

Newsletter 16 December 2023

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# Welcome

## from Vincent Wildlife Trust's CEO, Lucy Rogers



Welcome to the 16th issue of our newsletter highlighting our work in 2023.

This year has seen a step change in momentum to deliver our Ten-Year Strategy with significant funding secured across both our Bat and Carnivore Programmes. I am delighted and very proud to be able to thank VWT's staff, students, volunteers and partners who have worked extremely successfully together to secure the funding needed to deliver an impressive number of exciting and innovative projects for several of our priority threatened species.

In May 2023, we celebrated with partners, funders and volunteers the successful completion of the Sussex Bat Appeal (launched in September 2021) to purchase the site of a newly discovered greater horseshoe bat colony in Sussex. The appeal was so successful that we not only purchased the site, but repaired and restored it in time for the bats to return to breed this summer.

We secured funding for barbastelles as part of the National Lottery Heritage Fund Natur am Byth! Partnership, and Defra funding to develop a National Barbastelle and Bechstein's Bat Survey in partnership with Bat Conservation Trust, Sussex and Exeter Universities. We also secured funding from Defra's Species Recovery Fund for our Horseshoes Heading East Project to improve landscape-scale connectivity for greater horseshoe bats around Sussex. Our biggest funding achievement, however, is securing nearly £1.2 million for Martens on the Move, a four-year pine marten conservation project funded by The National Lottery Heritage Fund. The project will focus on optimising natural recovery of pine marten populations through community action and in partnerships with Forestry and Land Scotland, National Trust and Coed Cadw (The Woodland Trust Wales).

In Ireland, VWT continues to play a leading role in lesser horseshoe bat conservation, including using Circuitscape analysis to model how landscape-scale connectivity for lesser horseshoe bats can be improved. Funding has been secured to conduct Circuitscape analysis in counties Clare and Kerry, which will help local authorities and partners take practical steps to improve landscapes for bats.

We welcomed Sam Bremner-Harrison Head of Conservation, Katherine Morley, Carnivore Conservation Officer, Jim Mullholland, Senior Bat Conservation Officer, Max Henderson, Wildcat Project Officer, Rachel Court, Fundraising and Communications Manager, and Catherine Jewson, NaB! Barbastelle Project Officer. We also welcomed back Laura Lawrance-Owen, Volunteering and Community Engagement Officer from maternity leave.

Sadly, we said goodbye to Henry Schofield, who retired as Head of Conservation after 30+ years. Also, Tom Kitching, Senior Bat Conservation Officer, Ruth Hanniffy, Ireland Species Officer, and Lizzie Croose, Senior Carnivore Conservation Officer.

Our PhD student Kieran O'Malley gained his doctorate with Sussex University in November on barbastelles and landscape-scale conservation.

Finally, an enormous and heartfelt Thank You to all staff, volunteers and Trustees who have continued to work so brilliantly this year for threatened mammal species in Britain, Ireland and mainland Europe.

## Stop Press... Stop Press... Stop Press...

## Papers, reports and articles published this year

Each year, VWT staff and students publish a range of academic papers, scientific reports and articles to share research, first-hand experiences and learning.

### Papers

### February 2023

Elizabeth Croose, Ruth Hanniffy, Andrew Harrington, Madis Põdra, Asun Gómez, Polly L. Bolton, Jenna V. Lavin, Samuel S. Browett, Javier Pinedo, David Lacanal, Iñaki Galdos, Jon Ugarte, Aitor Torre, Patrick Wright, Jenny MacPherson, Allan D. McDevitt, Stephen P. Carter, Lauren A. Harrington (2023) Mink on the brink: comparing survey methods for detecting a critically endangered carnivore, the European mink *Mustela lutreola*. European Journal of Wildlife Research <u>https://doi.org/10.1007/s10344-023-01657-3</u>

#### **March 2023**

Patrick G. R. Wright, Elizabeth Croose, Sara Bronwen Hunter, Jenny MacPherson, Emrah Çoraman, Volodymyr Yarotskiy, Viktoriia Moisieieva, Branko Karapandža, Bledi Hoxha, Petrisor Madalina, Elena Tilova & Marina Radonjic (2023) Can social media be used to inform the distribution of the marbled polecat, *Vormela peregusna*? Mammal Research <u>https://doi.org/10.1007/s13364-023-00680-8</u>

Marina Bollo Palacios, Tom Kitching, Patrick G. R. Wright, Henry Schofield & Anita Glover (2023) Exclusion of barn owls *Tyto alba* from a greater horseshoe bat *Rhinolophus ferrumequinum* roost in Devon, UK. Conservation Evidence 188: 25-34. <u>https://conservationevidencejournal.com/reference/pdf/11849</u>

David Bavin, Jenny MacPherson, Sarah L. Crowley, Robbie A. McDonald (2023) Stakeholder perspectives on the prospect of lynx *Lynx lynx* reintroduction in Scotland. People and Nature, British Ecological Society <u>https://doi.org/10.1002/pan3.10465</u>

#### June 2023

Ternenge Apaa, Amy J. Withers, Ceri Staley, Adam Blanchard, Malcolm Bennett, Samantha Bremner-Harrison, Elizabeth A. Chadwick, Frank Hailer, Stephen W. R. Harrison, Matthew Loose, Fiona Mathews, Rachael Tarlinton (2023). Sarbecoviruses of British horseshoe bats; sequence variation and epidemiology. Journal of General Virology, Microbiological Society. <u>https://doi.org/10.1099/jgv.0.001859</u>

#### October 2023

Kieran D. O'Malley, Henry Schofield, Patrick G.R. Wright, Daniel Hargreaves, Tom Kitching, Marina Bollo Palacios, Fiona Mathews (2023) An acoustic-based method for locating maternity colonies of rare woodland bats. PeerJ.com <u>https://peerj.com/articles/15951/</u>

#### November 2023

Keziah J. Hobson, Andrew Stringer, Robin Gill, Jenny MacPherson, Xavier Lambin (2023)
 Interests, beliefs, experience and perceptions shape tolerance towards impacts of recovering predators.
 People and Nature, British Ecological Society <a href="https://doi.org/10.1002/pan3.10560">https://doi.org/10.1002/pan3.10560</a>

### **Reports** and **Articles**

June 2023 Definition of Favourable Conservation Status for Bechstein's bat RP2970. Natural England

July 2023 Lesser Horseshoe Bat Roost Resilience Report by Kate McAney National Parks and Wildlife Service, Ireland

#### **August 2023**

Managing conflict between barn owls and greater horseshoe bats at shared nest and roost sites by Marina Bollo Palacios British Wildlife Magazine

#### September 2023

Riparian habitat and connectivity assessment for European mink (*Mustela lutreola*) in the southern Carpathians (Romania) Flora & Fauna

#### October 2023

Western Barbastelle (*Barbastella barbastellus*) in Wales by Dyer, S., Hargreaves, D., Chadwick, M., and Davidson, S. British Island Bats 4th Edition. ISSN2977-070X

### November 2023

Pine martens: past, present and future by Jenny MacPherson Biological Sciences Review

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# Welcome to new staff

### Dr Samantha Bremner-Harrison



Sam joined as Head of Conservation in May 2023. Following a degree in Zoology and an MSc in Applied Animal Behaviour and Animal Welfare, her PhD assessed the impact of individual behaviour of captive-bred swift fox reintroduced on to the Blackfeet Indian Reservation in Montana, USA. Following six years as a research biologist with the Endangered Species Recovery Program in California, Sam returned to the UK to work as a Senior Lecturer and then Associate Professor at Nottingham Trent University, where she led the Species Recovery Unit and a species-recovery focused Masters programme.

## **Katherine Morley**



Katherine joined the Trust in June 2023 as Carnivore Conservation Officer. With an undergraduate degree in Animal Behaviour and a Masters degree in Conservation Biology, Katherine joined Cheshire Wildlife Trust as a trainee officer before moving into ecological consultancy, where she gained several years of experience in protected species surveying and mitigation, and worked on a range of projects from small developments to national infrastructure schemes.

## Jim Mullholland



Jim joined the Trust in July 2023 as Senior Bat Conservation Officer. He is an ecologist and arboriculturist with specialisms in veteran trees and bats. He has worked for national charities — the Ancient Tree Forum and the Arboricultural Association during which time he helped raise professional standards by writing industry guidance, delivering highquality education, and promoting cross-discipline working. He is an active bat researcher and is currently leading targeted research for Bechstein's and barbastelle bats.

### **Max Henderson**



Max joined the team as Wildcat Project Officer in October 2023. As part of his degree in biology at Newcastle University, he studied crocodilian endocrinology in Costa Rica, and then joined a Masters programme in the US to study the reproductive health of crocodilian populations exposed to anabolic steroids and DDT. Alongside his research, he engaged local people with environmental projects at a field station in New Orleans and developed a keen interest in community-led environmental action. Since then, Max has supported a variety of communityled environmental projects in Wales.

### **Rachel Court**



Rachel joined the Trust in November 2023 as Fundraising and Communications Manager. She has been involved in charity fundraising for over a decade and enjoys working to achieve sustainable outcomes for projects, people and wildlife. She is a full member of the Chartered Institute of Fundraising and has a qualification in Charity Fundraising Management. Rachel has a life-long interest in the natural world and its conservation. She studied ecology as part of her degree in Environmental Health and has lived in the countryside for much of her life. She is looking forward to working with colleagues, partners, funders and volunteers in the conservation of threatened mammal species.

## **Welcome to new Trustees**

## Mark Hollinworth



Mark joined the Board of Trustees in March 2023. He works in a senior supervisory role for the Financial Conduct Authority based in London, having previously worked as a chartered wealth manager and investment manager, both in the UK and overseas. Mark has 15 years' experience in the wealth management and investment industry, advising high net worth individuals, trusts and corporate entities. He is a fellow of the Chartered Institute for Securities and Investment (FCSI) and holds a MSc in Finance.

## **Dr Sallie Bailey**



Sallie joined the Board of Trustees in June 2023 and is Deputy Chief Science Advisor for Scottish Government for Environment, Natural Resources and Agriculture, bringing science and evidence to the centre of decision making in government. Previously, she's held leadership roles in the state forestry sector as regional manager

for Forestry and Land Scotland, in environmental regulation and in the Forestry Commission, advising government with provision of science and evidence to inform policy development. Following completion of her PhD on spatial and woodland ecology and impacts of habitat fragmentation on biodiversity, she completed postdoctorate research at Stanford University on forests and ecosystems in the tropics of Costa Rica, arid ecosystems of Nevada and the Rocky Mountains, Colorado. Through her various roles to improve outcomes for protected woodland species and wider biodiversity, Sallie has become particularly familiar with the ecology and conservation of UK woodland mammals.

## **Chris Ellam**



Chris joined the Board of Trustees in March 2023 and is an Associate Director at Russell Investments where he helps asset owners find solutions to their investment challenges. Previously, he worked as an investment consultant focusing on implementation efficiency. Chris also spent a significant portion of his career working in Global Equity Portfolio Management.

## **Dr Richard Young**



Rich joined the Board of Trustees in June 2023 and is Managing Director at the sustainability consultancy, Nature Positive, where he helps businesses understand and act upon their biodiversity impacts and dependencies. Previously, he was Director of Conservation Knowledge at Durrell Wildlife Conservation Trust working on some of the world's most threatened species and ecosystems, including giant jumping rats and mountain chicken frogs. Between 2011-2020, Rich was Co-chair of the IUCN Small Mammal Specialist Group and is now a member of the task force assembled to develop the IUCN Green Status of Species.

# Volunteer enthusiasm is catching...

Laura Lawrance-Owen, Volunteering and Community Engagement Officer



One of the many reasons I find enjoyment in my role is the enthusiasm of volunteers and communities willing to get involved and give their time to VWT's work. It is infectious and creates a sense of purpose that we are working together towards a good and common goal. Across the Bat and Carnivore Programmes, volunteers give their time for many different activities, but for now I will just focus on three stories.

For the second year in a row, the monitoring of lesser and greater horseshoe bats at the majority of VWT bat reserves in England and Wales has been led by volunteers. For many years, volunteers led the counts at two reserves in Devon but it was a challenge for VWT staff to carry out the monitoring across the rest of the reserves within the given time frame. Since 2021, we have built a volunteer network for monitoring the reserves and now the Devon model has been incorporated across a further 20 bat reserves. This year, volunteers led and delivered the counts for 22 bat reserves in England and Wales,

supported by an ever keen and enthusiastic group of monitoring volunteers. This inspiring commitment grows in strength each year and it has given our team time and flexibility to pursue other conservation goals within the Bat Programme. Our focus now is to support this momentum so that their enthusiasm and involvement may continue.

Elsewhere in the Carnivore Programme, the 'Tweed Valley mini hub' developed during the National Lottery-funded Development Phase of the Martens on the Move project, has such a wonderful story behind it of shared interest, pride and passion, and the power of word of mouth. Stephanie Johnstone, Martens on the Move Project Manager during the Development Phase, worked with the Peebles and District Men's Shed to trial a den box making workshop and they went on to build ten boxes. Initially, this phase of the project had not set out to trial the installation and monitoring of these boxes. The Men's Shed volunteers were, however, keen to see their boxes put to use within the local area. Their enthusiasm

inspired Stephanie to pursue this and all it took was for one of the volunteers to mention they knew someone with woodland where the first box could be installed. What followed was a trail of connected people and communities with parcels of woodland that could host a den box and keen people willing to monitor them. The Tweed Valley is now the start of a story winding its way towards a National Den Box Monitoring Programme.

Finally, it's science and research – and highlighting the positive outcomes of citizen science. Earlier this year, Kieran O'Malley published his paper in PeerJ 'An acoustic-based method for locating maternity colonies of rare woodland bats'. Kieran's PhD, with VWT and University of Sussex, set out to develop a novel methodology to locate barbastelle colonies. In 2021, with a methodology in place, Kieran worked with students and volunteers to trial the technique, the results of which indicated the presence of nearby barbastelle colonies in some of the woodlands surveyed. In 2022, volunteers helped validate the findings from 2021 by trapping and tagging female barbastelles to confirm the location of maternity colonies. Next year, this methodology will be rolled out to volunteers as part of VWT's Natur am Byth! Barbastelle

Conservation Project and so volunteer involvement and enthusiasm will continue to grow.

Thank you to ALL VWT volunteers and citizen scientists that get involved and support our work. You inspire us at every turn.

## **European mink in Romania**

Jenny MacPherson, Principal Scientist with Patrick Wright, Senior Scientific Officer, and Steve Carter, Carnivore Programme Manager



The European mink (Mustela lutreola) is a small, semi-aquatic mustelid. It lives along slow-moving rivers, streams and marshes, using dense vegetation for shelter and protection from predators such as foxes and dogs. Historically widespread throughout Europe, although never present in the UK or Ireland, the European mink is now the most endangered small carnivore in Europe, persisting in just a small number of isolated patches in northern Spain, western France, Romania, Ukraine and Russia. The main factors in the decline and local extinctions have been loss and degradation of habitat, overly intensive hunting and, more recently, the impact of non-native, invasive American mink (Neovison vison). Although the American mink is very similar to the native European mink in both its ecology and appearance, it is larger and more aggressive than the European mink, which gives it an advantage in direct competition.

Despite superficial similarities between them, the European mink and the American mink are not closely related. The European mink is much more genetically similar to the European polecat (*Mustela putorius*),

with which it can hybridise, although this has only been detected at low levels with pure polecat males having mated with pure European mink females. Although this is uncommon, it may be an issue where numbers of European mink are low. Eurasian otters (Lutra lutra) are known to predate European mink, as are other members of the same carnivore guild, including red fox (Vulpes vulpes), pine marten (Martes martes) and stone marten (Martes foina). Although these are all species that have co-evolved together as part of the native fauna, even the lowest levels of predation may have a significant impact on small populations.

In Romania, European mink were historically present in multiple areas across the country but today the only confirmed remaining population is in the Danube Delta in southeastern Romania. This is thought to be the largest in Europe but, as a single isolated population, is highly vulnerable to unpredictable factors such as disease or incursion by American mink. Following our exploratory trip at the end of last year, VWT is now working in partnership with the Romanian Wilderness Society, Fauna & Flora, and the Danube Delta National Institute for Research and Development to look at the feasibility of using conservation translocations to restore populations of European mink to the southern Carpathians.

We have begun by using remotelysensed data and knowledge of the species' ecology to model and assess

the functional connectivity of three areas in the southern Carpathians that are being considered for reintroduction. The model outputs show us where European mink are likely to move through the landscape and where this is less likely, based on habitat and potential barriers such as roads and other infrastructure. The model results will then be ground-truthed by field surveys and refined with field data over the coming year. Field surveys are also designed to detect American mink if they are present at these sites. We will be assessing the distribution and abundance of European mink in the Danube Delta using existing data and targeted field surveys by partners. Analyses of these data will enable us to decide whether this population is sufficiently large and robust to sustain the removal of enough animals for conservation translocations to other areas.



## Ermine of the Emerald Isle — the Irish stoat

Jenny MacPherson, Prinicipal Scientist with Kate McAney, Ireland Mammal Programme Manager, and Patrick Wright, Senior Scientific Officer The Irish subspecies of stoat, *Mustela erminea hibernica,* is only to be found on the island of Ireland and the Isle of Man, both of which would have been cut off from mainland Britain and Europe as sea levels rose after the last ice age (Last Glacial Maximum 19-23k years ago).



Despite its long history on the island of Ireland, there were only 2,000 records for the species in the national database up until 2022. This prompted VWT to initiate a wide-scale citizen science survey for Irish stoat, which began in early 2023 in partnership with the National Biodiversity Data Centre in Waterford, the Centre for Environmental Data and Recording in Northern Ireland, and the University of Galway.

The primary goal of this survey is to collect comprehensive data on the distribution and habitat use of Irish stoats. To achieve this, we are asking people to submit sightings of live and dead stoats so that we can fill in the gaps in the distribution and learn more about stoat ecology. We hope that by encouraging observations from the general public we can greatly improve our knowledge about this elusive species. The survey is less than halfway through but there have been almost 400 records submitted so far with the locations shown in Figure 1.

These records have been analysed by Nicole Paskar as part of her VWT-supported MSc research project and have yielded useful insights into the ecology of Irish stoats. They show how adaptable the animals are, living in a variety of habitats, including woodlands, hedgerows and agricultural landscapes. This may be crucial for the species which, like many others, faces a rapidly changing environment.

Raising awareness is also a vital component of the survey. A robust evidence base gathered with the help of citizen scientists will pave the way for targeted conservation efforts so that we can look forward to a future where the Irish stoat thrives in all of its natural habitats, ensuring the preservation of Ireland's unique biodiversity.

Fig 1 Locations of records submitted so far.





Fig 2 The number of sightings per habitat type submitted to the Irish Stoat Citizen Science Survey to the end of July 2023 (from N. Paskar, 2023).

The survey will run until the end of 2024 and information on how to participate is available on <u>www.vincentwildlife.ie</u> or email <u>irishstoat@vincentwildlife.iesurvey</u>



## Putting plans into action for lesser horseshoe bats

Kate McAney, Ireland Mammal Programme Manager

We're delighted to report that the Lesser Horseshoe Bat Species Action Plan we co-authored with National Parks and Wildlife Service (NPWS) in 2022 has not been sitting on a shelf gathering dust since its launch in August of that year! The plan listed 28 actions deemed necessary to ensure the conservation of the species under the headings: Roosts, Habitat, Connectivity, Outreach and Awareness, with an additional action to review the plan in 2026.

It is being implemented by a Steering Group (SG) of representatives from the government departments, local authorities, agencies and Bat Conservation Ireland (www. batconservationireland.org) who all contributed to the writing of the plan (main photo). The SG held its first meeting in October 2022 and met twice in 2023. These meetings not only provide a forum to measure progress and identify partnership opportunities, but the October 2023 meeting included a field trip to two roosts in County Clare, organised by local staff from NPWS. Despite a dire forecast for heavy rain and wind on the day of the meeting, people travelled from all over Ireland and

were rewarded in the afternoon with bright autumn sunshine and, more importantly, a chance to see a range of measures that had been undertaken to successfully enhance the two roosts.

To date, significant progress has been made in implementing 16 of the actions, with a number of these completed. NPWS has now provided an updated version of the roost database and a map showing the locations of all roosts with 20+ bats to the local authorities and other parties for easy access to information about the species when assessing future development proposals or drawing up landscape management plans.

VWT completed the first stage of Action 4.1i when its UK Bat Team demonstrated a new camera and Infra Red system for conducting summer emergence counts to VWT-Ireland staff and NPWS Conservation Rangers. This system was then used at other VWT reserves in Kerry, Galway and Mayo with NPWS staff in June and July during the annual monitoring period. The main action, however, for VWT was the development and commencement of a Roost Resilience

Audit process with NPWS for the 200 roosts it monitors annually (Action **4.1c**). This involved modifying an existing VWT audit form to assess the work necessary to make its roosts resilient to the weather events now a feature of our climate - extremes in temperatures and frequency and strength of storms. Field visits were made with NPWS staff to the 12 VWT reserves and then to a selection of the roosts monitored by NPWS to test the efficacy of the new audit system. NPWS is now conducting these audits at the remaining roosts and once this element of the action is completed a scoring system will be devised to prioritise those in need of remedial work and funding sought for this. VWT is grateful to NPWS for providing the funding to complete this action item. Plans are now being devised to ensure the progress made by the SG in 2023 will continue in 2024.

Training event with NPWS staff for Action 4.1c

## 8th International Martes Symposium conserving Martes in a changing world

Katherine Morley, Carnivore Conservation Officer



In September 2023, wildlife conservation researchers and practitioners from around the world gathered in Aviemore, Scotland, for all things Martes! Dubbed by one local newspaper as 'COP26 for pine martens', the 8th International Martes Symposium (IMS) focused on the latest Martes research and conservation issues, with the aim of fostering discussions and collaborations to benefit species within the Martes complex, which includes 11 species in the genera Martes, Eira, Pekania and Gulo. In the UK, we have one Martes species – the European pine marten Martes martes. The IMS was organised by the Martes Working Group (including VWT staff) and comprised two days of talks, poster presentations and a field trip to the Cairngorms Connect project area.

The 2023 theme of the Symposium was 'Conserving carnivores in a changing world: what future for *Martes*?' which resonated throughout the presentations as we heard about many *Martes* species facing similar

challenges - often from multiple forces. Climate change events (global heating, reduced snow cover, wild fires) and hunting pressures were topics we heard about repeatedly. The range of wolverines Gulo gulo in Sweden is limited by snow cover essential for natal den sites, whereas in Scandinavia they suffer from high hunting pressures as they are often wrongly blamed for killing reindeer. In British Columbia, 12% of the fisher's Martes pennanti range has burnt in the last six years and large-scale, clear-cut felling continues. The list goes on.

On a more positive note, we also heard fantastic talks on exotic *Martes*, including new work to monitor the tayra *Eira barbara* in Brazil, and a conservation success story for yellow-throated marten *Martes flavigula* in South Korea, which had all *Martes* enthusiasts in the room swooning.

Bringing it back home to the European pine marten, Dr Johnny Birks, formerly of VWT, gave one of the keynote presentations, telling the story of their recovery in the UK. It was of

course uplifting to hear about their recovery, however it also warned of challenges they are likely to face lack of denning habitat, suitably diverse woodlands and climate change impacts included. Mustelids are resourceful and adaptable and my hope is that these qualities will help see the pine marten through future challenges. Once the second most abundant carnivore in the UK, they then lost over 95% of their Mesolithic population by 1977 but managed to cling on in suboptimal habitat in the rocky Scottish highlands back then... can they cling on in the face of new human threats and climate change? The 8th IMS was a huge success, and VWT is proud to have been involved with organising the event. To find out more about the Martes Working Group, and to discover which species are within the Martes Complex, visit: Martes Symposium 2023 – Martes Working Group.



**35th Mustelid Colloquium** The next mustelid-focused conference will be the 35th European Mustelid Colloquium in Autumn 2024, with VWT leading the organisation alongside other partners. Keep an eye on our social media in the coming weeks for more information!

# In the place I want to be

Samantha Bremner-Harrison, Head of Conservation



In February 2023 I was absolutely delighted to be offered the role of Head of Conservation at Vincent Wildlife Trust. The role had become available due to the retirement of Henry Schofield who had been at VWT for more than 30 years — highlighting just how desirable VWT is as a place to work. On reading the job recruitment pack, I was very quickly convinced that VWT was somewhere that I really, really wanted to work. With a background in 'in-situ' and 'ex-situ' mammal conservation, and particularly in conservation translocations, I had followed the work of VWT during my career and was always impressed with their evidence-based work.

I completed my PhD on the reintroduction of swift fox, where I worked at the captive breeding facility in Canada, and at the release site on the Blackfeet Indian Reservation in Montana, USA. I then worked for a conservation charity in California, working with a range of mammal species but focusing on the San Joaquin kit fox. The six years I spent on recovery projects with this organisation gave me a real appreciation for the challenges and opportunities that working hands-on with species recovery can bring.

I returned to the UK in 2009 to take up a university position, where I established a Masters course in Endangered Species Recovery and **Conservation (VWT's Senior Scientific** Officer, Patrick Wright, is one of the early alumni of this course), and also the Species Recovery Unit, which focused on advancing evidence-based species recovery initiatives for a range of species. I'm really proud of how many of my Masters alumni have gone on to make a difference in the conservation world, working on a wide variety of species in many different countries. However, after 14 years of combining teaching and research with working on conservation projects, I was ready to move back to a conservation charity so that I could fully commit to working on species conservation. This is particularly important now with so many mammals in Britain and Ireland in continuing decline.

I started my new role in May 2023, and working with VWT over the last six months has been everything I had hoped it would be  $- \mbox{ and more. It's }$ so rewarding to work with such an inspirational team of people, each of whom are so very good at what they do. My first six months have been all about learning - getting to know the organisation, the projects and, most importantly, the staff. VWT has a history and a reputation for doing what it does very well, therefore it was really important for me to take my time to get to know and understand the culture of the organisation and its ways of working. A lot of my role is about strategic oversight, ensuring that the day-to-day work that we do

leads towards us achieving the aims of the Ten-Year Conservation Strategy. Now that I've got a feel for the organisation, I can start to see where my previous work and experience can help to develop the mammal work further. I've also managed to get out in the field too which has been fantastic, visiting reserves in Ireland with Kate McAney, the Ireland Mammal Programme Manager, and helping with the bat box checks at the Bechstein maternity roost in Dorset.

Six months in, and I can definitely say that I'm delighted to be here, and I can't wait to see what the next six months brings.

# Just hanging around

Jim Mullholland, Senior Bat Conservation Officer

Replacing the roof at our newest bat reserve in West Sussex got us thinking how do we encourage more bats to hang out in this newly refurbished accommodation? There are various factors that will affect the outcome - however, for this article I have decided to take this question literally. Upholding the bat stereotype, horseshoe bats hang upside down inside their roosts. Whilst we typically see them in roof voids, they can turn up all over the place - under stairs, inside cupboards and even plugged into the mains. In fact, they are experts at tucking their toes into the smallest gaps.

With such keen hanging skills, you'd be forgiven for thinking that bats would love to hang out in the new roof we've built for them — it's quiet, dark and no longer leaks. However, have the bats got enough to get their toes into?

The refinement of building materials has had an inadvertent impact on bats as materials have become less grippy. Modern, bitumen-based 1F roofing felt now has a flat surface with the hessian reinforcement once visible is now buried within the felt. Sawmills have sharper blades, effectively removing 'rough-sawn' timbers from the market, which is great for avoiding splinters but not great for bats. These 'improvements' may mean that bats struggle to get a toehold so, to try to overcome these challenges, we have started trialing different roosting substrates.

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	Pros	Cons
'Roughed-	Creates	Time
up' wood	new grooves	consuming
Photo 1	in wood	
Plastic	Lots of	Degrades
netting	hanging	and risks to
Photo 2	options	bats tangled
		in net
Woodwool	Rougher	Bats limited
board	surface	to edges
Photo 3	than wood	

 Table 1 Roosting substrates trialed.

None of these approaches are perfect and so we turned to work undertaken by colleagues in Poland who have been testing various roosting substrates to investigate whether bats have a preference — thank you to Rafał Szkudlarek from PTPP 'pro Natura'— Life Podkowiec+ project (LIFE12NAT/PL/000060 project (2013-2018)) for sharing ideas and results.

1 Three substrate options (roughed-up wood, 1F felt, and stone) were installed inside a lesser horseshoe night roost. Bats cast their votes by leaving droppings beneath their favourite option.
Photo 4 shows that stone came out as a clear favourite. Perhaps stone is a closer match to the natural roosting sites of this species?

**2** Roosting pots. These pots, **Photo 5**, which resemble light shades when hung from the ceiling, create microclimates within a roost. They allow bats to congregate, share body heat and reduce the effect of air flow. esser horseshoe bat ©Ar

elman

The Horseshoes Heading East project (Page 15) provides the perfect opportunity to incorporate some of these roosting substrates during the roost enhancement work. We are installing some of these new substrates and will monitor the results carefully. Once we know more, we will share our findings.



# Pine marten den box workshop

Rate McAney, Ireland Mammal Programme Manager

VWT organised a den box workshop for staff of the National Parks and Wildlife Service (NPWS) in the Abbeyleix Manor Hotel, County Laois, in June. The workshop was funded by NPWS and is a continuation of the partnership between VWT and the statutory nature conservation organisation that provides advice and educational material about the pine marten in Ireland, including a dedicated website www.pinemarten.ie

This workshop was exclusively for NPWS who deal with queries from the public when the latter discover a marten in their attic. While pine martens have many admirable qualities, they are definitely not clean or quiet house guests!

Ireland's pine marten population has undergone a natural recovery since the 1970s, when it was confined to just a few parts of the country, to now where it is recorded from every county on the island. This recovery is a result of legal protection, a ban on the use of strychnine and an increase in tree cover. The increase in woodland, however, is primarily conifer that provides the martens with cover but not suitable denning sites. Due to this, female martens are increasingly relying on the attics of occupied houses in which to give birth and raise their kits.

When this happens, NPWS staff provide on-site advice and are generally able to persuade the householder to tolerate the marten family until it leaves voluntarily, after which they can seal the access point used by the martens to prevent their return the following spring. Occasionally, however, the householder expresses a wish to provide the animals with an alternative den away from the building, such as an artificial den box. The Laois workshop was undertaken to explore this approach and facilitated a good exchange of experiences and ideas.

The workshop was delivered by Dr Johnny Birks and John Martin, ecologists with more than 30 years' experience of surveying for pine martens, designing den boxes and running a den box project in Scotland. It consisted of a morning classroom session with presentations and an afternoon session when a den box was erected in a nearby wood. The box was positioned in the Abbeyleix Bog Project thanks to the help of two of the projects' members, Hugh Shepherd and Des Finnamore. On the way back to the hotel, Johnny became quite excited when he spotted — and photographed — a pine marten scat. He explained to the bemused onlookers that he was creating a 'Scatalphabet' and that this was the first time he had found the letter J!

On a more serious note, Johnny stressed that while martens are using den boxes in a woodland setting, their use as an alternative to attics is unknown and suggested that this is a subject in need of research.

*From top to bottom*: Dr Johnny Birks, Hugh Shepherd and John Martin; excitement at discovering Scat 'J'; safe delivery and storage at the hotel of 36 MK2 pine marten den boxes from www.wildlifeboxes.co.uk

## **Horseshoes Heading East**

Daniel Hargreaves, Bat Programme Manage



As the building work was coming to an end at our newest bat reserve in West Sussex, we started thinking about the future and how we could continue to build a more resilient habitat for horseshoe bats in the southeast. This new reserve is only one of a number of roosts that the bats need and use. Ideally, a network of night roosts, hibernation sites and alternative summer roosts are required for the species to flourish. Luckily for us - and with some fortuitous timing – Natural England released an invitation to apply for Capital Grant Funding under their Species Recovery Programme.

'Natural England's Species Recovery Programme seeks to reverse the declines in England's animals, plants and fungi. The programme recognises that current habitat-based management approaches are often not enough to prevent extinctions and restore species populations to a point where they are secure. Instead, targeted action is often required.'

To be eligible for capital grant funding, projects needed to include the enhancement or creation of heritage assets (ie, an area of land supporting wildlife habitats) which benefit species recovery; and/or conservation translocations of target species that enhance habitats to enable them to function effectively. Sadly, we can't translocate bats, but we can enhance their habitat by providing safe roosts that are available year-round and secured into the future. We delved into the library of ready-to-go project proformas and adapted the 'Horseshoes Heading East' project to meet the grant requirements.

We had three weeks to apply for the £50k to £500k on offer and, after a furious few weeks of gathering partners, visiting sites and getting quotes, we submitted a project proposal totalling a whopping £452k!

### **The Project**

'An ambitious partnership project to facilitate range recovery and establish a viable population of greater horseshoe bats in suitable areas of southeast England, through a combination of roost adaptation, habitat enhancement and improved landscape connectivity to facilitate their dispersal, link maternity sites and increase breeding success.'

Our vision is that greater horseshoe bats are once again established and thriving in the southeast and that our approach to their recovery can be replicated elsewhere on the edge of the species range.

### Objectives

Facilitate range recovery of greater horseshoe bats and establish a viable population in Sussex through the following actions.

- Create and improve roosts and hibernation sites.
- Establish a population baseline
- Improving habitat and connectivity to roosts.
- Increase breeding success.
- Monitor all sites and share findings.
- Improve the understanding of greater horseshoe bat ecology and distribution in Sussex.
- Create models and maps.
- Help support the needs of greater mouse-eared, grey long-eared and Geoffroy's bats.

Natural England liked our proposal and in September, announced it was fully funded! It's incredibly encouraging that vital work like this is being supported by the Government — and it demonstrates a strong commitment to acknowledging and improving the recovery of greater horseshoe bats across their historic range. Work has already started and we look forward to sharing more news on this exciting project over the next 18 months.

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Steve Carter, Carnivore Programme Manager



## A new era in pine marten conservation in Britain

This year has been hugely successful and exciting for carnivore work at the Trust, with advances for three of our focal species - all Critically Endangered globally or within Britain. We began 2023 with news of a successful joint funding application to the Swedish Postcode Foundation, enabling us to begin a crucial feasibility study for the restoration of European mink to the Romanian Carpathians (p8). Following the recruitment of a Wildcat Project Officer in October, we can begin discussions with local communities and stakeholders to to get their views on the potential return of the European wildcat to its former home in Wales (p19). However, arguably the biggest achievement following a highly successful 12-month Development Phase, was being awarded almost £1.2 million by The National Lottery Heritage Fund in November for our Martens on the Move project.

Made possible by National Lottery players, this new four-year funding will enable the project to build on initial positive connections made with local communities, conservation NGOs, statutory bodies, the forestry sector, private landowners and young people during the Development Year, to enable pine martens to once again thrive in woodlands across Britain. We will recruit and train new volunteers to monitor pine martens as they move into new areas and provide opportunities for a diverse range of communities to find out more about the species and how they can help safeguard its future.

We are recruiting a team to deliver this exciting and ambitious project and planning for an actionpacked first year of the Delivery Phase in 2024. Working with the UK Men's Sheds Association, and other community groups, we will build 150 den boxes to be installed and monitored by a network of volunteers across six monitoring hubs in England, Scotland and Wales covering over 3,000km<sup>2</sup>. As well as providing safe resting sites and breeding dens for pine martens, they will form the basis of a new National Den Box Monitoring Programme.

In addition, and working with project partners: Forestry and Land Scotland; National Trust; and Coed Cadw — Woodland Trust Wales, we will establish three Pine Marten Havens (one in each nation) as best practice demonstration sites for other land managers. Complete with a wildlife viewing hide and interpretation trail, they will become focal sites for communication and public engagement, particularly targeted at groups not typically engaged with conservation.

lartens on the Move

We will also carry out national communication campaigns using a range of media channels to increase the knowledge and understanding of pine martens across Britain, as well as working with schools to develop education resources linked to each nation's national curriculum.

Our aim is for pine martens to become as well known to the British public as hedgehogs and badgers, and by a much wider audience than those of you already converted and reading this newsletter!

## PhD research round up

## PhD outcomes support new projects for VWT

My PhD has finally come to an end after 4.5 years! It has been an incredible journey, with all the inherent ups and downs that you might expect from a PhD project. However, having just passed my viva, I believe it's the perfect moment to reflect on all the work that has been accomplished. The most



significant aspect of my research involved the development of a protocol that could be used for identifying barbastelle maternity colonies within woodlands. The

protocol involved the deployment of an array of acoustic detectors to find hotspots of barbastelle activity, followed by the capture and radio-tracking of bats to locate roost trees. A collaborative effort, which involved the deployment of over 500 acoustic detectors by VWT volunteers, helped lead to the discovery of five previously unknown barbastelle colonies. Notably, this protocol is now going to be integrated by VWT into the Natur am Byth! flagship Green Recovery project in Wales, where it will be used to facilitate surveys and identify priority areas for roost creation and habitat management. I've also developed a protocol to record barbastelles crossing over roads and to digitally reconstruct the flight paths in 3-D space to assess the collision risk with passing

vehicles. This was the first time that this approach has been used to assess flight behaviour of barbastelles and the hope is that this work will pave the way in how we assess road crossing behaviour in bats and help improve mitigation strategies for their protection.

One of the most rewarding aspects of my PhD experience has been the collaboration with a diverse range of individuals. A large portion of my research involved collecting acoustic data with the help of citizen scientists, as well as collaborative efforts to capture and track bats to their roost sites. Every person who has been involved in this work played a role in the success of this PhD, and I would like to express my sincere gratitude to all those who contributed to this journey. Finally, I would like to say how much of a tremendous privilege it has been to work alongside VWT during this PhD and meet all the amazing people working there. It is exciting to know the outputs of my research will continue to be used in VWT's future conservation efforts, and I am comforted to know that I have left my work in safe hands.

## Wildcats work in Wales continues

It's been a busy 12-months for both the wildcat project and me personally. The final stages of my PhD have involved pulling together and tidying up remaining bits of work, including publishing a review chapter which looked at assessments of social feasibility in translocation projects, and getting other chapters ready for publication. I was also able to get out into the field back in the summer to develop and deliver the baseline surveys that will inform the next phase of the wildcat project. The surveys were targeted to potential release sites and involved camera trapping to monitor the presence of

wildlife and domestic cats around these areas; small mammal field searches to better understand prey availability; bioacoustics surveys to help identify rare or threatened species of birds and bats; and to understand



the diversity and disturbance within our candidate areas. Together, these provide a smorgasbord of data to help decision-making and research moving forward. These surveys are also a great opportunity to work with universities and build relationships with Welsh institutions. More recently, I was in Germany in November for the 6th Eurowildcat meeting - this time in the beautiful surroundings of Bavaria Forest national park. These events are always a great chance to mingle with experts on the species and across a range of disciplines. The presentations and discussions are informative to our own work and I came away with lots of ideas and inspiration to implement into the programme. Finally, it has also been great to welcome Max Henderson to the team as Project Officer. The social side of my PhD was enjoyable and interesting, and it's great to have Max come in and deliver the next stage of that side of things. We had

a very nice but very wet day walking around Welsh woodlands discussing his work and I'm excited to see how it develops. On a personal note, it's been brilliant having VWT as a partner on my PhD over the last few years and while I'm sad its finishing, I'm lucky enough to be able to continue working within the wildcat project as a Conservation Scientist for Durrell Wildlife Conservation Trust. Although I may be stepping away from VWT, I'm not going far.

## Tagged bats lead to undiscovered roosts

This past year of my PhD has been an interesting one to say the least. It's been full of ups and downs and some corrupt data here and there... but now over halfway through, things seem to be finally coming together. The aim of my project was to determine how bats are moving through the landscape by using a network of static radio receivers. After trialing some different positioning methods to no avail, I have started exploring some new machine learning methods and hope to tackle this problem from a different perspective. So far, 59 individual bats have been radio-tracked during this project, with three individuals being retagged across different years. The volume of detection data that this project has produced has been extraordinary, with some of our best bats giving us over 100,000 unique data points, spanning a six-week period. This data was collected between September 2022 and April 2023, and has given us incredible insight into the winter ecology of the greater horseshoe bat. During these months, our tagged bats moved between seven of the roosting sites I was monitoring, with some bats travelling over 10km in a single night. I have been able to observe when our tagged bats have been waking up from hibernation to come out and feed and how frequently they do this during the winter. Although we have known about these behaviours for a while, I believe this is one of the first times we have been able to show this with empirical data, which I think is pretty cool! I have just started a second winter



of data collection, with some changes to the methodology. I have

deployed the nodes into a more localised grid around the Chudleigh Caves SSSI, to track which flight corridors the bats are using with greater accuracy. Just this week, we had a go at using conventional radio tracking to try to find where some of the bats are roosting. The data from the static radio towers was suggesting that there is likely to be at least two other roosts in the area that we were not aware of until now. Based on this data, we started our radio tracking session at the receiver that detects the bats most closely to sunset and straight away we were able to detect three of our tagged bats. Within the hour, we successfully tracked the bats and were able to find a new greater horseshoe roosting site, which may be the largest undesignated roost in the area! Now that things are feeling more on track, I am looking forward to seeing what this winter's data collection will uncover about the greater horseshoe bat. I am excited to learn and implement some new machine learning methods to this data and hope this can give us a more accurate idea of where these bats are moving in the landscape. As always, I would like to thank everyone who has made this project possible and hope to have some final results by spring 2024.

## Luring bats away from danger

A couple of months have passed since I began my PhD at the University of Sussex, co-funded by VWT, and I've just about settled in. I've met the rest of the research team who have all been very welcoming and helpful, and I have had several meetings with my supervisors Fiona Mathews, Ivor Simpson and the team at VWT. The main objective of my PhD is to determine if we can guide bats, in particular greater and lesser horseshoe bats, through the landscape away from anthropogenic threats using a combination of acoustic lures, deterrents and lighting. I aim to do this by first testing the effects of various calls on my target species, observing changes in flight patterns using infrared cameras, static detectors and 3-D flight path reconstruction. I then hope to use this information to develop a system whereby we can guide bats towards new roost locations and away from threats such as roads. I am also looking to incorporate machine learning into the project to assist with data processing. As my survey work won't begin until early

next year, most of my time has been spent getting to grips with the project by reading up on current literature. I am working on improving my data processing skills by attending a course on the R Statistical Analysis program and enrolling in modules on Python



programming and machine learning. I also had the opportunity to assist Katie Allan, fellow PhD student, on her radiotracking project where we spent three days in rainy Devon maintaining the equipment and tagging bats. The definite highlight of my PhD so far is getting to meet two greater horseshoes up close and releasing them after they were tagged.

Over the next few months, I will be using data already collected by Kieran O'Malley to look at the crossing height of bat species across a series of roads and feeding this information into my project next year. I am excited for the upcoming field season and looking forward to getting started.

## **Congratulations Kez!**

Keziah Hobson has successfully completed her PhD research and has also had a paper published (https:// doi.org/10.1002/ pan3.10560). She attended the recent International Martes Symposium and presented on her



## Would Wales welcome back wildcats?

Jenny MacPherson, Principal Scientist with Max Henderson, Wildcat Project Officer



The European wildcat (*Felis silvestris silvestris*) once found throughout mainland Britain is now extinct in England and Wales. Our last remaining British cats can be found in Scotland, though they too are likely to be lost without current efforts to save them.

As was the case with many native carnivores, populations underwent a steep decline through the 18th and 19th centuries driven by loss and fragmentation of its woodland habitat, coupled with hunting and predator control. Despite hanging on in the highlands, historically low numbers led wildcats to interbreed with feral domestic cats, resulting in hybridisation and genetic introgression (the gradual movement of genes from one species into the gene pool of another).

In 2019, a review of the wildcat's status in Scotland concluded that the population was no longer viable and that the release of more wildcats at suitable sites was needed for the recovery of the species. To this end, a captive breeding programme has been underway for some years

and the first cohort of captive-bred wildcats was released into the Cairngorms National Park in Scotland in summer 2023. Further into the future, reintroduction of captive-bred wildcats beyond Scotland is also being considered if and where conditions are suitable.

The wildcat, cath wyllt or cath goed has a long history in Wales where it was once relatively widespread. A bounty was paid for the head of a wildcat when they were considered vermin, along with many of our native predators, and the majority of these payments in Wales were made during the 18th century. The species dwindled and is believed to have been lost from most counties sometime in the early part of the 19th century, but there were still sightings reported in southwest Wales as late as 1848. The final date for the wildcat in Wales is usually cited as 1862, however there are several intriguing later records including the Talybont wildcat, shot near Aberystwyth in November 1893. The description of the size of this cat with its broad flat head, muscular frame and bushy ringed tail sounds very much like that of a wildcat. There is also an even later record from 1937,

when the National Museum of Wales was presented with the skeleton of a possible wildcat that had been shot in Pembrokeshire just months earlier.

Recent research has shown that there are still parts of Wales that could support wildcats again — however, returning this native predator to its place in the ecosystem is less about science and more about people's willingness to once again live alongside a species that's been forgotten over time. For this reason, we are starting work on an impartial study to assess people's views about the possible future reintroduction of the European wildcat to Wales.

Over the coming year we will be listening to what local communities and stakeholders have to say about the idea of bringing wildcats back to Wales and how they'd like to be involved in decision making and recommendations for the next steps.



# Sussex Bat Appeal... we've razed and rebuilt the roof! Lucy Rogers, CEO



Vincent Wildlife Trust (VWT) has been leading the way with greater horseshoe bat conservation for more than 40 years. As a result of habitat loss, increased use of pesticides and a widespread decline in the abundance and variety of insects, greater horseshoe bat populations crashed during the 20th century to around just 4,000 individuals confined largely to a small area in southwest England. Thankfully since then, legal protection and conservation of these bats has led to a recovery and Britain is now a European stronghold for the species with around 13,000 individuals.

Over the years, VWT's strategy of taking on buildings and enhancing them as safe roosts is paying off and VWT reserves now host around 50% of the total greater horseshoe bat population in Britain. While the majority of the British population is still found in the southwest of England and in south Wales, there are signs that greater horseshoe bats are expanding into northeast Wales, the West Midlands and the southeast of England. And while there are likely to be a number of contributory factors, it is certain that the availability of safe and suitable roosts is a major reason for this recovery.

So the discovery in 2019 of a pioneer breeding colony in a derelict stable in West Sussex by a member of Sussex Bat Group led VWT to focus much of its efforts on safeguarding this extremely significant roost as it is the first record in 100 years of a breeding colony 100km east of its current stronghold. Although there were just a few females with pups, this building is quite possibly the most important greater horseshoe bat roost in Britain at this time — and is evidence that this bat species is recolonising its former range across south England.

But the derelict stable block was due to go on the market for development. So in 2021 VWT, together with the late Tony Hutson and other members of Sussex Bat Group, launched the Sussex Bat Appeal to raise more than £400k needed to purchase, repair and enhance the building for greater horseshoe bats. The intention being to change this potentially perilous discovery into a conservation opportunity and another stepping stone in the restoration of one of our rarest bat species to more of its former range.

The appeal has been hugely successful and VWT was able to purchase the building in February 2022 — just in time for the return of ten greater horseshoe females, which successfully raised five pups. In December, once the bats had vacated the building for their winter roosts, the first phase of renovation began, replacing the damaged roof with a completely new roof to improve the conditions for the bats and keep out the weather and light. Repairs also increased the size of the useable space for the day-roosting bats. This work was

completed in early 2023 in time for the bats to return from their winter roosts. We were both delighted and relieved to record bats returning during the summer and to find evidence of breeding.

While the building is now secure and weatherproof, there is still much to do. This project will be ongoing for the next few years as we make staged improvements to the site and VWT will use its expertise to transform the building into one that will accommodate a sizeable population of greater horseshoe bats and to futureproof it against the impacts of climate change. Sussex Bat Group will help manage the site, continue to monitor the bats and fundraise to develop the Tony Hutson Hide to commemorate one of Sussex Bat Group's founders and instigators of the Sussex Bat Appeal. This successful partnership will help ensure that the site remains a safe maternity roost in perpetuity and will give the species a chance to recolonise its former range.

To have raised this funding through the Sussex Bat Appeal is testament to the tremendous support and generosity of Britain's bat conservation community – including the volunteer bat groups, particularly Sussex and Surrey Bat Groups who have been incredibly generous with their time and resources. In addition, this project would not have been possible without VWT's Board of Trustees agreeing to underwrite the project.

The Sussex Bat Appeal has ended, but you can still donate through **Sussex Bat Group's Just Giving page** to support the development of the Tony Hutson Hide and to continue to support the recovery of the greater horseshoe bat in SE England.

## Contact us

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