottom, July 2016.

Weather: Warm, cloudy and dry throughout.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
North Loop				
Woodland edge (1)	Wood mouse	F	SA	26.0
	Bank vole	M	A	25.0
	Bank vole**			
Grassy bank (2)	Field vole	F	SA	29.0
	Wood mouse	M	A	29.0
Rock pile (3)	Wood mouse	F	A	33.0
Tag Cut Loop				
First pond (6)	Bank vole	F	SA	24.5
Second pond (7)	Common shrew	M	A	11.0
	Wood mouse	F	J	15.0
New ponds (8)	Wood mouse	M	A	26.0
	Bank vole	M	A	24.0
	Wood mouse	F	A	26.0

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

\*\* Escaped during handling

# Small mammal survey at Three Haggas Jubilee Wood, Escrick, 2016

*Ann Hanson*

## **Introduction**

A third annual survey was carried out by YMG in August 2016 as part of a long term study on changes in small mammal populations at Three Haggas Jubilee Wood, a recently created wood-meadow, located at Escrick Park Estate, near York (grid ref. SE626395). See Imprint 41 (2014) and Imprint 42 (2015) 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 2015/early 2016 with dense re-growth beneath the young trees (10 traps).  
Grid ref. SE6279939456 to SE6776939422
2. MG4 meadow, cut for hay 21<sup>st</sup> July 2016 with light re-growth (10 traps). Grid ref. SE6273839477 to SE6269639464
3. Coup 9 (oak, hazel and wild orchard), cut late 2015/early 2016 with substantial re-growth (10 traps).  
Grid ref. SE6275039502 to SE6273439541
4. Coup 6 (oak, hazel, wych elm), cut late 2015/early 2016 with substantial re-growth (10 traps).  
Grid ref. SE6267239586 to SE6265239623
5. Pond edge. Pond constructed spring 2014. Water level low. Area around pond cut 21<sup>st</sup> July 2016. Dense un-cut vegetation at bank top, 2m wide (10 traps).  
Grid ref. SE6268139929 to SE6269439938

Traps were set on the evening of Friday 12<sup>th</sup> August and checked on Saturday 13<sup>th</sup> August from 9.30am onwards. Traps were re-set on the Saturday evening and checked on Sunday 14<sup>th</sup> August from 9.30am onwards.

## Results

Summary of small mammals captured at Three Haggas Wood, Escrick, August 2016.

	Site 1		Site 2		Site 3		Site 4		Site 5	
	Sat	Sun								
Wood mouse	0	1	0	0	0	0	0	0	0	1
Bank vole	0	0	0	0	0	0	0	0	0	0
Field vole	4	5	0	0	2	4	5	5	3	4
Common shrew	0	2	0	0	2	1	1	2	1	2
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 14<sup>th</sup> August 2016, with the following results:

Refuge number	Record
1	2 disused field vole nests
2	Field vole runs
3	Field vole runs
4	Refuge missing
5	Nothing present, but this refuge had 6 juvenile grass snakes when checked in July 2016
6	1 adult and 1 juvenile grass snake
7	1 disused field vole nest
8	Ant nest
9	Refuge missing
10	Field vole runs

## Discussion and conclusions

Three species of small mammal were caught at Three Haggas Wood, Escrick, in 2016, including wood mouse (*Apodemus sylvaticus*), field vole (*Microtus agrestis*) and common shrew (*Sorex araneus*). These are the same species that were caught in 2015 but they were present in much larger numbers in 2016, similar to the results from 2014. The field vole population seems to have built up again very quickly following its crash in 2015, indicating excellent habitat quality for this species. Common shrews were also present in good numbers, with only two wood mice being

recorded during the current trapping session. Animals were captured at all locations with dense vegetation providing cover and food, with no animals being captured at Site 2 which had been cut for hay relatively recently. An additional record for the site this year was a nest of field voles which were found under the straw bales in the Bodger's Den in April.

The reptile/amphibian refuges also provided some excellent grass snake (*Natrix natrix*) records in 2016, confirming evidence of breeding on the site.

A bat survey of Three Haggas Wood was carried out on the evening of Saturday 13<sup>th</sup> August, using heterodyne and frequency division bat detectors. A walk around the site recorded several soprano pipistrelles (*Pipistrellus pygmaeus*) foraging along the eastern boundary.

Thanks are due to the Hagge Woods Trust for inviting us to take part in the project, especially to Lin Hawthorne for help with the surveys. Thanks also to Rob Masheder, Robyn Guppy and Vicky Newlove of YMG for helping with the surveys and to everyone who came and joined in on both mornings. Special thanks to Rob Masheder for running a bat box building workshop in the Bodger's Den on the Saturday afternoon – very productive and everyone retained their fingers!

## Appendices I & III – see maps on pages 40 & 41

### Appendix II

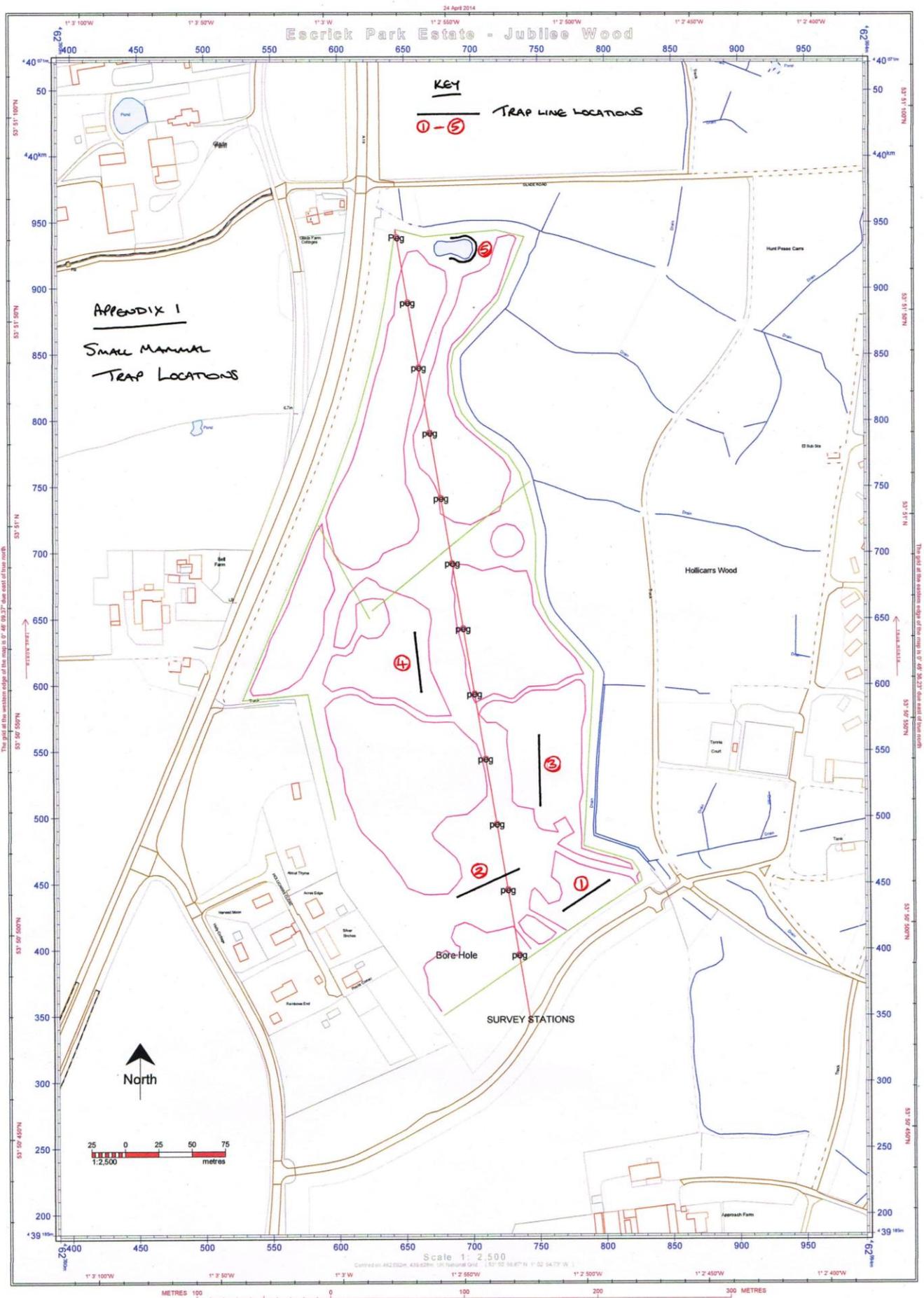
**Table of results:** small mammal survey at Three Haggas Wood, Escrick, August 2016.

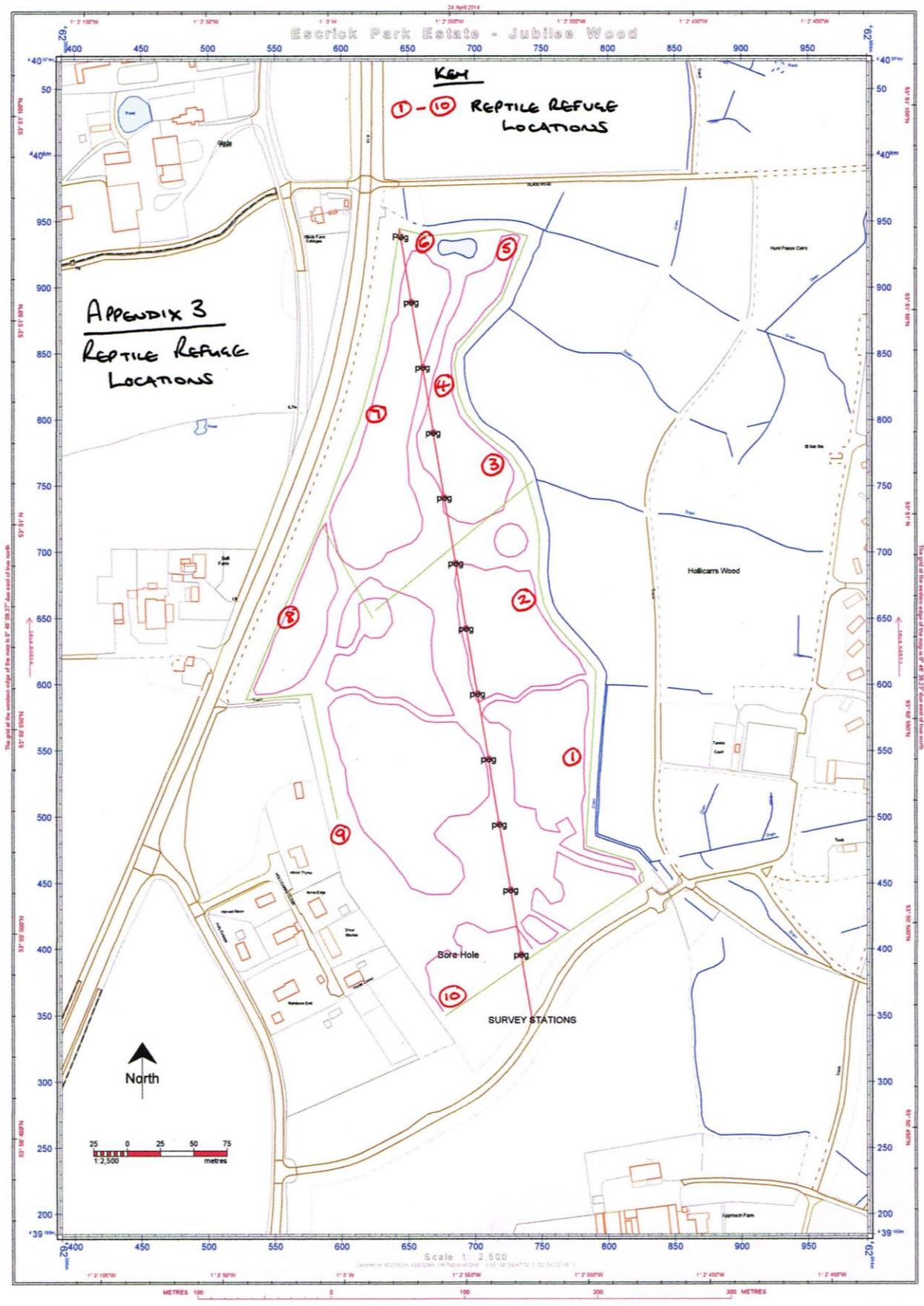
Weather: Warm, dry and breezy Saturday morning; light rain overnight; fine, warm and dry Sunday morning.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
<b>13/08/2016</b>				
Coup 12 (Site 1)	Field vole	M	SA	19.0
Coup 12 (Site 1)	Field vole	M	J	15.0
Coup 12 (Site 1)	Field vole	F	A	29.0
Coup 12 (Site 1)	Field vole	F	A	36.0
Coup 9 (Site 3)	Common shrew	?	A	9.0
Coup 9 (Site 3)	Field vole	F	A	32.0

Coup 9 (Site 3)	Field vole	M	J	6.0
Coup 9 (Site 3)	Common shrew	?	A	8.0
Coup 6 (Site 4)	Field vole	M	A	31.0
Coup 6 (Site 4)	Common shrew	?	A	13.0
Coup 6 (Site 4)	Field vole	M	J	9.0
Coup 6 (Site 4)	Field vole	M	SA	18.0
Coup 6 (Site 4)	Field vole	F	SA	19.0
Coup 6 (Site 4)	Field vole	M	A	35.0
Pond edge (Site 5)	Field vole	F	A	39.0
Pond edge (Site 5)	Common shrew	?	A	8.0
Pond edge (Site 5)	Field vole	F	A	31.0
Pond edge (Site 5)	Field vole	M	J	16.0
<b>14/08/2016</b>				
Coup 12 (Site 1)	Field vole	M	J	15.0
Coup 12 (Site 1)	Common shrew	?	A	9.0
Coup 12 (Site 1)	Field vole	M	J	15.0
Coup 12 (Site 1)	Field vole	F	A	28.0
Coup 12 (Site 1)	Field vole	F	A	26.0
Coup 12 (Site 1)	Common shrew	?	A	8.5
Coup 12 (Site 1)	Field vole	F	SA	18.0
Coup 12 (Site 1)	Wood mouse	M	A	22.0
Coup 9 (Site 3)	Field vole	M	SA	15.0
Coup 9 (Site 3)	Field vole	F	J	10.0
Coup 9 (Site 3)	Field vole	M	A	27.0
Coup 9 (Site 3)	Field vole	F	A	31.0
Coup 9 (Site 3)	Common shrew	?	A	8.0
Coup 6 (Site 4)	Field vole	M	A	34.0
Coup 6 (Site 4)	Common shrew	?	A	7.0
Coup 6 (Site 4)	Field vole	F	J	12.0
Coup 6 (Site 4)	Field vole	F	A	35.0
Coup 6 (Site 4)	Common shrew	?	A	8.0
Coup 6 (Site 4)	Field vole	F	A	28.0
Coup 6 (Site 4)	Field vole	F	A	23.0
Pond edge (Site 5)	Field vole	F	A	22.0
Pond edge (Site 5)	Field vole	M	A	34.0
Pond edge (Site 5)	Common shrew	?	A	8.0
Pond edge (Site 5)	Field vole	M	A	28.0
Pond edge (Site 5)	Wood mouse	F	J	13.0
Pond edge (Site 5)	Common shrew	?	A	8.0
Pond edge (Site 5)	Field vole	F	A	38.0

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





# A small mammal survey at Barlow Common LNR near Selby

*Ann Hanson*

## **Introduction**

Barlow Common is a lovely 36ha Local Nature Reserve (LNR) located at Barlow near Selby (grid ref. SE633285), currently managed by Yorkshire Wildlife Trust. The common has a variety of habitats including some fantastic calcareous grassland with scattered hawthorn scrub, areas of tall ruderal vegetation, ponds and an area of native birch/oak woodland. YMG carried out a small mammal survey of the various habitats during the summer of 2016 and YWT invited the public along to meet the small mammals.

## **Methods**

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

Trap locations:

1. Dipping pond edge (10 traps).
2. Woodland trail in native birch/oak woodland with limited ground flora (15 traps).
3. Dense calcareous grassland with scattered hawthorn scrub and bramble patches (15 traps).
4. Tall ruderal habitat with rosebay willowherb, teasels, mullein and evening primrose (10 traps).

Traps were set on the evening of Friday 19 August and checked on Saturday 20 August from 9.30am onwards.

## **Results**

Summary of small mammals captured at Barlow Common LNR.

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

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

## Discussion and conclusions

Four different species of small mammal were caught in the various habitats at Barlow Common LNR, including wood mice (*Apodemus sylvaticus*), bank voles (*Myodes glareolus*), field voles (*Microtus agrestis*) and common shrews (*Sorex araneus*). Wood mice were caught at all of the trapping locations, being especially numerous in the woodland, where their nocturnal habits help them to cope with the limited ground cover. Bank voles, field voles and common shrews were caught at fewer sites with only the calcareous grassland providing all four species in the traps. A good age range of small mammals were represented across the site, from juveniles to adult breeding females. One interesting capture was a beautiful flavistic common shrew in the grassland, which was immediately christened the “golden shrew”!



Flavistic common shrew (Claire Burton)

Thanks are due to Claire Burton of YWT, Rob Masheder of YMG and everyone who came along and helped with the survey, including the small stray cat which happily followed us around and managed to refrain from eating any of the small mammals...

## Appendix I

**Table of results:** small mammal survey at Barlow Common LNR, August 2016.

Weather: Warm, fine and dry on the morning; light rain overnight.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Dipping pond (1)	Bank vole	M	SA	21.0
	Wood mouse	M	A	27.0
	Wood mouse	M	A	28.0
Woodland trail (2)	Wood mouse	F	J	15.0
	Wood mouse	M	SA	22.0
	Wood mouse	M	J	11.0
	Wood mouse	M	A	21.0
	Wood mouse	M	J	10.0
	Wood mouse	M	SA	19.0
	Common shrew	?	A	11.0
	Common shrew	?	A	11.0
Grassland/scrub (3)	Wood mouse	M	SA	20.0
	Bank vole	F	A	21.0
	Field vole	M	A	32.0
	Common shrew	?	A	9.0
	Common shrew	?	A	7.0
Tall ruderal (4)	Wood mouse	F	A	22.0
	Wood mouse	M	J	14.0
	Field vole	F	A	23.0
	Bank vole	M	SA	16.0

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

## A small mammal survey at Gallows Hill Nature Area, Otley, West Yorkshire

*Ann Hanson*

### Introduction

Gallows Hill Nature Area covers about 14 acres of land adjacent to the River Wharfe in Otley (grid ref. SE213460). The site is an ex-Yorkshire Water sewage treatment works, now owned by Otley Town Council and managed by a group of volunteers, the Friends of Gallows Hill. The volunteers have planted hundreds of native species, broadleaved trees across the site and are also in the process of planting a community orchard and forest garden. The site is still high in nutrients due to the past history of sewage sludge, so nettles tend to be the dominant ground flora. However, the volunteers have done a fantastic job and large areas of the

site now also have dense tussocky grass. The site also boasts a lovely pond with a good range of native wetland plants and breeding frogs and toads. YMG were invited to carry out a small mammal survey of the site with the local volunteers in autumn 2016.

## 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. Dense blackthorn scrub near old orchard (5 traps).
2. Semi-mature, native, broadleaved woodland with nettle ground flora (12 traps).
3. Small osier grove with nettle and Himalayan balsam ground flora (5 traps).
4. Bramble patch adjacent to tussocky grass (5 traps).
5. Long grass with nettle and thistle (5 traps).
6. Long tussocky grass (6 traps).
7. Pond edge – willow scrub, yellow iris, meadowsweet, yellow and purple loosestrife (12 traps).

Traps were set on the evening of Friday 9 September and checked on Saturday 10 September from 9.30am onwards.

## Results

Summary of small mammals captured at Gallows Hill Nature Area.

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

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

## Discussion and conclusions

Four different species of small mammal were caught in a variety of habitats at Gallows Hill, including wood mice (*Apodemus sylvaticus*), bank

voles (*Myodes glareolus*), field voles (*Microtus agrestis*) and common shrews (*Sorex araneus*). Bank voles were caught at most locations around the site, with wood mice and common shrews also being caught at several locations. Field voles were only caught at sites 6 and 7, the tussocky grass and the pond edge, both of which were very well vegetated. The small mammals recorded on the site showed a good range of ages from juveniles to pregnant females.

Other mammals recorded at Gallows Hill included grey squirrels (*Sciurus carolinensis*) and moles (*Talpa europaea*) in the woodland at site 2. In addition, a few months after the trapping session, otter (*Lutra lutra*) spraint was found at the top of the river bank opposite the pond, so it's very likely that otters are visiting the pond, probably to feed on amphibians.

Thanks are due to the Friends of Gallows Hill for helping with this trap and to Robyn Guppy of YMG for her very able assistance.

## Appendix I

**Table of results:** small mammal survey at Gallows Hill, Otley, September 2016.

Weather: Warm and dry throughout.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Blackthorn (1)	Common shrew	?	SA	7.0
Woodland (2)	Bank vole	M	SA	16.0
	Wood mouse	M	A	21.0
	Bank vole	F	SA	13.0
	Bank vole	F	SA	17.0
	Wood mouse	F	SA	16.0
	Bank vole	F	SA	14.0
	Wood mouse**	-	-	-
	Wood mouse	M	A	18.0
	Osier grove (3)	Common shrew	?	SA
Bank vole		F	A	22.0
Bramble patch (4)	Bank vole	M	SA	15.0
	Wood mouse	F	A	32.0
	Wood mouse**	-	SA	-
Long grass (5)	Common shrew	?	SA	7.0

	Bank vole	F	SA	16.0
Tussocky grass (6)	Field vole	F	A	23.0
	Bank vole	M	A	24.0
	Wood mouse	M	J	13.0
	Common shrew	?	A	8.0
	Wood mouse	F	J	10.0
Pond edge (7)	Wood mouse	M	A	21.0
	Bank vole	M	A	18.0
	Bank vole	M	SA	14.0
	Bank vole	M	SA	15.0
	Field vole	M	SA	16.0
	Wood mouse	M	J	14.0
	Bank vole	F	SA	14.0

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

\*\* Escaped during handling

## Small mammal surveys with Easingwold Green Spaces Community Group, North Yorkshire

*Ann Hanson*

### Introduction

Easingwold Green Spaces Community Group are a community-led, not-for-profit group made up of local residents, whose aims are to enhance the green spaces of Easingwold; encourage wildlife; and improve the quality of life for all residents. The group works in co-operation with Easingwold Town Council. For further details visit <https://www.easingwoldgreenspaces.org/>

The group asked YMG to help them carry out small mammal surveys in two parks that they help to manage in order to see what lives there and to provide advice on habitat management for mammals. The two areas are Millfields Park and Wood (grid ref. SE530703) and Chase Garth Park (grid ref. SE526692).

Millfields Park contains a large area of mown grass and a community orchard as well as a lovely big undisturbed wetland area with ponds. Millfields Wood consists of semi-mature, native species, broadleaved

woodland, planted in 1999 by the Woodland Trust, which is now in need of thinning. Chase Garth Park is largely mown with some areas of rough grass and a fantastic veteran oak tree. Trapping was carried out along a ditch bank in an arable field adjacent to Chase Garth Park.

**Methods**

Forty-eight Longworth traps were placed in a variety of habitats in and around the parks. Traps were baited with wheat, peanuts, sunflower seeds, carrot and blowfly pupae, and had a ball of hay for bedding.

Trap locations:

1. Millfields Park, tall wet grassland with sedges, grasses and great willowherb (15 traps).
2. Millfields Park, edge of pond 1, well vegetated with common bulrush, soft rush, sharp-flowered rush, yellow iris, meadowsweet, great willowherb and purple loosestrife (8 traps).
3. Millfields Park, edge of pond 2, well vegetated with same species as pond 1 (5 traps).
4. Millfields Wood, semi-mature ash, oak, birch and cherry with limited ground flora (10 traps).
5. Chase Garth Park, grassy ditch bank alongside adjacent arable field (10 traps).

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

**Results**

Summary of small mammals captured at Easingwold.



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

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

## Discussion and conclusions

Four different species of small mammal were caught in the parks and adjacent habitats at Easingwold, including wood mice (*Apodemus sylvaticus*), bank voles (*Myodes glareolus*), field voles (*Microtus agrestis*) and common shrews (*Sorex araneus*). Wood mice were caught at all of the trapping locations, including in the woodland where there was very little cover, which corresponds with their mainly nocturnal habits. Bank voles and common shrews were caught at two locations, the wetland in Millfields Park and the ditch bank next to Chase Garth Park. Field voles were only caught in the wetland area in Millfields Park. Bank voles, field voles and common shrews are all active 24 hours of the day and require good dense habitat for cover and food. Field voles especially require dense, tussocky grass as they nest above ground at the base of the tussocks and will benefit from the un-cut wetland areas in Millfields Park. The animals recorded were mainly sub-adults, with just a few breeding adults and juveniles, as would be expected towards the end of the summer breeding season. The wetland area in Millfields Park could also potentially contain more unusual species such as water shrew (*Neomys fodiens*) and harvest mouse (*Micromys minutus*).

A strange occurrence during the trapping session was the presence of two traps with their tunnels completely full of bedding from the nest box, but no animal inside. The traps were at completely different locations in Millfields Park, indicating that this behaviour was carried out by two different individuals. Very intriguing!

Other mammals recorded during the trap included moles (*Talpa europaea*), rabbits (*Oryctolagus cuniculus*) and grey squirrels (*Sciurus carolinensis*) in Millfields Park and Wood.

Thanks are due to Kelly Osborne and the members of Easingwold Green Spaces Community Group who helped with the trap and to Rob Masheder, Mary Youngman and Kate Wright of YMG for their assistance.



Photo: Kelly Osborne

## Appendix I

**Table of results:** small mammal surveys at Easingwold, October 2016.

Weather: Warm, fine and dry throughout.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Millfields Park				
Wet grassland (1)	Field vole	M	A	25.5
	Common shrew	?	A	8.0
	Wood mouse	M	SA	21.0
	Wood mouse	F	SA	18.0
	Wood mouse	?	J	11.0
	Field vole	F	SA	15.0
	Bank vole	M	SA	17.0
	Wood mouse	M	SA	17.0
	Field vole	F	A	23.0
	Common shrew***	-	-	-
	Wood mouse	M	SA	18.5
	Field vole	M	SA	21.5
Pond 1 edge (2)	Wood mouse	F	J	14.5
Pond 2 edge (3)	Wood mouse	F	SA	17.0
	Wood mouse	F	SA	15.0
	Wood mouse	M	SA	16.5
Millfields Wood (4)	Wood mouse	F	SA	20.0
	Wood mouse**	-	-	-
Chase Garth Park				
Ditch bank (5)	Wood mouse	F	SA	16.0
	Wood mouse	F	SA	15.0
	Bank vole	F	SA	16.0
	Bank vole	M	SA	19.0
	Bank vole	M	J	14.5
	Common shrew	?	A	9.5
	Wood mouse	M	SA	15.5
	Wood mouse	F	A	29.0

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

\*\* Escaped during handling

\*\*\* Dead in trap

# Small mammal survey at Saltmarshe Delph YWT Reserve in East Yorkshire

*Ann Hanson*

## **Introduction**

Saltmarshe Delph is a Yorkshire Wildlife Trust Reserve situated near Skelton in East Yorkshire (grid ref. SE775248). The site is divided into two compartments, known as the Delph and Willow Garth, by the Hull to Doncaster railway. The Delph was excavated in 1864 to provide spoil for the approach to the nearby railway bridge and Willow Garth was commercially worked to provide materials for agricultural baskets until 1956. The site became a nature reserve in 1972 and YWT volunteers control willow encroachment to keep the ponds and reedbeds in good condition. The mosaic of wetlands, ponds and wet woodland on the reserve are home to a diverse bird population including marsh harrier, water rail, willow tit, reed warbler, blackcap and chiffchaff, as well as 19 species of dragonflies and damselflies. YMG last surveyed the site in 2003 when we caught good numbers of wood mice, bank voles and common shrews, along with several water shrews. Water voles and harvest mice have also been recorded on the site in the past.

## **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. Willow Garth, Eastern Lagoon – pond with brooklime and common reed on edges (5 traps).
2. Willow Garth, Central Lagoon – large dried out pond with brooklime, gypsywort, common reed and common bulrush on edges (10 traps).
3. Willow Garth, Central Lagoon – series of small ponds surrounded by common reed (10 traps).
4. Willow Garth, woodland path edge – willow and alder carr (5 traps).
5. Willow Garth, Western Lagoon – pond with open water and common reed on edges (5 traps).

6. Willow Garth, Canteen – log pile under bird feeders (2 traps).
7. The Delph, Willow Carr – willow regeneration, common reed, sedges and log piles (13 traps).

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

## Results

Summary of small mammals captured at Saltmarshe Delph Nature Reserve.

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

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

## Discussion and conclusions

Three different species of small mammal were caught at Saltmarshe Delph Nature Reserve, including bank vole (*Myodes glareolus*), wood mouse (*Apodemus sylvaticus*) and common shrew (*Sorex araneus*). Unfortunately, no water shrews (*Neomys fodiens*) were caught on this occasion. The majority of captures were wood mice and bank voles, which were found at all the sites that were trapped, apart from the log pile at the Canteen which only contained wood mice. A single common shrew was caught in the willow carr at the Delph. The wood mice and bank voles showed a good age structure with plenty of sub-adult and juvenile animals present. The large numbers of wood mice and bank voles on the site may possibly have filled the traps early in the trapping session, preventing more interesting species such as water shrews from being caught.

Other mammal records included roe deer (*Capreolus capreolus*) tracks in the mud of the Central Lagoon at Willow Garth and a weasel (*Mustela nivalis*) crossing the road at the Delph.

Thanks are due to Paul Adams and the Saltmarshe Delph volunteers, and to Rob Masheder, Robyn Guppy and Mike Robinson of YMG for helping with this trap.

## Appendix I

**Table of results:** Small mammal survey at Saltmarshe Delph NR, 23 October 2016.

Weather: Dry and sunny with a light breeze, rain overnight.

Site	Species	Sex M/F*	Age A/SA/J*	Weight (g)
Eastern lagoon (1)	Wood mouse	M	SA	19.5
Eastern lagoon (1)	Wood mouse	M	SA	17.0
Eastern lagoon (1)	Bank vole	F	SA	17.0
Eastern lagoon (1)	Wood mouse	F	SA	21.0
Central lagoon (2)	Bank vole	F	J	14.5
Central lagoon (2)	Wood mouse	F	SA	16.0
Central lagoon (2)	Bank vole	M	J	14.5
Central lagoon (2)	Bank vole	F	SA	19.5
Central lagoon (2)	Bank vole	M	A	24.5
Central lagoon (2)	Bank vole	F	A	19.5
Central lagoon (2)	Bank vole	M	A	23.5
Central lagoon (2)	Wood mouse	M	SA	20.0
Central lagoon (2)	Wood mouse	M	SA	18.5
Central lagoon (2)	Bank vole	F	J	16.0
Central lagoon (3)	Wood mouse	M	SA	17.5
Central lagoon (3)	Bank vole	M	A	24.0
Central lagoon (3)	Wood mouse	M	SA	16.5
Central lagoon (3)	Wood mouse	F	SA	18.0
Central lagoon (3)	Wood mouse	M	SA	19.0
Central lagoon (3)	Wood mouse	M	SA	18.5
Central lagoon (3)	Bank vole	F	J	15.0
Central lagoon (3)	Wood mouse	F	J	15.0
Woodland edge (4)	Wood mouse	F	SA	18.5
Woodland edge (4)	Wood mouse	F	SA	20.5
Woodland edge (4)	Bank vole	F	SA	18.0
Woodland edge (4)	Bank vole	F	SA	19.5
Western lagoon (5)	Wood mouse	M	SA	20.0F

Western lagoon (5)	Bank vole	F	SA	18.5
Western lagoon (5)	Wood mouse	F	SA	16.5
Western lagoon (5)	Wood mouse	F	SA	18.5
Western lagoon (5)	Wood mouse	F	SA	22.0
Canteen (6)	Wood mouse	F	SA	20.5
Canteen (6)	Wood mouse	M	SA	20.5
Willow carr (7)	Wood mouse	M	SA	18.0
Willow carr (7)	Bank vole	F	J	12.0
Willow carr (7)	Common shrew	?	A	7.5
Willow carr (7)	Bank vole	F	SA	15.5
Willow carr (7)	Wood mouse	M	SA	22.5
Willow carr (7)	Wood mouse	M	SA	20.0
Willow carr (7)	Bank vole	F	J	15.0
Willow carr (7)	Bank vole	M	J	15.0
Willow carr (7)	Bank vole	M	J	16.0
Willow carr (7)	Bank vole	F	SA	24.5
Willow carr (7)	Wood mouse	M	SA	18.0
Willow carr (7)	Bank vole	F	SA	19.5
Willow carr (7)	Wood mouse	M	SA	19.5

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

## “A tour of tea shops” – a report of YMG mammal recording walks 2016

*Ann Hanson & Rob Masheder*

2016 proved a good year for mammal recording walks and an excellent year for visiting the tea shops and cafes of Yorkshire.

The first walk of the year was from **Harlow Carr Gardens in Harrogate on 10<sup>th</sup> January**. The first records of the day were inevitably molehills and rabbit droppings on the Dales Way Link at Harlow Hill. After crossing the B6162 and picking up another footpath we detected the smell of a fox behind some gardens, followed by more molehills and rabbit droppings at Castle Hill. Crossing the fields between Castle Hill and Lund House we found a three hole badger sett in a hedge bottom with a single badger hair in the mud. Yet more molehills were recorded near Blue Coat Farm and Lund House Green, followed by a rather macabre fox leg bone with foot still attached in a hedge bottom. Walking down to the Crimple Beck we

discovered field vole signs in tussocky grass, a badger latrine and more molehills. In a field near Valley Farm we found a fox scat on a tuft of grass, with badger tracks and hair on a wire fence nearby. Another badger sett was located in woodland between Valley Farm and Beckwith, with more badger hair on a wire fence. Last records of the day were molehills on a drive verge as we headed back to Harlow Carr Gardens for a posh cup of tea in Bettys Tea Shop.

**February 20<sup>th</sup> found us in Ripon for a walk along the Rivers Skell and Ure.** The first excellent records of the day were five dollops of otter spraint on horizontal tree trunks alongside the River Skell on Priest Lane, very near to the centre of Ripon. Further along the river at Fisher Green we found some very interesting otter spraint containing very large fish scales deposited on a log, along with a few molehills nearby. Following the River Ure northwards we found field vole runs in long grass in fields near North Bridge and a few more molehills. Further along the river we recorded rabbit droppings and burrows, along with more field vole runs and molehills. Following the Ripon Rowel Walk alongside the River Ure we discovered badger tracks and a snuffle hole at Spring Hill, with roe deer slots and molehills nearby. Stopping for lunch at Spring Hill we found a badger sett in the edge of scrubby woodland and saw a woodcock (officially a bird but still interesting!). After lunch we walked across Ripon Loop nature reserve and recorded otter, badger, roe deer and fox footprints in mud. We also spotted rabbit diggings and droppings, molehills and sadly found a dead badger alongside the track. Last records of the day were molehills in a field opposite Ripon Golf Club, swiftly followed by tea and cake in the appropriately named March Hare Café in Ripon.



**March 13<sup>th</sup> found us in Silton Forest near Osmotherley** and the surrounding moorland. Molehills were soon spotted next to the car park on Moor Lane, with more molehills and rabbits in fields near Thwaites Lane. Fresh otter spraint was found on a rock under the bridge over Sorrow Beck on Bridge Beck Lane and a badger latrine was spotted also next to Sorrow Beck. Further along at The Nab we recorded a rabbit warren and molehills. Climbing up to Kepwick Moor, badger tracks and molehills were found at

Old Gill. Badger tracks were also recorded next to Hambleton Street bridleway at Hambleton End. Walking on to Thimbleby Moor we found rabbit droppings and molehills, followed by a large rabbit warren on a steep bank next to Oak Dale Upper Reservoir. Both otter tracks and spraint were found next to Slape Stones Beck under a bridge in Oak Dale. The beck also had burrows in its banks and footprints in mud which may have been water vole, but could also possibly have been brown rat. No droppings could be found to confirm identification either way. Heading for Osmotherley we recorded molehills near White House Farm and molehills and rabbits on the edge of the village. Our proposed tea shop stop in Osmotherley was foiled by the tea shop closing early (!) and was substituted by a pub stop for coffee but no cake (boo!). Pressing on we recorded molehills and rabbits near Thimbleby Hall and again near Thimbleby Village. Bad light stopped further mammal recording at this point and we headed back through the woods to our vehicles.

**Riverside Gardens in Ilkley was the start point of our walk on 24<sup>th</sup> April**, where molehills put in an immediate appearance. These were swiftly followed by otter spraint on a rock in the River Wharfe near the Roman Fort. Another otter spraint was spotted on a rock in the river near the footbridge at Hudson Wood, followed by rabbits and molehills in fields near Denton Road. Walking away from the river, further otter spraint was recorded under Bow Beck bridge near Beck Foot Farm, with rabbit droppings and molehills nearby. Yet more molehills were recorded in several locations near West Park Wood, along with a wood mouse nibbled hazelnut near the footbridge over Bow Beck in the wood. Molehills, rabbit



Otter prints (Ann Hanson)

droppings and a fox scat on a molehill were found near Middleton. Walking back down to Ilkley via Middleton Woods, the last record of the day was a final otter spraint on a rock in the River Wharfe at the pack horse bridge. The afternoon ended with a round-up of records over tea and cake in Ilkley.

An evening walk from **Sinnington on 7<sup>th</sup> June**, kindly led by our Chairman Gordon Woodroffe, provided records including a brown hare in a field near Hagg Scar, a distant roe deer in a field on Dogcroft Hill,

Appleton-le-Moors, and some badger footprints on the way back to Sinnington in Bishop Hagg Wood.

After a summer break from recording walks, **13<sup>th</sup> November found us in the company of Halifax Scientific Society going for a walk from Rishworth.** The main point of the walk was to train members of the society to find mammal tracks and signs. Unfortunately, although we had a lovely walk along the River Ryburn, mammal tracks and signs were a bit thin on the ground. We did however record rabbits in the woods near Heathfield School, grey squirrels in trees alongside the river and molehills in fields near Rishworth Mill. Otter signs were sadly non-existent on the river, but we did post some spraint to the society for them to enjoy during their Christmas get-together!

Our last walk of the year was from **Bedale in North Yorkshire on 11<sup>th</sup> December.** True to form, the first records were molehills in a field near Southlands, to the south-east of Bedale. These were followed by field vole runs and feeding remains in tussocky grass in a field corner near Firby. A shelterbelt near the village was found to contain a badger sett in a mound of soil from the past construction of a nearby pond, badger scratching on an elderberry tree trunk and a ball of grass that had been pulled through the hedge near the sett from an adjacent field (probably badger bedding). Rabbit droppings and burrows were also found in the shelterbelt, with molehills in a field near Firby House Farm and a live grey squirrel in trees near the farm. Hol Beck yielded two otter spraints on a concrete ledge under an old stone bridge in woodland near Firby, followed by more molehills in pasture near Hol Beck and Hollins Farm. Further field vole runs and feeding remains were recorded in tussocky grass alongside a track near Lord's Moor Farm, with further field vole signs and molehills on Lord's Lane. The next extremely sad records were the bodies of 35 dead moles hung on a wire fence alongside Lord's Lane near Bridge Grange Farm. The final records of the day, and the year, were molehills alongside Bedale Beck on the way back to town for a well-earned tea shop experience.

Thanks to everyone who came out on the mammal recording walks in 2016. We hope you enjoyed them as much as we did!

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

## West Tanfield dormouse box check 2016

*Mary Youngman*

“Once more into the wood, dear friends, once more.” Actually, the team made two visits to the West Tanfield woods to check the boxes and tubes in 2016. Unfortunately, again this year no dormice were found. Disappointingly the last time we found a dormouse in any of our boxes was in 2013. We did however find ten nests (three in May and seven in September) that we tentatively identified as being constructed by dormice, although we are beginning to have reservations about dormice being the only small mammals to use green leaves for nest construction due to the number of wood mice found associated with these nests. Below is a record of the other mammals found in the boxes.

Date: 8<sup>th</sup> May 2016

<b>Box no.</b>	<b>Species</b>	<b>No of individuals</b>	<b>Comments</b>
A3	Wood mouse	1	
BB2	Wood mouse	1	
J5	Wood mouse	1	
N6	Common shrew	1	Dead
U2	Wood mouse	1	

Date 18<sup>th</sup> September 2016

<b>Box no.</b>	<b>Species</b>	<b>No of individuals</b>	<b>Comments</b>
C2	Common shrew	1	
CC7	Common shrew	1	
D4	Wood mouse	1	Juvenile
O2	Wood mouse	1	
PA4	Pygmy shrew	1	
PL3	Soprano pipistrelle	5	
PQ15	Wood mouse	2	
O2	Wood mouse	1	
V5	Wood mouse	2	
V12	Wood mouse	1	

The Peoples Trust for Endangered Species has indicated that it may not be productive to check the boxes at West Tanfield any longer, as it appears that the reintroduction may have failed. However, we will probably have one last look during the summer of 2017 just in case...

*Ian Court<sup>1</sup> & Ian White<sup>2</sup>*

*<sup>1</sup>Wildlife Conservation Officer, Yorkshire Dales National Park Authority  
and <sup>2</sup>People'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 annual monitoring work undertaken at Freeholders' Wood in 2016 and provides a comparison between the results from Freeholders' Wood and the national dataset. There is also a comparison with data from 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).

A summary of weather conditions during the season have been derived from national monthly summary data provided by the Met Office (2016).

In order to give some context to the results from Freeholders' Wood, the results from monitoring at Freeholders' Wood have been compared to those from the NDMP elsewhere in the UK.

## **Results**

The monthly national weather summary for 2016 was as follows:

### **April**

The early part of the month was wet with some heavy and prolonged periods of rain. Late April was cold, with predominantly northerly winds bringing some sleet and snow, with some sharp frosts.

### **May**

The month started with a low pressure system bringing windy and unsettled conditions, but, after the first five days, high pressure prevailed for the majority of the month resulting in fine and warm weather. Average temperatures were between 0.5 and 1.5 °C warmer than average, with rainfall just below and sunshine just above respective monthly averages.

### **June**

It was a dry and settled start to the month, followed by some showers and heavier thunderstorms. As low pressure moved in later in the month it became unsettled, with some wet and windy conditions. Overall, the

monthly rainfall was average, but night time temperatures were generally higher than average.

### **July**

The low pressure remained in charge early in the month, resulting in frequent rain showers. Temperatures increased during a warm spell mid-month, but this was followed by more unsettled conditions that persisted for the remainder of the month, with some periods of heavy rain. The mean temperatures were slightly above average, with the rainfall levels very close to normal.

### **August**

It was a similar situation at the start of August, with low pressure in charge, resulting in changeable weather during the first week. Improving conditions followed and apart from strong winds on 20<sup>th</sup>, southerly winds during the remainder of the month resulted in high temperatures. Monthly rainfall was close to the average.

### **September**

At the beginning of the month the weather was very changeable with a mixture of wet, followed by warm and humid weather, resulting in the highest UK September temperatures since 1911 recorded on the 13<sup>th</sup>. The rest of the month was very changeable with frontal systems moving through, resulting in a mixture of showers and brief periods of fine weather. The temperatures during the month were generally above the seasonal average.

### **October**

After a wet start, easterly winds brought dry weather with temperatures around the seasonal average up until the middle of the month. After several days of showers, a high pressure system over much of the country resulted in mild temperatures for the rest of the month. It was a very dry month with only 38% of the average rainfall, making it the sixth driest October since 1910.

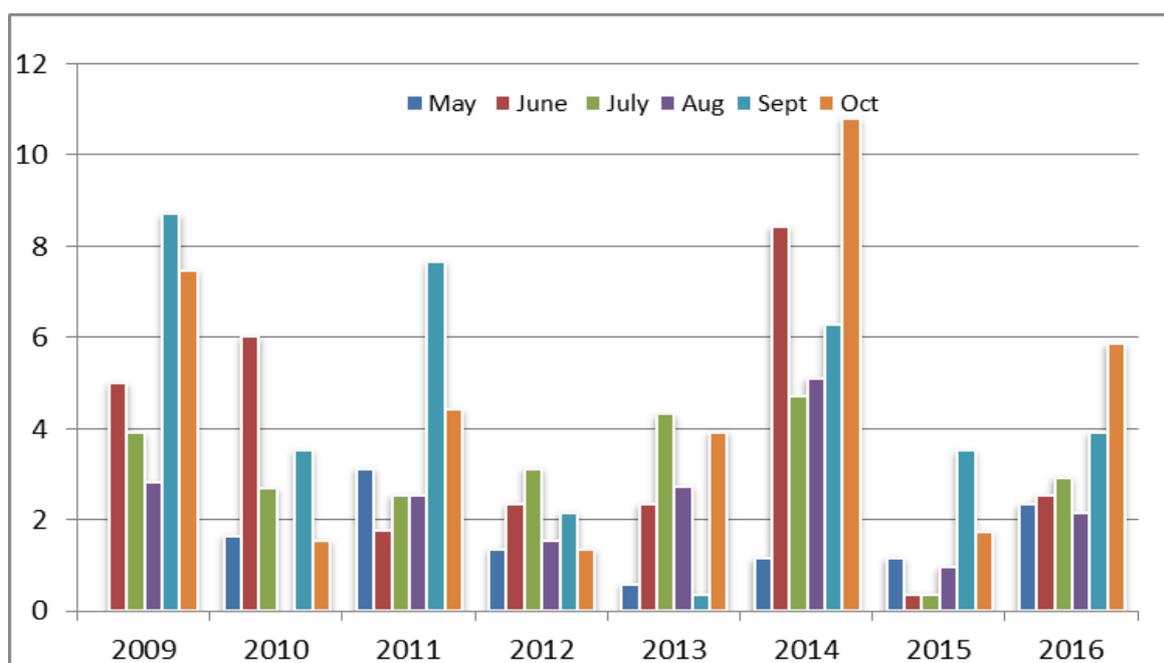
A comparison between the results of the 2016 NDMP at Freeholders' Wood and sites in the Northern Counties, Wales, the Midlands and nationally are shown in Table 1.

**Table 1. 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 2016.**

<b>No. of Dormice per 50 boxes in wood or area recorded for the National Dormouse Monitoring Programme (NDMP) in 2016</b>					
	<b>Freeholders' Wood</b>	<b>Northern England</b>	<b>Wales</b>	<b>Midlands</b>	<b>National</b>
Max. no. sites checked	1	4	39	22	406
Total no. boxes checked	255	805	2051	1803	21096
<b>Month</b>					
May	2.353	0.725	0.658	1.306	1.304
June	2.549	1.182	1.078	0.881	1.568
Sept	3.922	2.814	1.857	2.627	3.660
Oct	5.882	5.052	3.260	2.302	4.027

The number of Dormice found during monitoring work between 2008 and 2016 are shown in Figure 1.

**Figure 1. The number of Dormice found per 50 boxes checked at Freeholders' Wood, Aysgarth between 2008 and 2016.**



The total numbers of Dormice found at Freeholders' Wood during monthly counts in 2016 and selected monthly counts from Briddlesford Wood are shown in Table 2.

**Table 2. The number of Dormice and empty Dormice nests found during monthly monitoring work at Freeholders' Wood and selected months from Briddlesford Wood in 2016.**

<b>Freeholders' Wood</b>				
Survey date	Total no. of Dormice	No. of empty nests	No. of boxes checked	No. Dormice per 50 boxes checked
18/05/2016	12	2	255	2.35
22/06/2016	13	10	255	2.55
26/07/2016	15	13	255	2.94
24/08/2016	11	13	255	2.16
21/09/2016	20	14	255	3.92
19/10/2106	30	15	255	5.88
<b>Briddlesford Wood</b>				
May 2016	29	22	545	2.661
Jun 2016	20	16	537	1.862
Sep 2016	42	118	548	3.832
Oct 2016	70	154	527	6.641

## **Discussion**

Following on from the high numbers of Dormice recorded in October 2015, over-winter survival was good with the number of Dormice found on the May survey visit the second highest for the Freeholders' Wood site (2.35 Dormice per 50 boxes). Despite the relatively unsettled weather conditions for much of the summer, there were no prolonged periods of rain, resulting in a reasonable breeding season. In terms of breeding success the number of litters with young of age class pink or grey recorded each month were determined, with three litters located in June, two in July, three in August, two in September and three in October.

The spring and autumn Dormouse records compare very favourably with the national data when adjusted for the number of boxes (Table 1). The national data comprises records for over 400 sites, some of which are longstanding, some of which are more recent and all of which are subject to a variety of different woodland management regimes. The Freeholders data compares very favourably with Briddlesford Wood, a nature reserve

on the Isle of Wight owned by PTES where the woodland management is undertaken to support both Dormouse and Red Squirrel *Sciurus vulgaris* populations (Table 2).

Bright et al. (2006) indicate that juveniles need to reach a minimum weight of 15g by late October in order to survive hibernation. The average weight of juvenile Dormice at Freeholders' Wood in October was 16.9g (n = 5 Dormice), ranging from 13g to 21g, and the average weight of adults was 19.9g (n = 9 Dormice), ranging from 14g to 30g. This suggests that in September and October there was a good food supply and that the foraging conditions during the period were suitable.

The management plan for Freeholders' Wood including the rotational coppicing program will ensure that, in the long-term, the habitat remains suitable for Dormice. Taken in conjunction with the annual monitoring work undertaken as part of the NDMP, Freeholders' Wood continues to support a viable population of Dormice.

During the nest box checks on 18<sup>th</sup> May, one of the nest boxes was found to be occupied by both a nesting pair of Blue Tits *Cyanistes caeruleus* and a Dormouse. On opening the lid of one box an adult Blue Tit flew out, revealing a clutch of seven eggs and a Dormouse. On the subsequent survey visit the following month, the box was empty with no evidence of any broken egg shells or dead chicks (David Preston pers. comm). This is normally assumed to be indicative of successful fledging. This is the first instance at Freeholders' Wood of nesting birds and Dormice occupying the same nest box.

There appears to be very little information on the interactions between nesting birds and Dormice. However, a study in Lithuania by Juškaitis (2006) found that Dormice occupied 3.3% of Pied Flycatcher *Ficedula hypoleuca* nests but that they were very rarely found in Blue Tit nests, with only 0.5% nests of the latter predated. Juškaitis (2006) suggested that this was because tits aggressively defended nests and also lined them with hair and wool, which may contain more parasites than the plant material used by Pied Flycatchers.

The nest boxes at Freeholders' Wood are regularly occupied by nesting Blue tits with for example, 8.3% of boxes occupied in 2016, but less frequently by Great Tits *Parus major* with for example, only 1.2% occupied in 2016. Unhatched eggs and dead chicks are found annually, but

there has been no evidence of broken eggs in a nest to suggest predation by Dormice.

### **Acknowledgements**

The monitoring work was undertaken by licensed fieldworkers Roger Gaynor, David Preston and Paul Sheehan, with assistance from Suzannah Barningham and Briony Davey. We would also like to thank Tony Serjeant for his comments on the text and for proofreading this report.



Photo: David Preston

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## Visitors to the garden

A few photos of mammals that have turned up in our garden in suburban York over the last year or so...



This fox has been a regular visitor, here seen enjoying a snooze on the compost pile. Photo: Andrew Halcro-Johnston.



Photo: Andrew Halcro-Johnston.



Bank vole nest found under grass clippings. Photo: Ben Whitworth.



Photo: Ben Whitworth.



Hedgehogs are also regular visitors. This one was released back into the garden after treatment for suspected lungworm and tick removal at the local vet. Photo: Andrew Halcro-Johnston.