HMG News

Hampshire Mammal Group

Hampshire & Isle of Wight Wildlife Trust

Welcome to the Summer 2018 edition of Hampshire Mammal Group News

With the hotter weather, it's time to get outdoors and spot some mammals. They can turn up quite unexpectedly. When I arrived home after a Hampshire Bat Group talk, in February, an otter ran across the road. I live at the end of a cul-de-sac, on a housing estate, a mile from the nearest river. It had apparently been visiting the ponds in the neighbourhood and eating the goldfish. I have not seen it since.

It was good to see Chris Matcham at the Mammal Conference in Exeter and he won a prize in the Gala Dinner raffle!

The wallaby photo was taken in Devon. It was one of six wallabies that were being kept in someone's back garden. They are well fenced in at the moment. However, I did hear that a wallaby was spotted in another part of Devon earlier in the year.

All Hampshire mammal records should be sent to Andy Rothwell and photos can be sent to me for inclusion in the next Newsletter or saved for our next Open Day.

A big **Thank You** to Sheila who has contributed articles to this newsletter. Articles can be sent throughout the year and they will be kept until the next publication.

Catherine Dyason, Newsletter Editor

Events

Please find below the mammal event listings for 2018. Further details for each event will be sent out closer to the time.

Watervole Walk **Winnal Moors**	**Planned for an evening in September more details to follow**
Small mammal trapping **Itchen Valley Country Park**	**Sunday 14th October Morning**
HMG Open day & AGM **Shawford Village Hall**	**Saturday 27th October Day**

Rabbits

Tom Heap presented a programme on Rabbits on *Costing the Earth* on Radio 4. The British Trust for Ornithology (BTO) monitors 9 mammal species as well as birds and they have recorded a 60% decline in rabbits, across the UK, since 1996. This trend is still continuing with figures for last year showing a further 5% decline. There are regional differences. In Scotland there has been an 82% decline in rabbits in the past 20 years; in the East Midlands 87%. It is not a species that is usually thought of as deserving protection.

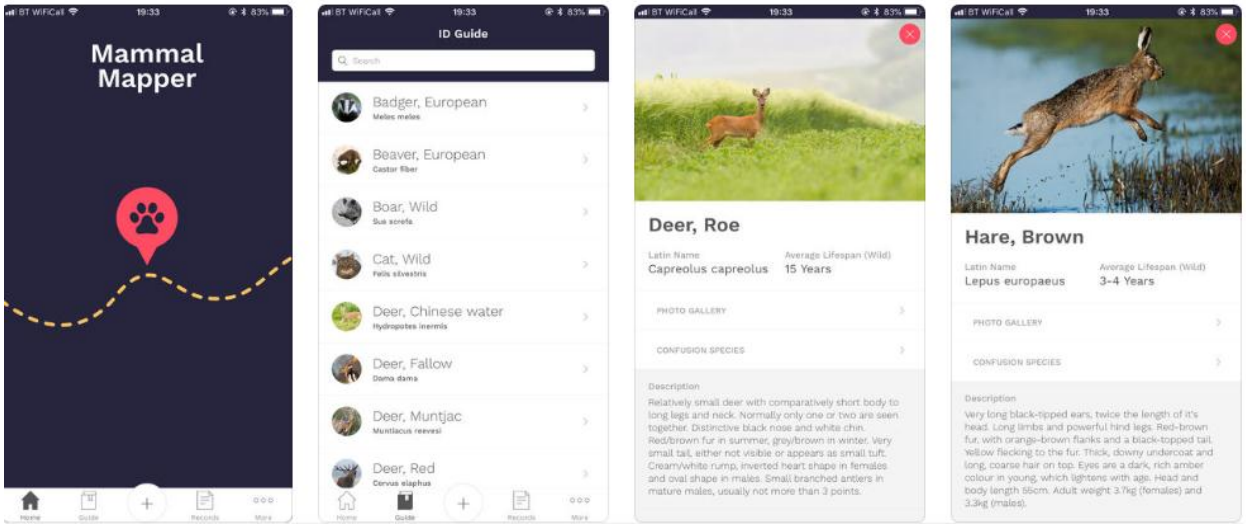
Rabbits are important for habitat management, creating open space and keeping grassland swards short. Rabbits have impacts on the flora and the structure of ground vegetation, and on predator populations like stoats and birds of prey. They remove plant species that would outcompete rare species.

Breckland, on the Norfolk/Suffolk border, covers 0.4% of UK but it is home to 24% of rare species such as Spanish Catchfly, moths, butterflies and digger wasps. There are also reptiles and ground nesting birds. Without rabbits the area would scrub over.

The light sandy soil and open heathland is ideal habitat for rabbits. The land is too poor for arable farming so people used to farm livestock and in particular, rabbits. It was the main industry for the Breckland. People would farm the rabbits in huge warrens with up to 40,000 rabbits. The meat and the fur would have been sold to London and other major areas. It began to decrease in popularity post war. A lot of the land was planted for forestry. It was the rabbits that enabled some of the heathlands to remain. Now, there are only 3 warrens in the Brecklands with about 20 rabbits each. People can go for months without seeing a rabbit there.

From the 1950s -1990s, 80-90% of the rabbit population was wiped out by myxomatosis and the disease is still around today. The rabbits that survived have some resistance to it. Then in the 1980s and 1990s Rabbit haemorrhagic disease (RHD) 1 – death by internal bleeding, came into the UK with domestic rabbits imported from China. Then RHD 2 arrived. The rabbits get lethargic and die below ground, whereas with RHD 1 they were on the surface feeding but with bleeding from their mouths, etc. The viruses are different so they were probably separate invasions. If it had been a disease of pigs then steps would have been taken to stop the spread of the disease. RHD can be spread by human feet so reserves could have disinfectant shoe/boot baths for people to walk through to decontaminate their footwear. Biosecurity is needed around reserves where there are still rabbits to protect them. On the continent RHD can also jump species to Brown and Mountain hares. It could already be happening in the UK but we do not have the evidence yet.

Fiona Matthews, Chair of the Mammal Society, says we can all help. We can start collecting better data. There is a free Mammal Mapper App for the phone.



Long term monitoring is needed from across the country. When you see an animal, press a button on the app. It will ask whether the animal is alive or dead and how many animals you have seen. It is automatically submitted. Negative results are important as well as it will tell where mammals are not as well as where they are. Long-term it will show changes over time. Mapper Mapper is available for Android or Apple.

Sheila Dyason

The Grey Squirrel

Nature's Great Invaders, Radio 4, presented by Dr Lisa Signorile

DNA profiling reveals grey squirrels are not as good invaders as we think, and that humans played a much larger role in spreading them through the UK. Grey squirrels were imported to the UK from the 1890s onwards, and the traditional view is that they spread rapidly across the UK due to their ability cope with new landscapes. Different populations of grey squirrels were thought to have interbred into a 'supersquirrel' that was better able to adapt and spread.

However, Signorile was able to show that different squirrel populations are still genetically distinct, meaning they did not interbreed much and did not create a supersquirrel. The difference between populations also means Dr Signorile and coauthors were able to trace where populations in new areas had come from. In many cases, new populations of grey squirrels are not related to nearby populations, and instead have come from a long way away. The only way they could have travelled so far was by human intervention. For example, the population in Aberdeen is most closely related to populations in Hampshire, around the New Forest area.

Genetics has proved they are not that good at breeding and mixing; in fact there are clear signs of inbreeding. The research is published in two papers, in the journals Biological Conservation and Diversity and Distributions.

Dr Signorile also discovered that one of the worst offenders at spreading grey squirrels was the 11th Duke of Bedford, Herbrand Russell. Russell was involved in many successful animal conservation projects, but released and gifted many grey squirrels around the UK from his home at Woburn Park. Russell also released populations in Regent's Park, likely creating the London epidemic of greys. “It was a time when we didn’t know invasive species could cause so much damage,” said Dr Signorile

Although not as good invaders as previously thought, greys still outcompete native red squirrels for resources, and carry diseases that kills reds but not greys. Greys have largely displaced reds in England and Wales. “Eradication or control programs are still needed, in particular in areas where red squirrels are present,” said Dr Signorile.

Scotland is one of the last places to be invaded, but humans are still helping grey squirrels move into new areas today, albeit more unwittingly. Dr Signorile also investigated where recently-spotted greys have come from. She found that one individual that was captured on the Isle of Skye in 2010 had come from Glasgow. In this case, genetic profiling confirmed a report that the squirrel had stowed away under a car bonnet and escaped on Skye.

Dr Signorile also examined the case in Italy, where grey squirrels are more of a recent introduction and could be sold as pets until 2012. Her analysis of populations in different regions of the country confirmed an illegal trade in grey squirrels. “It illustrates that ‘attractive and cute’ species are often spread further by people,” said Dr Signorile.

Aside from revealing the surprising result that the success of grey squirrels is in part based on our help, Dr Signorile said the study also suggests new approaches are needed to tackle their spread. “We put a lot of money into controlling grey squirrel numbers, but nobody is trying to prevent their movement and discourage people from picking them up. Decision-makers should look into preventing spreading of greys by human hands.

“The public also needs to be aware of the risk of even accidentally moving squirrels. People think grey squirrels are already everywhere, so it is not a problem, but it can be, especially in areas of Scotland where there are not yet established populations.”

Signorile, A. L., Lurz, P. W. W., Wang, J., Reuman, D. C., and Carbone, C. (2016). Mixture or mosaic? Genetic patterns in UK grey squirrels support a human-mediated ‘long-jump’ invasion mechanism. *Diversity and Distributions* 22, 5.

Signorile, A. L., Reuman, D. C., Lurz, P. W. W., Bertolino, S., Carbone, C. and Wang. J. (2016). Using DNA profiling to investigate human-mediated translocations of an invasive species. *Biological Conservation* 195, 97-105.

The Mammal Society's 64th Spring Conference 2018

This year the Conference was held at Exeter University from the 20th-22nd April.

Fiona Matthews talked about The Mammal Society Population Review And Red Listing For British Mammals. The last comprehensive review of the status of British Mammals was published more than 20 years ago. However, the Mammal Society has just completed a new Review and it has also written the first ever Red List for British Mammals, which assesses the short-term extinction risks of our native and naturalised mammals.

One in five of our mammals is in serious threat of extinction. 29 least concern: Red Deer increased by 24% - lack of predators like wolves. Near threatened: the Rabbit down 46%. Vulnerable: Serotine bat down 32% thought to be due to lack of insects in the environment with a loss of 75% of insect biomass. Endangered: Red Squirrel down 33%, Critically Endangered: Scottish Wildcat down 94%.

David Bavin from The Vincent Wildlife Trust spoke about *The Role Of Stress And Personality In Wildlife Translocations: Lessons From A Pine Marten Reinforcement In Wales.* Although conservation translocations are increasingly being used to reinforce or re-establish threatened species, the majority of translocations are ultimately unsuccessful. Two factors that may compromise the outcome of translocations but have been largely overlooked, are the stress response and individual personality of the animals involved. The Vincent Wildlife Trust's Pine Marten Recovery Project provided the opportunity to study these factors in the first group of 19 pine martens translocated from Scotland to Wales. Results suggest that there is marked variability in both these traits between individual pine martens. This variability has been quantified from observations and sampling during the translocation process, and was significantly associated with dispersal and post-release movements of the martens. This has implications for future translocation attempts.

John Gurnell's talk was titled: *Volunteers Illuminate The Nocturnal Activities Of Hedgehogs.* Understanding the impact of artificial light on the activity, behaviour and physiology of plants and animals is an area of increasing scientific interest. Following on from the first year of running the successful Hedgehog Watch Survey in 2016, The Mammal Society asked members to film hedgehogs feeding in their gardens under normal lighting or artificial lighting conditions using camera traps. They were also asked to carry out invertebrate surveys using pitfall traps.

Deborah Wright, Warwickshire Wildlife Trust, talked about *Hedgehogs and development: how to factor hedgehogs into the planning system*

Hedgehogs are thought to have declined by a third since the Millennium and are considered to require conservation action. However, there is currently no legislative obligation to protect or provide habitat for hedgehogs, making it difficult to manage our green space effectively for the species.

With funding from the British Hedgehog Preservation Society, the Warwickshire Wildlife Trust has established two Hedgehog Improvement Areas (HIAs) with dedicated Hedgehog Officers. The HIAs aim to help conserve local hedgehog populations through community engagement, surveying and habitat improvement. The Officers liaise with communities, ecologists, developers, planners and Local Authorities to make both residential and non-residential green space hedgehog-friendly.

The Rugby HIA has resulted in changes to Local Authority management of green space, design plans for new developments, and statements in local policy. Learning from the successes and challenges should be considered a priority, given the declining status of hedgehogs in the UK.

In our Time, Radio 4:

Echolocation with Melvyn Bragg, Gareth Jones, Kate Jones and Dean Waters 21/06/2018

Bats use ultrasound because it is the best frequency to get echoes from very small insect. The short wave lengths do not travel very far. Bats typically echolocate between 20 – 60 kHz. Out of human hearing range. In the Mediterranean one bat echolocates at 8 kHz. Another bat goes as high as 210 kHz.

Bats work out the distance of the insect from them by the time delay of the returning echo. They also have to use their tragus to work out where an insect is in the vertical plane and in the horizontal plane the bat is using intensity differences from one ear to the other ear.

Calls travel a few metres at most. The trade off is 'seeing' far with lower frequency and 'seeing' in detail with higher frequency.

Bat vocal chords are stronger and more robust than ours. The bat compresses the air in its lungs to the point of blood pressure. The bat is almost switching off the blood supply to its lungs because the pressure is so high. It then releases the vocal chords and they contract under elastic energy and they start to vibrate. Because it is high frequency at the beginning, it is high pitched, but as the vocal chords relax under elastic recoil, the frequency becomes lower and hence frequency modulated calls. They also have special muscles that re-tension the vocal chords. They are a hundred times faster than human muscles. They need to be fast because Bats are producing signals 10 times a second when they go into approach and search phase, to up to 200 calls a second. So. they have to re-tension the muscles 200 times to get the signals out.

They get echolocation for free because the flight muscles are coupled to the muscles that contract the lungs. As the bats raise their wings on the upbeat, the muscles compress the lungs and the animal exhales and produces the echolocation call. They do not deafen themselves because they can contract the bones in the middle ear and become deaf while they are calling. Then they have a listening period when the echoes come back. When they are closer to targets, they have to shorten the call, so that the outgoing call that is really intense does not overlap with the returning echo.

Insects evolved earlier than bats. Therefore, bats have tapped into an unsuspecting prey source. They do not hear the bats coming. However, there are some insects that have developed anti-bat devices. Bat detecting ears have evolved in some butterflies and moths so they can take avoiding action. If a moth hears a bat's search phase call, it is not worried as it has not been seen yet, but when the bat calls speed up, they take avoiding action so they can change direction or drop out of the sky. The Tiger Moth can also make clicks which could be a warning to the bats because they are poisonous or some think a jamming response. Nevertheless, the bats have got countermeasures as they can change their frequencies and go much higher or lower, to avoid moths hearing them. Additionally, they can go into stealth mode and do not make echolocation calls. Some moths have become more diurnal to avoid bats or shift seasons so they come out before bats come out of hibernation or after the bats have gone back into hibernation.

Snippets

This is a section where people can send in short pieces of news

* **Squirrel gets stuck in the toilet after sneaking into house**

* **The Vietnamese Pygmy Dormouse** is thought to echolocate. It has poor vision, is nocturnal, has big ears and makes a series of clicks as it moves around. It is not related to bats.

*** Man fined and dog re-homed after hare coursing conviction**. A man faces a court fine of more than £600 and the loss of his car and dog after being caught hare coursing in North Yorkshire.

*** Global warming is making life difficult for the mountain hare in the Swiss Alps**. As a result, they are becoming increasingly rare, an international study headed by Swiss scientists has revealed. Researchers from the Swiss Federal Institute for Forest, Snow and Landscape Research and the University of Bern predict that the mountain hare's alpine habitat will shrink by a third every year until 2100. Rehnus, M. *et al*. (2018) Alpine glacial relict species losing out to climate change: the case of the fragmented mountain hare population (*Lepus timidus*) in the Alps. *Glob Change Biol.* 1–18. Available online at: http://www.cb.iee.unibe.ch/unibe/portal/fak_naturwis/d_dbio/b_ioekev/abt_cb/content/e58879/e529966/e529982/e660753/Rehnus_GCB2018_eng.pdf

* **In Fenno-scandinavia, mountain hare (*Lepus timidus*) and brown hare (*Lepus europaeus*)** hybridize and produce fertile offspring, resulting in gene flow across the species barrier. Levänen R,Thulin C, Spong G, Pohjoismäki JLO (2018).

* One of several field vole nests found under reptile refugia in the New Forest.

Why not?

We would love to hear from you. As well as sending your mammal sightings to Andy Rothwell, why not send us an account of what you have seen for our next newsletter. How about a member's letters page?

Some Useful links:

Hampshire Mammal Group Pages: https://www.hiwwt.org.uk/species-groups

Living Record www.livingrecord.net

Mammal Society: http://www.mammal.org.uk/

People's Trust for Endangered Species: http://www.ptes.org/

Hants Species E-Group: http://uk.groups.yahoo.com/group/Hantsspecies/

Email Catherine Dyason newsedhmg@yahoo.co.uk

Ruth Kernohan, HIWWT HMG Rep: Ruth.Kernohan@hiwwt.org.uk