HEREFORDSHIRE MAMMAL GROUP
WINTER NEWSLETTER
(January 2017)

What's Inside?

WINTER EVENTS

January

Thursday, 12th January at 19.30

Seals

A talk by Mike Bailey, Marine Biologist
We will be introduced to each of the species on the British list as well as a few from further afield. Packed with photos of adorably cute seal pups it's guaranteed to wipe away those post-Christmas blues and put a walrus-sized smile on your face... So don't miss it, and bring the family too! The Bunch of Carrots, Hampton Bishop
There will be a charge for this event

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Date and Venue: TBA

Barn Owl Pellet Workshop

Come and join us for some small mammal identification by dissecting barn owl pellets found in Herefordshire to obtain some valuable small mammal records for our Atlas

February

Thursday, 9th February 2017 at 1930

Wytham Woods Bat Project

A talk by Dr. Danielle Linton
The Bunch of Carrots, Hampton Bishop
There will be a charge for this event

March

Wednesday, 8th March, 2017 at 19.30

Moles

A Talk by Rob Atkinson, Author of Moles (The British Natural English Collection Series)
The Bunch of Carrots, Hampton Bishop
There will be a charge for this event

There are likely to be other events organised over the winter months which will be advertised on the website and Facebook

NEW MEMBERS

We would like to welcome the following new members to HMG:

Tony McQueen

MEMBERSHIP

Mike Coleman, Membership Secretary

We currently have 38 paid up members in HMG and 228 followers on Facebook. Remember, join the Mammal Society and get HMG subs free!

Facebook - HMG has an active Facebook page where we post all our events past and present: www.facebook.com/groups/222077991279736/

Membership Renewals

Many thanks for your support over the last 12 months - we hope that you have enjoyed being part of HMG. For those of you that still need to renew your membership, check out the membership page on our website which provides full details. At £7.50, which includes

insurance cover at our events, membership still offers great value.

NEWS IN BRIEF

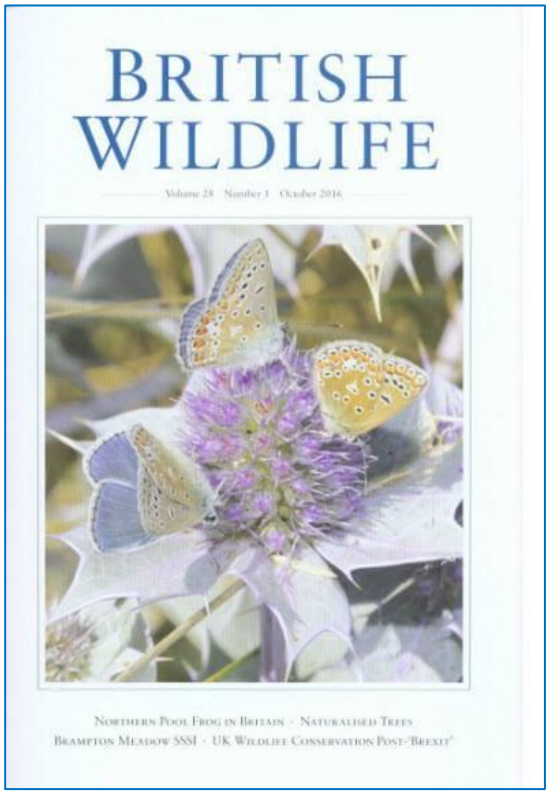
HMG's Annual General Meeting

The new committee was voted in at the AGM as follows

Denise Foster – Chairperson, Bat Co-ordinator and Newsletter Editor
Mike Bailey – Secretary and Training Co-ordinator
Mike Coleman – Treasurer
Leigh Russell – Membership Secretary and Events Co-ordinator
Dave Smith – Small Mammal Co-ordinator
David Lee – Committee Member
Ann Bowker (Co-opted) – Dormouse Co-ordinator

We have some new roles this year so if membership have any suggestions for events and training needs please contact the relevant committee member.

HMG in the Media



HMG made British Wildlife with an article about the churches project.

Waitrose Select HMG for December's Community Matters

Every month, each Waitrose store gives away £1000 each month (£500 in convenience shops) and shares it amongst local "good causes" that have been nominated by customers. This programme is known as "Community Matters". Three causes are selected every month by store partners and the money is shared between the causes in proportion to the number of green tokens they receive from shoppers.

Photo: HMG is the middle box

Herefordshire Mammal Group has been selected for December's Community Matters. We are alongside two non-animal groups so it will be interesting to see how many animal lovers shop at Waitrose and post their green tokens in our box.

Polecat Trapping Surveys in Herefordshire

HMG members were key players in assisting a PhD Student Katie Sainsbury of Exeter University with her project to trap and radio-track polecats. This project, which is partly funded by the Vincent Wildlife Trust, is looking at the behaviour of Polecats, their foraging areas and the hazards they face from human activities. A number of our members got involved in the pre-baiting, setting of traps and radio tracking collared animals.

In total , 118 traps were put out in 8 x 1km squares mainly on the west side of the Malvern Hills area. A total of 6 polecats were caught and later released which included 2 females and 4 males; 1 female had previously lactated, 1

female and 2 males were first year adults born in spring 2016.

Photo: When polecats are caught, they pull in hay placed over the traps to make a warm and dry den (permission from Katie Sainsbury to use photo)

Photo: A male polecat fitted with a radio-collar, prior to being released back into the field (permission from Katie Sainsbury to use photo)

All animals were microchipped for future identification. Five were radio collared but as there were issues with the collar straps, all lost their collars within 2 weeks.

Harvest Mice Training for HMG Members

Photo by Mike Bailey of captive Harvest Mouse

In December, a few HMG members got the priviledge of some "up close and personal" experience with Henry Schofield's captive Harvest Mice as part of a training session. Afterwards the team went in search of harvest mouse nests but failed to find any in Herefordshire. The team spent the afternoon at HWT's reserve at The Sturts and found plenty of short-tailed field vole evidence but no harvest mouse nests. Keep an eye on our facebook page and website for details of further training opportunities in the future.

Wallabies not too far away by Kate Wollen!

I have never heard of a wallaby being seen in Herefordshire, but this year this mammal has just been added to the database of mammals living in a Forestry Commission woodland. In October this year, one of the Forestry Commission bird surveyors had a clear view of it. The woodland is in Wiltshire and very near to the Gloucestershire border. The Forestry Commission obviously grow the right trees and grasses in this particular woodland, because this wallaby has been seen there for some months now.

There have been a number of wallaby sightings in Wiltshire, with a known farm near Marlborough keeping them and it appears they can survive in the wild in the UK. There are small colonies in the Peak District and around Loch Lomond in Scotland.

PTES estimate that around 50 wallabies are living in the wild and classify them as non-native and localised. So the next time I go to a wood in Wiltshire I am going to crack open a can of the amber nectar and hope that the weather is just as it should be for a wallaby!

Editorial: Five Red-necked Wallabies escaped from a private zoo at Roaches Hall around 1940 and an extra male was deliberately released from Riber Castle in 1978 "to improve the genetic variability" but it was actually a publicity stunt. The population increased to about 50 in 1962 when it was reduced due to the severe winter. The population was studied by Derek Yalden for 40 years, from 1969 to 2009 and varied between 10 & 20 during 1970 - 1990 but

had declined to only one animal by 2006. Since then there have been occasional sightings - the most recent confirmed sighting was in Sept 2014 with another probable sighting in April 2015.

Red-necked Wallaby photographed by Andy Burton near Lud's Church - close to the Roaches in Staffordshire, 29th March 2009.

Three Yaks and a Nilgai antelope also escaped at the same time as the wallabies. There have been a few sightings of a Yak upto about 1958 but nothing has been seen of the Nilgai.

Species Action Plans

The Herefordshire Wildlife Trust has resurrected old Biodiversity Action Plans for vulnerable species, which are now called Species Action Plans (SAPs). These go live this month and for our group there are six SAPs covering 5 individual mammals and 1 group of mammals. HMG are Lead Partners for Bats, Dormouse, Hedgehog and Harvest Mouse and Key Partners for Water Vole and Brown Hare.

Hedgehog wins Favourite UK Mammal Poll

Photo by Sue Ellis

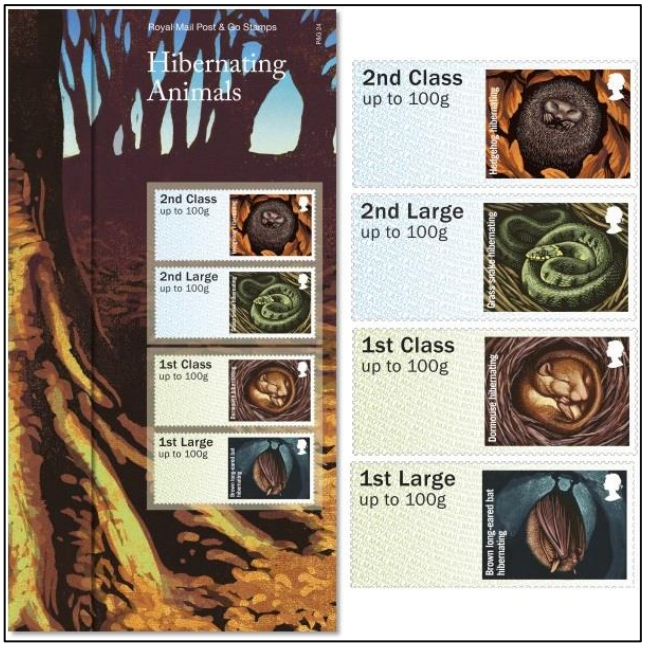
The Royal Society of Biology's public vote for 2016, received a total of 5000 votes and, with a huge majority of 40%, the hedgehog won the award. The Red Fox came in second place followed by the Red Squirrel. Remember to submit your hedgehog records (dead or alive) for our Atlas.

Black Dormouse found in Somerset

Photo by "Natural Features" of the Black Dormouse

For the first time, a black dormouse has been found in a nest box in the Blackdown Hills of Somerset this summer. Somerset is not that far from Herefordshire. This hazel dormouse has black fur instead of its normal golden pelage. Black Hazel dormice are found in Germany and this is a new discovery for Britain. The full article can be found at
http://tinyurl.com/blackdormouse

Royal Mail's latest Stamp Set



On the 14th November, the Royal Mail issued a hibernating animal stamp set which included the dormouse, hedgehog and brown long-eared bat.

Small Mammal Trapping in Nepal – A talk by Simon Poulton

The first of our winter talks was held in December at our usual venue, The Bunch of Carrots. The speaker was Simon Poulton, who is the inventor and designer of a new type of small mammal trap, the BioEcoss tube trap.

His talk was divided into two sections, the first of which was about small mammal trapping techniques, and the second was about the project he has been working on as part of his PhD in Nepal.

Photo: Simon bought some traps for members to try out.

For the un-initiated, the first part was an informative and thorough review all aspects of small mammal trapping. Simon covered everything from the reasons for trapping to the final data analysis. He touched on the legal aspects of trapping, including animal welfare and the need for a license to trap shrews. Different types of survey design and field methodology were discussed. Trapping in the months of spring and summer can be much more fun, but you are more likely to get a better success rate if trapping is carried out in the autumn or early winter when populations are generally higher.

The need to check traps at regular intervals can be complicated in the winter months with the prospect of checking traps in torch light. The audience was talked through all the different options of trapping in grids compared to using straight line transects, and the choices to be made on whether to place traps singly or in pairs. Types of bait and the best bedding to use were weighed up and methods of identifying and recording your catch were all discussed. In all this first part of the talk was extremely inspiring for everyone, whether they were semi experienced trappers or had never trapped before. Hopefully Simon drummed up some enthusiasm to get people out in the field.

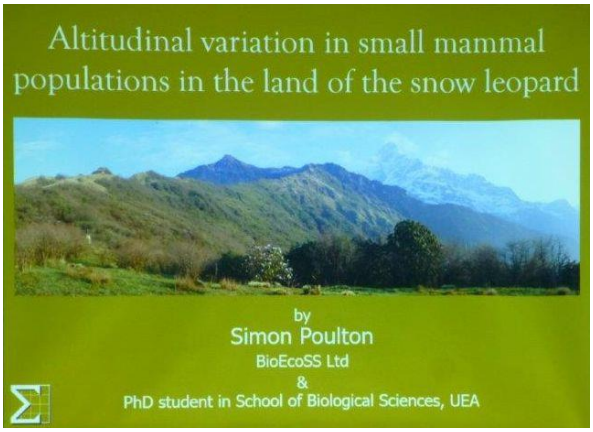


Photo: Simon's second part of the talk was about his PhD project based in Nepal

The second part of his talk was equally enthralling, and was interspersed with stunning photos of the Nepalese mountains. His work in Nepal is a study of native small mammals and the altitudinal variations of their habitats and home ranges. There are 15 species of rodent and 12 species of shrew in Nepal, of which Simon has caught 17 during his three years of study (a total of 793 animals). Not a great deal of work has been carried out previously on Nepal's small mammals, so Simon was taking DNA samples to analyse as the next part of his PhD. This is going to be a very important part of his work, as some of the animals he trapped had not been recorded before and there is a possibility that he may have discovered a new species to science, but he will not know this for sure until the results of the DNA have been finalised. This half of the talk was finished off with some of Simons short "home videos" of the beautiful scenery and some clips of the many porters who helped him carry all his equipment up and down the mountains.

Photo: There was a good turnout of members for this very inspiring talk

Bat Co-ordinator Update by Denise Foster

Bat Box Checks

Photo: Noctule found in a bat box on the Doward

A couple of late bat box checks were carried out by HMG members to see if any noctules would turn up in the Autumn months. Mike Bailey carried out a check at The Doward reserves on Halloween and found 12 bats in his boxes, 8 soprano pipistrelles, 3 noctules and a brown long-eared. All the pipistrelles were really good weights as was the brown long-eared bat which weighed 9.5g! It certainly was a good time to carry out a box check!

Nick Underhill-Day also carried out a late box check at Nupend Nature Reserve and found a long-eared bat but no noctules.

Bat Surveys in 2017

We will be continuing with our three main projects in 2017; Woodlands Project, Churches Project and Bats and Roadside Mammal Driven Transects to some extent. Natural England have just issued the licence to trap, ring, radio-tag and mark bats for the 2017 season. Should funding be successful we are hoping to tag at least another 4 bats, 3 in the Woolhope Dome and 1 or 2 at Berrington Hall. Anyone who is particularly interested in any of the projects, please contact Denise Foster at HMG, as not all events will be advertised.

Dormouse Coordinator Update by Ann Bowker

As the year draws to a close I have been taking stock of our activities and achievements. Two more sites have been surveyed; Kate Wollen found dormice at Broadmoor Common for Ledbury Naturalists and at a site north of Bromyard we found a nest in the last tube on the last check.

Photo: Dormouse nest made of bracken found on the Bromyard site.

This nest is not a typical construction, but it could not really have been made by anything other than a dormouse, especially the sculptured leaves at the end of the tube.

I had a rather disappointing year at my two sites on the Hills, but we found 30 animals in Kate's site at Dymock in October. This included a number of late litters whose survival must be in doubt. Denise carried out a November check at Chase Wood and found a very tight hibernation nest in one of her boxes. Let's hope the incumbent retreats to ground level at some point to avoid dehydration.

Photo: Sealed Dormouse nest found in a box at Chase Wood (Photo by Will Watson)

Three members attended an excellent Dormouse Conference at Reading University from which we gained a lot in useful information and advice, plus the most enjoyable video of Goedele Verbeylen's research project shown at our AGM.

Along with others species the refresh of the Herefordshire Dormouse SAP has just been finalised.

As an early Christmas present Dave Smith found a dormouse nest in my front hedge this afternoon (14th December), but, sorry folks - it's in Worcestershire!

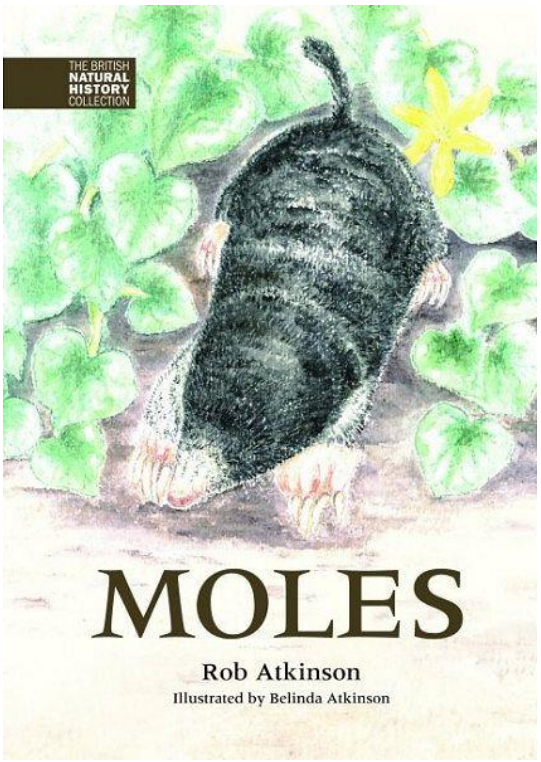
I have been making enquiries regarding sites for next year's surveys and already have one estate on board in the woodlands on either side of the road from Burghill to Weobley in the northern half of SO44. According to the excellent map produced by David Lee this is an area where there are a number of older records but nothing since the year 2000. I have high hopes of finding dormice there!

Denise has been contacted by the Malvern Hill's AONB about surveying for dormice on the west side of the Malvern Hills at Halesend Wood and Whitmans Coppice but this will be dependent on landowner permission.
I also have high hopes for Robin Hemmings' projected survey at Bringsty Common for some updated information on dormice.

I should like to express my deep appreciation to all those who have helped and supported me during the year and wish everyone a very Merry Christmas and a successful New Year.

Photo: Dormouse in the hand

Moles by Rob Atkinson – A book review by David Lee



Moles, written by Rob Atkinson, is the third volume in Whittet Books' *British Natural History Collection*, which carries forward the long established British Natural History Series into the 21st century. It is an entirely new work written by an expert in the field in the light-hearted but authoritative style that is the trademark of Whittet Books.

Rob Atkinson is one of the very few ecologists who has studied wild moles in Britain. Coming from rural Herefordshire, he began his relationship with the animals by trapping moles. However, he very soon began to appreciate them in a more favourable light and went on to carry out a four year field research project at Oxford's Wildlife Conservation Unit, leading to a Masters degree. 28 years later, despite a wide ranging career including a PhD studying Jackals in Zimbabwe and 11 years as Head of the RSPCA Wildlife Department, he is still researching moles.

Despite being Britain's fifth most common mammal, with a population estimated at 31 million (rising to nearly 100 million for a short time, just after breeding), very few people have ever actually seen a mole. Most people are totally unaware of their presence unless they are tormented by their molehills! The poor animal has also been sadly neglected by science - a quick Google Scholar search returned only 30 English language papers from the last 10 years.

In this book, Rob takes us on a journey through the natural history, ecology and behaviour of the mole as it is beset by constant tribulations - overcoming floods, frozen soil, drought, predators and vengeful humans, always inspiring us with his enthusiasm for this tough little animal.

The statistics are truly mind-boggling - unless it is fortunate enough to inherit a previous resident's tunnel system - the mole must dig over a kilometre of tunnels, packed in to a territory about 40m square, working for about 4½ hours a day, tunnelling at a rate of about a metre per hour. Each metre of tunnel produces 2kg of soil that must be pushed out onto the surface from a depth of up to 150cm. Rob calculates that this is the equivalent of an average sized man pushing a reluctant elephant up and out of a sloping tunnel with one hand!

Whilst moles are generally considered to be pests because of the molehills they throw up in fields, parks and gardens, Rob tells us that the damage they do is rarely very serious. Indeed, in a survey he carried out amongst farmers, the mole ranked only a lowly twelfth amongst mammal and bird pests and only 2½% of farmers considered them to be a major pest. Sadly, though, more than 30% of farmers with a neutral attitude towards moles also said that they killed them.

If molehills appear in your lawn, Rob's advice is just to kick them over - and don't waste your money on repellents, they don't work!

It is rather a disappointment, though, to learn that the poor mole's one claim to have changed the course of history turns out to be an exaggeration. Whilst William III did indeed break his collar bone when his horse stumbled on a molehill thrown up by "*the little gentleman in black velvet*" he was actually making a good recovery and back at work until he contracted pneumonia and died a fortnight later.

This is a thoroughly readable account of one of our most enigmatic animals and is highly recommended to anyone with an interest in British Wildlife. The book is beautifully illustrated throughout with drawings by Rob's sister-in-law, Belinda Atkinson.

An essay written by Rob for the Daily Mail "*Don't be Beastly to Moles!*" is available online at http://tinyurl.com/moles-in-dailymail

He also appeared as a a guest on Chris Evans Breakfast Show in March 2016 and you can hear a clip of him answering the question "*How do you count 31 million British moles?*" at www.bbc.co.uk/programmes/p03mwd0t

Rob Atkinson will be our speaker at our final winter season talk in the Bunch of Carrots on Wednesday March 8th. Don't miss it!

Search for the Devil by Mike Bailey

Lying 150 miles south of Melbourne across the Bass Strait, Tasmania is one of Australia's eight states, but it is perhaps the least known and the least visited, particularly by European tourists. It is an island three times the size of Wales with a relatively small population of just over half a million people. With verdantly lush forests, spectacular mountain ranges and stunning coastlines it wasn't a difficult decision to choose it as the destination for my honeymoon in November 2016. What I may have failed to mention to my lovely bride Nicky when booking

the trip however, was that Tasmania also contains 33 species of terrestrial mammal, 41 species of marine mammal and 12 endemic species of bird… Striking the right balance between romance and my passion for wildlife was going to be quite a challenge!

Like most of Australia's mammals, the Tasmanian fauna comprises many marsupials, remarkable for their method of reproduction where the very tiny young complete their development in a pouch. Not all of the island's mammals are marsupials, as bats and rodents account for placental species and there are two monotremes (egg-laying) mammals: the platypus and echidna. Tasmania has many species which have become, or are on the verge of extinction on mainland Australia. The lack of introduced predators and the relatively large amount of intact habitat on the island make Tasmania a final refuge - and arguably a last chance - for many species. But it is probably the Tasmanian devil *Sarcophilus harrisii* for which this island is most famous. Seeing one outside of a zoo however has become almost impossible since their population has crashed by 90% in the last 20 years due to the Devil Facial Tumour Disease (DFTF), so our chances of tracking down a wild devil were extremely slim. But I love a challenge… so the hunt was on…

Photo by Mike Bailey: Tasmanian pademelon are smaller than wallabies and arguably cuter too!

Travelling anti-clockwise around the island over two weeks gave us the chance to see a wide range of habitats and species. Our first destination was the offshore island of Bruny where we encountered two macropods: Bennett's wallaby *Macropus rufogriseus* and the endemic Tasmanian pademelon *Thylogale billardieri*. Sitting in a hot tub sipping a glass of Tasmanian wine (see, I did manage some romance!) whilst watching these delightful and inquisitive animals hopping around a few metres away soon won my wife over and she became an expert at finding them hiding amongst the trees and scrub everywhere we went.

Bruny has a particularly high number of albino wallabies and we were fortunate to find five different individuals grazing outside our lodge each evening. Indeed, the late evening and the hours of darkness were definitely the best times for mammal searching as most of them are nocturnal.

Photo by Mike Bailey: albino Bennett's wallabies can be found in a few selective spots on Bruny Island

So, after watching 30 little blue (also known as fairy) penguins *Eudyptula minor* waddle up the beach late one evening, we went on a night drive around Bruny and I was extremely excited to spotlight a total of fourteen eastern quoll *Dasyurus viverrinus* during the two hour drive. A small cat-sized predator, this marsupial species became extinct on the Australian mainland in the 1960s but Tasmania retains a relatively healthy and stable population. They can be found in two colour morphs: black with white spots, and fawn-coloured with white spots. We saw both, and even saw a pale adult with two kittens, one of each morph.

This night drive also introduced us to the brush-tailed possum *Trichosurus vulpecula*. Another marsupial, this species can be found in four colour morphs (black, brown, grey and yellow) and we encountered them in several different locations around Tasmania. The rarest morph is the beautiful golden colour and from my research before the trip I didn't think I stood much chance of seeing one. Imagine my shock when Nicky spotted the very first possum we saw and said, "What's that yellow animal over

there?" It was the only golden possum of the whole trip! With the additional sighting of a single Long-nosed Potoroo (a small wallaby-like animal with a noticeably long nose!) we headed back to our lodge with a steadily-growing mammal list.

Photo by Mike Bailey: the diminuitive eastern quoll

Sadly, driving the roads at night had soon revealed one of the big problems facing Tasmania's wildlife. Roadkill was everywhere. Speeding motorists are slaughtering many mammals on the roads at night, despite the numerous signposts requesting a dusk til dawn limit of 40kph. Maybe the numerous roadside carcasses indicate a healthy population in the surrounding forest, but how sustainable is this going to be?

Photo by Mike Bailey: the egg-laying, ant-licking spiny echidna

The following morning we woke to find a stunning short-beaked echidna *Tachyglossus aculeatus setosus* waddling along the edge of the meadow. An ant-feeding specialist, this egg-laying mammal has powerful limbs adapted for rapid digging; they are short and have strong claws, allowing it to tear apart large logs and move paving stones. One scientist even apparently reported that a captive echidna moved a refrigerator around the room in his home! Nicky and I watched spellbound as the animal wandered to within a foot of my feet constantly sniffing for ants, oblivious to our presence. Magical.

Booking a four hour boat trip offshore whilst in Tasmania was perhaps somewhat inevitable for a marine ecologist, but seeing marine mammals is never guaranteed, so Nicky and I were a little apprehensive as we headed out into the five metre swell of the Southern Ocean. Almost immediately I spotted a pod of fifty dolphins but they were too distant to confidently identify. Fortunately we soon encountered another cetacean as a young humpback whale *Megaptera novaeangliae* suddenly erupted out of the water and breached in front of us! Nicky was as excited as I was. We bobbed around watching this immense beast for almost 30 minutes as it waved its pectoral fins around and launched out of the water several times. We were lucky to eventually see three others during the trip, all heading southwards on their epic migration to the Antarctic waters to feed for the austral summer.

Photo by Mike Bailey: a humpback whale breaching in the southern ocean

Our marine mammal fix was completed when we arrived at a rocky outcrop to find a colony of Australian fur seal *Arctocephalus pusillus*. With their external ears and ability to walk on all fours they are much more closely related to sea-lions than to the true seals, but to find out more about pinnipeds you'll have to come along to my talk on seals on 12 January (see HMG website/facebook for details)!

After a day spent flying into the south west wilderness to visit the researchers protecting the

last fourteen orange-bellied parrots *Neophema chrysogaster* left in the wild, we travelled northwards along the east coast where Nicky and I spent a few days trekking and relaxing. We eventually arrived on the Tasmanian north coast near Narawntapu National Park and settled in for three days of superb mammal-watching at this beautiful reserve. The first animal we saw was a southern brown bandicoot *Isoodon obesulus*, an omnivorous marsupial about twice the size of a brown rat. Despite being a widespread Tasmanian species this was the only one we managed to see, and it is certainly an animal that suffers heavily from predation by feral cats and potentially from any introduced red fox *Vulpes vulpes*

Photo by Mike Bailey: Australian fur seal taking a break

Narawntapu, formally known as the Asbestos Ranges, is often referred to as Tasmania's "Serengeti" due to the vast numbers of macropods grazing on the grasslands by the main access road. We deliberately waited until just before dusk to enter the park to maximise our chances of seeing the animals, and this was our first real opportunity to look for devils, especially as several had been released here earlier in the year as part of a reintroduction project. Eastern grey kangaroos *Macropus giganteus*, also known as Forester kangaroos, were easily found, and watching hundreds of them grazing in the light of the setting sun was certainly a sight to behold. Along with more Bennett's wallabies and Tasmanian pademelons we were soon surrounded by macropods but there was another mammal we were hoping to see here… We eventually spotted a large bundle of fur emerge from the forest as a common (aka coarse-haired or bare-nosed) wombat *Vombatus ursinus tasmaniensis* slowly made its way down to the grassland to spend the night feeding. We saw four wombats, including a sprightly little youngster skipping through the puddles on the grasslands, but these giant teddybear-like marsupials have unfortunately suffered from a terrible epidemic of sarcoptic mange (or scabies), caused by the scabies or itch mite (*Sarcoptes scabiei*) in the last two years and their numbers have crashed. The park staff told us they were very worried that they may lose all of their wombats during the next twelve months if they can't fund treatment. Frustratingly there is a readily available treatment but applying it to the entrance to wombats' dens requires a lot of manpower and there are significant costs involved. Whether the Australian government can find enough money to fund the treatment remains to be seen.

Photo by Mike Bailey: wombats are struggling to cope with a breakout of mange and require urgent intervention

A night drive through Narawntapu produced plenty of mammal sightings but not of any new species. Most frustratingly this was my only reliable site for Tasmanian bettong Bettongia gaimardi, a tiny endemic relative of the wallabies, and we didn't find any of them. Oh well, maybe next time! We also didn't see any sign of devil activity. The park staff told us that of the nineteen released earlier in the year, ten had now been killed by cars. The researchers are rethinking their release sites and their proximity to main roads as a result!

And so we headed into the remote mountain forests of the north west. Here, amongst the lichen-clad swamp gum *Eucalyptus ovata* and myrtle beech *Nothofagus cunninghamii* trees, where the rivers flow through dramatic canyons and gullies filled with giant tree fern *Dicksonia Antarctica*, are allegedly the highest densities of wild Tasmanian devils… Nicky and I had arranged to spend three nights with local bushman "Len" in his wilderness lodge at Loongana. Off grid, and

off piste, this was a delightfully peaceful haven, with a roaring log fire, and plentiful wildlife, and this was our only possible chance to see a wild devil…

As the sun set, Len took pieces of roadkill he'd scavenged earlier that day from lower in the valley, and scattered them on the ground in front of the steps to our lodge. Leaving a low-powered night light on in the porch, he instructed us to remain absolutely silent, and to remain on watch for as long as we could stay awake… "The devils are in these forests," he told us, "but seeing one requires patience and luck. Remember, don't make a noise!"

And so we waited. And waited. And waited…

And then, in the murky gloom, right on the edge of the dim pool of light emanating from our porch, I spotted a movement. A shadow. And then it was gone…

Ten minutes passed, and then again, a shadow in the gloom appeared, and a face emerged from the darkness… It was a feral cat! Bad news for the local native wildlife. Len would need to set traps in the morning.

Another hour passed and Nicky fell asleep. But I remained fixated on the pool of light outside. And then, at just after midnight, another movement caught my eye. Straining to focus I readjusted my position, and the animal disappeared. Angry at myself for moving I continued to scan the edge of the light. Two agonising minutes passed. And then suddenly, there on the very edge of the darkness, were two beady eyes staring back at me. I dared not breathe! Cautiously, ever so cautiously, the animal crept forwards, and from out of the darkness, from out of the land of mystery and folklore, from out of the Warner Bros Looney Tunes cartoon, came a real wild Tasmanian devil!

Stocky and muscular, with a striking white fore neck collar, this little beauty (about the size of a small terrier) grabbed a piece of meat and ran off back into the blackness. But it soon returned, and for the next hour we watched enthralled as it devoured the carcass, bones and all. And over the following three nights we saw a total of seven different animals, each with a unique white dorsal marking. We'd done it, we'd found the devil. Or perhaps the devil had found us!

Photo by Mike Bailey: a wild Tasmanian devil in remote forest at Loongana

Unfortunately, DFTD is wreaking havoc amongst the population. This aggressive non-viral cancer is transmitted through biting, particularly when canine teeth come into direct contact with the diseased cells. Other modes of transmission include the ingesting of an infected carcass and the sharing of food, both of which involve an allogeneic transfer of cells between unrelated individuals. Visible signs of DFTD begin with lesions and lumps around the mouth. These develop into cancerous tumours that may spread from the face to the entire body. Devils usually die within six months from organ failure, secondary infection, or metabolic starvation as the tumours interfere with feeding. Due to the decreased life expectancy of the devils due to DFTD, they have begun breeding at younger ages in the wild, with reports that many only live to participate in one breeding cycle. A recent study has suggested that Tasmanian devils have changed their breeding habits in response to the disease. Females previously started breeding at the age of two, then annually for about three more years until dying normally. Now they commonly breed at the age of one, and die of tumours shortly thereafter. Devils are now at the verge of extinction. Despite this, devil populations persist in disease stricken areas. The devils have, in a way, fought back the extinction by developing the gene that is immune to tumours. The genes had already existed in the Tasmanian devil as part of their immune system but have now increased in frequency due to natural selection. That is, the individuals with particular forms of these genes (alleles) survived and reproduced disproportionately to those that lacked the specific variants when the disease

was present. A variety of projects are ongoing to establish disease-free captive populations and research continues to develop a vaccine. Whether this will save the species remains to be seen…

And so our Tasmanian odyssey reached a conclusion as we returned to Hobart via Mount Field National Park where we successfully managed to find a pair of platypus *Ornithorhynchus anatinus* on a series of dams (small reservoirs used for water storage). And after one last night drive full of brush-tailed possoms and more eastern quolls we headed home.

Photo by Mike Bailey: the duck-billed platypus, surely the strangest mammal on the planet?

We'd found the devil. And we'd found a mammal paradise. But for how long this profoundly beautiful island will retain its native wildlife will inevitably rest with its human inhabitants. The impacts of logging, road and house development, and the impacts of tourism are all potential threats. But they are also potential opportunities to raise ecological awareness and to protect areas of pristine wilderness for future generations.

So go and visit Tasmania. And look out for any nocturnal beasties. I guarantee you'll have a devil of a time…

Ticks and Lyme Disease – Be Vigilant! by Denise Foster

Many of our members are routinely out and about carrying out surveys, monitoring bat or dormouse boxes from spring until autumn, but how many of us actually think about ticks and Lyme disease? I have no medicial qualifications to write this article but I felt it would be useful to gather some information and create awareness about the disease to our members who are routinely in woodlands, moors, parks and even out in our own back gardens. Herefordshire, as far as I am aware, is not considered a "hot spot" for Lyme's Disease but this does not mean we should be complacent.

There are approximately 3,000 reported cases of Lyme disease each year in England and Wales, although a percentage of those cases are reported when people return from overseas trips. In the USA, Lyme disease is the most commonly reported vector borne illness, and in 2015 it was the sixth most common nationally notifiable disease. However this disease does not occur throughout the USA but is concentrated in the northeast and upper Midwest. It has been suggested that the increasing number of reported cases is driven by climate change (warm winters and wet summers).

Ticks and Lyme disease have been around for thousands of years but it was first recognised, and subsequently named, in 1975 among the people of Old Lyme in Connecticut, USA. In the 1980s, a medical entomologist called Wilhelm Burgdorfer discovered that a spirochete bacterium was linked to ticks and it was this bacterium that was causing Lyme Disease (the bacterium was subsequently named *Borrelia burgdorferi*).

Where are ticks found?

Ticks are found in a variety of habitats particularly where there are lots of small animals, such as woodlands. All woodland mammals are hosts for ticks such as the fox, badger, hedgehog, squirrel and other small rodents. People who spend a lot of their time in woodland could be at risk of developing Lyme disease.

Ticks in the UK spend the majority of their lives away from their host, in damp vegetation. They remain active above a certain temperature and when the temperature is too high and/or the relative humidity is too low, they return from dry vegetation to the ground in order to avoid drying out. It is thought that climate change is likely to affect the length of time that ticks are actively

seeking new hosts which in turn will result in more reported cases.

What are ticks?

Ticks are small, blood-sucking arthropods which are related to spiders, mites and scorpions. There are many different species of tick living in Britain, each preferring to feed on the blood of different animal hosts; some of them will feed on human blood too! The tick species most likely to bite humans in Britain is called the Sheep tick (I*xodes ricinus)*. Despite its name, the sheep tick will feed from a wide variety of mammals and birds. Bites from other tick species are possible, including the Hedgehog tick, *Ixodes hexagonus*, and the Fox or Badger tick, *Ixodes canisuga*. There are other species of ticks in Europe and North America and they carry different diseases.

There are four stages to a tick's life-cycle: egg, larva, nymph, and adult. The larvae look like tiny pale spiders which are no bigger than a full-stop. The nymph is slightly larger and is the size of a poppy seed or pin-head and it is at this stage when it is most likely to bite.

Larvae, nymphs and adults spend most of the time on the ground protected by leaf litter only leaving their habitat to find a meal. Ticks are very immobile and feed once per life stage, staying attached for a few days and then dropping to the ground to moult into their next life stage, or alternatively to overwinter. The whole life cycle lasts around 2 years.

Ticks are wingless and cannot jump or fly but they will climb onto vegetation and wait for a passing host. Whilst using their back legs to hold onto the vegetation, their front legs are outstretched waiting for their host to brush the vegetation and then they will quickly climb on board; this behaviour is known as "questing". Once it has climbed onto its host, it may spend some time finding a suitable site on the skin to attach itself. When a tick inserts its mouth parts, a small amount of saliva with anesthetic properties is secreted, which is why their bite is usually painless and most people do not know they have been bitten.

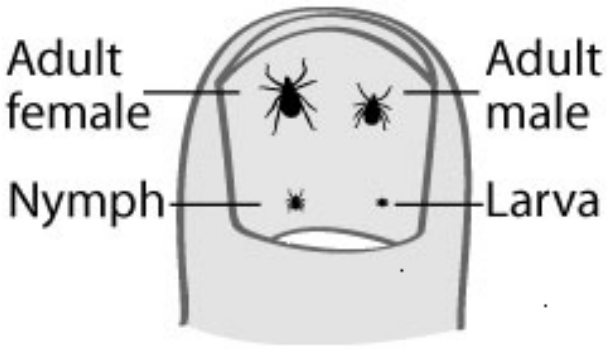


Figure 1: Life stages and their size of the tick (image from Lyme Disease Action)

Photo: Tick before and after feeding (photo taken from Lyme Disease Action)

If ticks are immobile, how do they find their hosts?

Once a tick has started to feed, its body will become filled with blood. Adult females can swell to many times their original size; their blood sacs become lighter in colour (grey) and they can reach the size of a small pea. Larvae, nymphs and adult males do not swell as much as the adult females. If undisturbed, a tick will feed for around 5 to 7 days before letting go and dropping off.

If a larval tick picks up an infection from a small animal such as a vole, when it next feeds (at its next life stage) it can pass the infection onto the new host.

What preventative measures do I need to take if I am visiting a high risk area?

Ticks climb on to your clothes or skin if you brush against something they're on, so it is recommended that light coloured clothing is

worn in the field. This will make ticks visible should they climb onto your clothing and therefore be easier to brush them off. It is recommended to avoid wearing shorts and short sleeved T-shirts whilst working or walking in woodland. Insect repellents containing DEET or Picaridine will keep ticks away

Removing ticks using tweezers or a tick removal tool will reduce any potential risk. If the tick's head or mouthparts break off in the skin and cannot be removed, they should fall out naturally in time as the skin renews itself. However, it is advisable to keep an eye on the area, keep it clean as it may cause a local infection.

A small red circular patch may appear soon after a tick bite and persist for a few days; this is quite normal. If the red patch does not disappear within a couple of weeks or if it begins to spread outwards, it may indicate Lyme disease.

Photo 2: Tick removal device (image from Lyme Disease Action)

So how do we contract Lyme's Disease and what causes it?

We become infected when bitten by a tick carrying the *Borrelia burgdorferi* bacterium.

Borrolia belong to a group of bacteria called Lyme spirochetes and comprise four species, all of which are present in UK ticks:

- *Borrolia burgdorferi, the classic Borrelial illness known as* Lyme disease or Lyme borreliosis.
- *Borrelia afzelii* causes a variant of Lyme disease, skin lesions and less specific neurological symptoms.
- *Borrelia garinii* causes Lyme Neuroborreliosis, a disease which affects the nervous system.
- *Borrolia miyamotoi* causes symptoms similar to Lyme disease such as recurring fever, chills, headaches, fatigue and body and joint pain. However, rashes are less common which means it is harder to diagnose. Blood tests to identify this infection are ineffective, so a Polymerise Chain Reaction (PCR) test to detect its DNA is required.

Other diseases carried by tick bites are Babesiosis (malaria-like parasitic disease that infects red blood cells), Anaplasmosis (infection of the white blood cells) and Rickettsiosis (infection of the endothelial cells).

So what are the symptoms of Lyme Disease?

Clinically Lyme disease is a complex illness and has 3 stages:

1. Between 7-10 days after being bitten, an expanding red, ring-shaped skin lesion or rash that resembles a bull's eye appears. This rash is often accompanied by flu-like symptoms (headache, fever, fatigues and chills). Treatment is usually effective at this stage. However, not everyone reports seeing a rash!

Photo 3: Bull's eye rash (image taken from www.nhs.uk/Conditions/lymedisease)

2. The second stage may appear weeks or months after the initial infection. Symptoms include neurological abnormalities, heart

inflammation and bouts of arthritis (usually in the major joints like the knees and elbows).

3. The final stage of infected individuals may appear years later where individuals may develop symptoms resembling Alzheimer's and multiple sclerosis.

How do I know if I have got Lyme Disease?

Being bitten doesn't mean you'll definitely be infected as not all ticks carry Lyme-causing bacteria. If it does carry the bacterium, you are more likely to become infected if the tick remains attached to your skin for more than 24 hours.

Some ticks may carry more than one disease at the same time and can transfer them to you in a single bite. The resulting symptoms can be extremely confusing and can be liable to misdiagnosis. Treatment in such cases can be difficult.

Diagnosing Lyme disease is often difficult as many of the symptoms are similar to other conditions. A spreading rash appearing some days after a known tick bite should be treated with appropriate antibiotics without waiting for the results of a blood test. Blood tests can be carried out to confirm the diagnosis after a few weeks, but these can sometimes be negative in the early stages of the infection. A second blood test may be required after a first negative test result particularly if Lyme Disease is suspected.

What is the treatment?

A two or three week course of antibiotics may be necessary to ensure that the bacterium is killed. If the symptoms are particularly severe, then intravenous antibiotics may be necessary.

If Lyme disease is left untreated or is not treated early enough, more serious symptoms may develop weeks, months or even years later.

Some of the later stage problems will get better slowly with treatment, although they can persist if treatment is started late. A few people with Lyme disease go on to develop a range of chronic symptoms despite treatment.

So, we shouldn't ignore it then?

We should be aware of the habitat we are working or walking in, and the potential risk. Keep arms and legs covered when working in woodland and avoid wearing shorts and short sleeved shirts. Most importantly brush off clothing and check yourself for ticks regularly when you are out and about. If you find a tick remove it quickly and preferably with a special tick removal tool which are cheap to buy and very effective. Remember to check your pets too!

Don't ignore it, as the outcome could be serious. If you would like more information there are many sites about the disease, its complexity and the signs and symptoms including those below that were used for producing this article.

One of HMG's members recalls his experience of catching Lyme Disease when returning from a recent overseas trip!

When did you first notice the tick after your field visit? *On the plane, flying back from a European Country*

Where was it? *On my inner thigh*

What were you wearing in the field (i.e. dark clothing, shorts, T shirt etc.)? *Long trousers (black)*

How and when did you remove it? *I knocked it off in the UK airport, I think (I didn't actually see it, I just felt it through my trousers)*

What made you think you may have Lyme's disease? *The fact that I had a tick, and I also had a large red blotch on my thigh*

What did you do next? *I went to the doctors; they weren't convinced but gave me some anti-biotics and told me to keep an eye on it!*

What tests did the doctor do to confirm Lyme's Disease? *Overnight, I developed flu type symptoms and the red blotch, developed into the target shape which is indicative of Lyme's disease, so I telephoned the doctors, who were closed and was advised to go to the hospital to*

get it checked out straight away. The doctor I saw confirmed that it was Lyme's disease by my symptoms (mainly from the target shaped mark on my leg)

What treatment did you get? *I was given some stronger anti-biotics (the second doctor was surprised that the first doctor had not prescribed the correct anti-biotics originally).*

How long was the treatment in days or weeks? *Ten days I think*.

Did you get a second blood test? *No, I asked for one but they said it wasn't something they did, and if I had completed the anti-biotics then it was all clear*!

Did you get the all clear? *See above*

Any other interesting information you can share? *If you think you have Lyme's disease you have to hassle the doctors to take you seriously, as it is not very common in the UK. Also, not everyone gets the target shaped mark, so it can go un-detected. If you catch it in time, then it is easily cured with anti-biotics. The serious problem arises when you don't know you've had it for several months. This is why you have to be quite insistent with the doctors to take you seriously!*

References taken from:

Lyme Disease Action (www.lymediseaseaction.org.uk/)
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The independent Online , "The New Lyme Disease" (www.independent.co.uk)
James Hutton Institute, "Research on ticks and tick borne diseases" (www.hutton.ac.uk/research/groups/ecological-sciences/community-ecology/tick-research)
Centres for Disease Control and Prevention , USA (www.cdc.gov/)

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