Wildlife World

people's trust for endangered species

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ISSUE 9

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In the red corner...

Supporting Britain's red squirrels, every way we can

UK

News of Briddlesford Woods

Our new Chair of Trustees

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Harvest mice

Overseas

Hi-tech bonobo conservation

Western hoolock gibbons

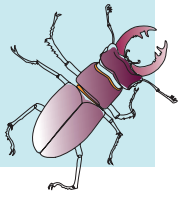
Living with lions

Snow leopards and livestock

The high life in Africa
How we're helping three urgent projects to conserve the extraordinary biodiversity of the Ethiopian Highlands

Regarding reptiles
Green turtles, river terrapins and sungazer lizards are just some of the rare reptiles we're working to protect around the world

Hedgehogs in Parliament
Ensuring the threats to the UK's best-loved mammal are recognised at the highest level



Wanted: stag beetle sightings

Please help stag beetles by telling us if you see one this summer. From early May, look out for them at dusk. Grab a photo if you can, and report the details using the website below. You can read about lots of rare beetles in ***Beetle Boy***, a great new fiction book for children by M.G. Leonard, published by Chicken House. We're collaborating with the author, Maya, a beetle devotee, to 'befriend a beetle' and promote the *Great Stag Hunt*.

STAG BEETLES

Loss of dead wood from overly tidy gardens and parks, and the demise of woodlands, are devastating for our magnificent stag beetles. These fearsome-looking but harmless insects are fascinating to watch as they fly on warm, sunny evenings. We are committed to making sure stag beetles have enough dead wood for their larvae to feed on during their amazing seven-year development to adulthood.

Tell us about your stag beetle sightings
www.greatstaghunt.org

In this edition

Welcome

It's more important than ever that people who care about wildlife *do something* to help. Enjoyment of the natural world is crucial to our wellbeing, but sadly, mere admiration of nature is not enough to keep it safe. Inadequate legal protection and ever-tighening public budgets mean statutory protection is increasingly ineffectual. But each of us can make a difference, by asking questions, voicing our concerns and sharing what we know.

Wildlife conservation is as much about people as it is about science. As a supporter of PTES, you are already making a difference, but imagine if each of us introduced one new person to the work being done? Who do you know who might care enough to act? By sharing the gift of nature with a friend, a grandchild, a student, a neighbour, you'll be enhancing their lives and building a force to be reckoned with. Please share the love – and maybe this magazine too!

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people's trust for endangered species

PTES PEOPLE

© Lesley Walton

Becky Walton is one of over 38,000 people who answered our call for Hedgehog Champions. It's safe to say that since signing up, she's taken things to a whole new level.

My love affair with hedgehogs began four years ago when I moved house and saw one visiting my new garden – the first I'd seen in years. I felt compelled to do something, and signed up as a Hedgehog Champion through the *Hedgehog Street* campaign run by PTES and the British Hedgehog Preservation Society. I never dreamt I'd end up running a community group. But through a gradual process of spreading the word via leaflets, articles for local newsletters, and get-togethers with neighbours, a small band of dedicated hedgehog enthusiasts began to form. We called ourselves HK Hedgehogs, for Hangleton and Knoll, the area of Hove where we live.

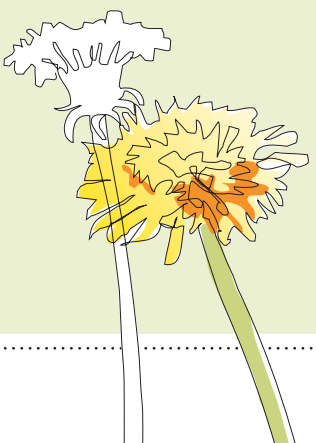
Today, HK Hedgehogs is the biggest *Hedgehog Street* community in the UK, something we are hugely proud of. We have more than 150 members working together to link and manage their gardens for hedgehogs. We run awareness-raising events and activities throughout the year – community fun days, health walks and talks to local schools and groups.

Most recently, we've taken our first exciting steps into citizen science – loaning footprint tunnels and camera traps to residents so they can see who is visiting at night. So far, we have collected 21 sets of hedgehog footprints and footage. It's a fantastic way to engage the local community.

What's next for HK Hedgehogs? More members, more science, and more gaps in fences, I hope!

> **We have more than 150 members working together to link and manage their gardens for hedgehogs**

Find out more about becoming a Hedgehog Champion
www.hedgehogstreet.org



PTES LOVES

THE WATER VOLE
Christine Gregory
£16.99
A treat for the eyes and the intellect, this glossy new account of Britain's fastest declining rodent unites science, love and poetry in one admirable package.

A SUMMER OF BRITISH WILDLIFE
James Lowen
£15.99
With this unique 100-day itinerary, you need never be short of ideas for wild days out in summer again. Both authoritative and engaging.

COOL NATURE
Amy-Jane Beer
£9.99
A fun look at some of nature's most fascinating quirks and extremes, packed with memorable facts and ideas for DIY experiments and projects to try yourself.

Shifting baselines

Many conservation projects seek to restore species to previously held ranges or former abundance, or return landscapes to some earlier condition. But how much do our personal timelines restrict our ambitions and bias the ideals and idylls we seek to recreate?

As a child of the seventies I remember when creme eggs were bigger, police officers older, and wildlife more abundant. Every garden seemed to have both a spacehopper and a hedgehog, house sparrows bathed in the dirt hollows where we played marbles, and cuckoo calls were the normal sound of summer, rather than a cause for celebration. Earth has lost half its wildlife in my lifetime. And I mourn the loss. But the fact is, my rose-tinted memories are of a landscape that was already hugely impoverished. The declines in our wildlife have been going on much longer than the span of any human memory – but we don't miss what we've never experienced. It's a phenomenon known as 'shifting baseline syndrome', and ambitious conservationists are asking us to challenge it. I'm up for this. I'd love dormice and lapwings and Scottish wildcats to be as abundant as they were 100 years ago. Who wouldn't? And I'm delighted to see reintroduced beavers making their mark after 400 years. What about lynx and wolves? I'd rather love to have them back too. Some dream even bigger – of elephants living here as they did 100,000 years ago, their ministrations removing the need for coppicing to promote vigorous regrowth of trees.

But is setting the clock back further always better? Last summer I visited the vast pre-alpine basin of Lake Constance – the subject of a fantastically successful project to reverse the nutrient enrichment that was choking the lake with algal blooms. Now phosphorous concentrations are back at Ice Age levels. It's impressive, but some local ecologists argue that the focus on nutrient contamination has diverted attention from other damaging pollutants, such as endocrine disruptors. There's another problem too. During the 1930s when nutrient concentrations were slightly elevated, and again in the 1990s before they fell as far as the Ice Age baseline, the lake supported a thriving commercial fishery providing a sustainable, low-carbon source of animal protein, traditionally one of the most environmentally costly food groups. Now however, there are so few fish that 13th generation fishermen can no longer make a living, despite demand for their produce, which is now met by imports of frozen fish air-freighted from as far as Canada. Is this an example of habitat restoration gone too far?

© Shutterstock.com / animalphotography.ch

If conservationists had a *Back To The Future* reset button, when should we set the clock?

If conservationists had a *Back To The Future* reset button, when should we set the clock? There's no simple answer. My forty-something years might be inadequate, but would be a start. 10,000 years might be possible in some cases, though without the key species lost to extinction the result is an ecological facsimile mismatched with a human population that has increased a thousand-fold in that time. Somewhere, there is a compromise. In fact a whole set of compromises, on every conceivable scale. Restoration isn't just about about reintroductions. It's a lawn left unmown or a field boundary unsprayed. A river undredged, a forest unfelled, a peatbog undrained, a moorland unburned, an area of seabed untrawled, a sector unfished. Giving nature some leeway can bring both ecological and economic benefits. When fisheries are banned from marine reserves, the size, abundance and diversity of life increase so dramatically that catches in surrounding waters also rise. Everyone wins, and yet establishing such reserves remains a political battle.

We have a chance to leave things better than we find them. My childhood was also a time when otters and red kites were creatures of mythic scarcity and badgers heading that way. British beavers and cranes, white-tailed eagles and large blue butterflies were extinct. Now anyone can see the first three on demand in large areas of the country, and the others are increasing in areas of reintroduction. Conservation can be a depressing business with ample cause for despair. But there is also reason to hope. Let's think big, dig deep and aim high. ●

Dr Amy-Jane Beer is a biologist, natural history writer, and editor of *Wildlife World* magazine.

Amy-Jane Beer reviews some of the big recent news stories for PTES and the wider field of conservation. A lot happens in six months, but you can also find the latest at **www.ptes.org**

Deaths in the service of wildlife

Tragic news from two of our overseas projects, whose dedicated staff have been killed in action.

© Snow Leopard Conservation Foundation and Pranjal Bezbarua

We are sad to report the tragic deaths in service of two conservationists. Lkhagvasumberel (Sumbee) Tomorsukh was a promising young researcher who worked closely with PTES project leader, Bayara Agvaantseren, on snow leopards in Mongolia. Sumbee's friend and colleague Dr Koustubh Sharma described the talented young conservationist as someone who 'climbed the mountains like an ibex, ran on steep slopes where most of us would barely manage to crawl, and cared for snow leopards and ibexes as if they were his own.' The cause of his untimely death is subject to investigation. In India, Anato Boro was attacked by a wild elephant during a routine patrol in Manas National Park. He was a well-respected veteran game warden who worked with our rhino project leader, Pranjal Bezbarua. ●

Fighting amphibian chytrid disease

A welcome breakthrough in the fight against a global threat to amphibian biodiversity.

The fungal infection known as chytridiomycosis is devastating amphibian populations around the world. Of just over 6,000 known amphibian species, at least 600 are known to be affected by the disease, and 200 have catastrophically declined or become extinct as a result. In

© Andrew Cunningham

work partly funded by PTES, the Zoological Society of London has been investigating the efficacy of the antifungal drug intraconozole in wild populations of the Caribbean mountain chicken frog. The results suggest that while the treatment is far from a cure, it does offer some prophylactic protection and may decrease the speed at which populations are wiped out by up to 60%, allowing precious time for other conservation measures to be taken. ●

HS2 threat to London's last hedgehogs

Will central London's last viable population of hedgehogs lose out to a planned lorry depot?

© Clare Bowen

Concerns over the environmental impacts of the planned HS2 rail development have so far come mainly from the countryside, but plans to turn a central London car park into a depot for lorries have highlighted the issue in urban areas too. The car park, managed by the Zoological Society of London, lies on the edge of Regent's Park and its shrubby margins are a core part of the range of one of the city's few remaining viable hedgehog populations. The hedgehogs in the Zoo car park are thought to represent about 25% of the entire central London population and are described as vulnerable by former Royal Parks ecologist and hedgehog expert Dr Nigel Reeve; one of the team of scientists and volunteers that has been studying hedgehogs in the park for the last two years. ●

Biological Recording Awards

New awards recognise individuals and organisations dedicated to gathering precious biological data.

© John Sawyer

At its annual conference in November the National Biodiversity Network (NBN) announced the winners of its inaugural awards recognising the importance of biological recording – a matter close to our heart at PTES. The awards cover Terrestrial and Freshwater and Marine and Coastal recording, with adult and youth categories in each. The Mammal Society collected a further new prize, the John Sawyer Award for Open Data, named in honour of the NBN CEO whose sudden and untimely death had been announced just days before the presentation. ●

New apps to fight illegal wildlife trade

Smartphone technology can turn ordinary citizens into recorders of wildlife crime.

© Little Fireface Project

Two wildlife crime fighting smartphone apps developed in Indonesia have won a US Government competition, the Wildlife Crime Tech Challenge, earning the

developers US$10,000 and technical support. One of the winning apps, developed by Planet Indonesia, allows visitors to Indonesian bird markets to collect data on species, price and origin while appearing to send a text so the user remains unobserved. It can be used by both wildlife professionals and members of the public. An online directory of images will help novices identify the species they see offered for sale. The other app, designed by animal rescue outfit Yayasan Inisiasi Alam Rehabilitasi Indonesia, uses a genetic database to identify the geographic origins of confiscated slow lorises, a species which suffers greatly from illegal trade.

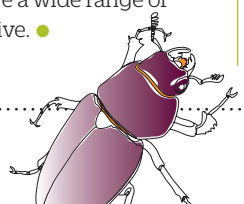
New orchard plans unveiled

How we're helping the National Trust restore the habitat and heritage of a Kent orchard.

© Megan Gimber

Our traditional orchard team's varieties and genetic resources database is helping to create a new Kent regional collection at the National Trust's Scotney Castle property near Lamberhurst. An orchard was previously planted on the site in 1879 but of that, only a few pear trees survive. We have begun working with the Trust to replant the orchard with a collection of heritage fruit varieties with origins in Kent, including apples, pears, plums and cherries.

Kent – the 'garden of England' – has a long history of fruit-growing, and a number of specialist varieties were raised here by nurserymen, enthusiasts, and at the formerly Government-run Research Station at East Malling. Kent was famously the first county to grow sweet cherries on a large scale, and the UK's first cherry orchards were established at Teynham by Richard Harrys, under the direction of Henry VIII. We're delighted to be part of continuing this proud tradition, and in the process restoring a unique habitat where a wide range of native species will thrive.



Celebrating a seahorse success

How evidence from a PTES field project will help ensure a future for West African seahorses.

© K. West

A PTES project has been singled out as the most significant influence in a decision by the Convention on International Trade in Endangered Species (CITIES) to list West African seahorses *Hippocampus algiricus* on Appendix II. The move will ban trade from Guinea and Senegal and bring further monitoring. Prior to the study by Project Seahorse, the biology and conservation status of the species was little known. The results have provided new insights into their ecology and breeding biology, and identified a significant threat from fisheries and trade. The listing will help reduce pressure on wild seahorses and encourage new conservation work. The same project also identified another seahorse species in the area. The short-snouted seahorse, *H. hippocampus*, was previously known only from European and Mediterranean waters.

DATES FOR YOUR DIARY:

9th-10th September
National dormouse conference, Reading
Two days of talks and discussion, in which delegates will hear from professionals and volunteers contributing to our long-running monitoring and species restoration efforts.

21st April
Hedgehog management course
Managing public land for hedgehogs. In association with Dorset Wildlife Trust and Dorset Mammal Group.

Wildlife Encounters
Please visit our website for our programme of spring and summer events featuring water voles, hedgehogs and amazing wildlife photography opportunities.

Find out more
www.ptes.org/get-involved

Nelson's column

Life begins at 40

With our 40th anniversary approaching, we are taking time to reflect on our achievements and planning with ever greater urgency for future success too.

We all hope to make a difference and leave our own legacy over a lifetime. Sometimes this is in a literal sense, by remembering in our will what, as well as whom, we loved the most. When PTES is honoured with a bequest, it makes such a difference for endangered wildlife. It makes us nimble in a crisis; quick to act. Take hedgehogs for example. Our entire campaign with the British Hedgehog Preservation Society came about because of a generous gift left to us just as the plight of hedgehogs was coming to light through our mammal monitoring surveys.

We used legacy funds for the original purchase of Briddlesford Woods, now saved from creeping neglect with thriving populations of dormice, red squirrels and Bechstein's bats. Gifts left to us in legacies make up around a third of our income and are particularly valuable as they make future planning possible; allowing us to prepare for the next 40 years of wildlife conservation.

There's more information about leaving a legacy for wildlife in the leaflet enclosed.

Thank you.

Jill Nelson

Jill Nelson is the Chief Executive of People's Trust for Endangered Species.

In the red corner

Of the 120,000 red squirrels remaining in Britain, about three quarters are in Scotland. The rest are scattered in smaller populations across northern England and Wales and on two south coast islands. All of them are under constant threat from encroaching grey squirrels and the pathogens they carry.

Pine martens – unlikely allies?

Recent anecdotal reports linking resurgent pine marten populations with increasing red squirrel records have fuelled speculation that martens may help reds by limiting numbers of grey squirrels. But more evidence is needed to prove a link.

PTES intern **Josh Twining** of Queen's University Belfast is surveying 24 different sites in Northern Ireland where pine martens live alongside either grey or red squirrels. Samples of marten faeces from these sites are being DNA tested to confirm the source species, then their contents (including fruit stones, bone fragments, hair and feathers) are identified and scored in terms of abundance. Josh hopes his results will indicate the extent to which both squirrel species feature in pine marten diets, and thus shed light on the likely effects of marten feeding ecology. ●

Saving Scotland's Red Squirrels

Since 2009, this multi-agency partnership (SSRS) has been working to improve conditions for red squirrels across Scotland, and combat the spread of non-native grey squirrels.

We're helping to fund the current third phase of work by SSRS. The main aims are to sustain key red squirrel populations, manage the impact of squirrelpox virus, establish a long-term, cost effective control of grey squirrels, engage more landowners and volunteers to take part and to continue monitoring red and grey squirrel distributions across Scotland. ●

Filling the gaps

We've teamed up with **Alan MacDonnell** of Scottish forest specialists Trees for Life in an exciting project to boost the number and range of Scotland's red squirrels.

Over three years, squirrels from disease-free areas will be moved to previously occupied parts of their range where there is excellent habitat, creating regional clusters that can expand into intervening spaces, creating new core populations that are free from grey squirrels and squirrel pox virus. The project will also develop methods for monitoring how the reds are doing. ●

Viral screening – by a whisker

Until now the only sure way of discovering whether a red or grey squirrel has been exposed to dangerous viral diseases has been by post mortem examination. We're funding research into an alternative.

Squirrel pox virus and adenovirus are severe threats to our red squirrels. Both are spread by grey squirrels, which show no symptoms, making the diseases difficult to track. Our friends at the Veterinary Laboratories Agency, led by **David Everest**, are developing a proactive screening technique that requires only a sample of hair or whisker taken from a living or dead animal. Knowing which populations of red and grey squirrels are infected will be a great help planning effective conservation and the technique could also become a valuable component of pre-movement health screening in reintroduction and translocation projects. ●

Scrapbook

We love hearing from PTES people, be they supporters or grant recipients. Pictures, reports, emails, web posts and letters give a great sense of your passion for wildlife, so please keep them coming!

© Martas /Shutterstock.com

Talking lions

Did anyone hear Dr Amy Dickman of WildCRU on Radio 4 *Midweek* in November? In conversation with Libby Purves, Amy gave a vivid insight into 14 years with the PTES-funded Ruaha Carnivore Project in Tanzania, where her work addressing human-wildlife conflict is achieving remarkable results. The programme is still available to listen to online at **www.bbc.co.uk/programmes/b06ptzrt**

© PTES

Hedgehog crazy

Over the last few months, the plight of hedgehogs has been discussed on radio and television, in newspapers and magazines and social media and on several occasions in Parliament, thanks to Plymouth MP Oliver Colvile. The publicity has stemmed largely from our efforts with the British Hedgehog Preservation Society (BHPS), which included a one day summit in Telford in November. *The Day of the Hedgehog* attracted over 300 professional and amateur hedgehog enthusiasts, including many of our Hedgehog Champions. We now aim to recruit 100,000 Champions by 2025 – a total unimaginable when we started out. In February our Hedgehog Officer Henry Johnson and BHPS CEO Fay Vass visited Westminster to meet with Mr Colvile, Defra Minister Rory Stewart and Environment Minister Liz Truss to discuss ways the government can help.

© Bibhab Talukdar

Congratulations Aaranyak

We were delighted to hear from our friend Dr Bibhab Talukdar that his Assam-based conservation organisation Aaranyak recently won an Indian government award for Good Practice. Bibhab has received a number of PTES grants for work on elephants and leopards.

Look who's here! Welcome Isabelle, born to our Outreach Officer Emily Winstone and her husband Daryl in October.

© Emily Winstone

We love our fantastic fundraisers

Victoria Smith, Local Nature Reserves Officer at Cambridge City Council held a plant sale at work and raised £40 for us. Thank you!

Wendy Nicholson donated £50 to support our work on red squirrels from the sale of her wonderful booklet *Along Woodland Ways*, featured in the Spring 2015 *Wildlife World*.

In the last 12 months you've raised £151.54 by shopping via **www.easyfundraising.org.uk/ptes** and searching with **ptes.easysearch.org.uk**, bringing our current total for online schemes to almost £1,500.

/PTES

Favourites from Twitter

@bbc5live How did the dormouse cross the road? On a special bridge to help protect them from extinction! @PTES

@ClaireCmb23 Looking forward to Ian White @PTES talking about national #dormouse monitoring programme tonight with @KentMammalGroup at @KentWildlife HQ

© RHS

Hedgehogs and horticulture

If you're anywhere near Harrogate this spring and summer, why not visit RHS Harlow Carr garden? Among the many acres of horticultural inspiration you'll find Tracy Foster's specially designed *Hedgehog Street* garden, full of practical advice and ideas to help ensure your patch is a safe and welcoming place where hedgehogs can thrive.

Working for wildlife: thanks to everyone who threw their energy into our annual winter work weekend at Briddlesford Woods.

© Rachel Bates

Meet the Chair

Dr Andrew Kitchener of National Museums Scotland is our new Chair of Trustees. We asked him to introduce himself with a quick Q&A.

What were your earliest wildlife experiences?

As well as all the normal boyhood antics of scrabbling around in woods and ponds getting damp and mucky, some of my most memorable early experiences were in and around zoos. Particularly the time I was chased on Sandown beach by a female puma. Admittedly she was on a lead, but if as a seven-year old you read in your *How and Why Wonder Book of Wild Animals* about the horrible things pumas can do when cornered, you'd understand why I ran and cried rather a lot. I also remember visiting London Zoo at about four years old and seeing my first orangutan. It was so enormous that it seemed to fill the cage.

What are you working on at the moment?

I'm developing a new temporary exhibition on primates, called *Monkey Business* which should open in December at the National Museum of Scotland in Edinburgh. I'm also involved in many research projects: examining geographical variation in sand cats, investigating the identity of the first thylacine photographed at London Zoo 1863, documenting exploitation of marine mammals by Vikings and piecing together the evolution of variation in babirusas and anoas on the island of Sulawesi.

What, for you, makes PTES special?

PTES offers unique support for active conservation and the gathering of scientific data on endangered species both in Britain and around the world, and has wonderfully knowledgeable, experienced and dedicated staff who are so enthusiastic about what they do.

How do you most like to see PTES funds spent?

There are huge pressures on today's wildlife and it is vital that we support effective projects with sustainable outcomes or use our funding as leverage for greater levels of investment. Above all, I value our ability to respond to emergencies, such as the saiga die-off, and to support young enthusiastic researchers and conservationists in their home countries, helping them to look after their native wildlife.

What's currently in your freezer?

It might be better to ask what we don't we have there! Recent important arrivals include a Chinese alligator and a Komodo dragon, both natural casualties from zoos. ●

f/ptes.org

Favourites from Facebook

Who'd believe it? The first time I've captured more than one hog visiting this month – and what a pair of porkers! Clearly, live mealworm does the trick. **Terry Earl**

Thank you PTES and BHPS, so much for organising *Day of the Hedgehog*, it was a fantastic day, well done Henry and all involved. **Alianne Fitzandrew**

Publications

A few recent publications from PTES projects:

Mills, Godley & Hodgson;
Take Only Photographs, Leave Only Footprints: Novel Applications of Non-Invasive Survey Methods for Rapid Detection of Small, Arboreal Animals. PLoS ONE (2016) 11(1): e0146142. doi:10.1371/journal.pone.0146142

Cisneros-Montemayor, West, Boiro & Vincent;
An assessment of West African seahorses in fisheries catch and trade. Journal of Fish Biology (2015) doi:10.1111/jfb.12818

Hudson et al;
In-situ itraconazole treatment improves survival rate during an amphibian chytridiomycosis epidemic. Biological Conservation (2016) **195** pp37-45

update

Ethiopia

From the Danakil depression, to the mystic lakes of the Rift Valley and rock churches of Lalibela, the wild spaces of Ethiopia harbour amazing wildlife. But in terms of sheer diversity, there's nowhere quite like the Highlands. Sadly, many of this extraordinary region's endemic species are threatened. We're doing all we can to help.

Living on the edge

We're working to discover what is driving two Highland specialist species towards extinction – before it's too late.

Addisu Mekonnen of Addis Ababa University studies the little known Bale monkey, which is found only in the Bale mountains. As their native bamboo forests are cleared, the monkeys have moved into fragments of forest, feeding on a range of plants and occasionally raiding crops, resulting in conflict with local people. PTES has recently agreed further funding to help Addisu prepare a conservation plan for this adaptable but declining primate.

The nyala is an Ethiopian icon, appearing on the 10 cent coin

Meanwhile, **Anagaw Meshesha** of the University of Oslo has been assessing the status of mountain nyalas. The Bale mountains are home to around 3,800 of these magnificent antelopes, but Anagaw's results raise grave concerns over two other populations in the Arsi and Ahmar mountains, where survey work has shown severe habitat degradation and a total population of fewer than 300 nyalas.

Wolves in a land of wonders

WildCRU conservation biologist **Jorgelina Marino**'s heart is firmly in the Ethiopian Highlands, last refuge of the world's rarest canid, the Ethiopian wolf.

Discovering Ethiopia as a young researcher opened my eyes to many dimensions of the concept of uniqueness. Ethiopians have their own alphabet, an ancient Coptic calendar that ticks along seven years behind our own, and a different way to count the hours of the day. The region's extraordinary wildlife includes a baboon with a bleeding heart, the gelada, and a red wolf that eats only rodents. I've studied these exceptional animals for many years. They combine solitary foraging with intense family lives, challenging our evolutionary understanding of sociality. For my doctorate I searched for an explanation deep and wide, exploring every mountain in search of wolves, comparing their genetics, their population biology, and the intricacies of their territoriality. In doing so, I've become wholly committed to protecting them from extinction.

At the peak of the last Ice Age, the ancestors of the beautiful Ethiopian wolf became successful rodent hunters and the top predators of the open Afroalpine landscape. With the warming of the continent, and later the expansion of agriculture, they were pushed back into tiny mountain refuges, islands in a sea of cropland and villages. The wolves became a flagship for the conservation of Afroalpine ecosystems, which also provide crucial services to the Amhara and Oromo people who live there.

The pioneering biologist Claudio Sillero began unravelling the ecology of Ethiopian wolves in the Bale Mountains, in the southern Highlands. He became acquainted with many wolf families and knew every

continued overleaf

© Chloe May

The Amhara and Oromo people share the mountains with the wolves

© EWCP

© Lorenz Fischer

© Gubalaftu Delanta

ABOVE: EWCP has recruited Wolf Ambassadors in Highland communities to help share insights and awareness of the species and alert the team to potential conflict situations.

LEFT: Hunting mole rats requires stealth and patience on the part of the wolves. These robust rodents are always alert and never venture far from the safety of their burrows.

RIGHT: The combination of highly social domestic life and solitary hunting is unique among canids.

individual by name. But in 1992 rabies decimated his beloved wolves. The perilous situation was then fully acknowledged, with the species formally listed as critically endangered by the IUCN. In 1995, Claudio and Karen Laurenson founded the Ethiopian Wolf Conservation Programme (EWCP).

By 1997 the Bale wolf population was slowly recovering and as the political situation in the region stabilised, we embarked on a countrywide search for other populations. After two years we had confirmed the presence of wolves in several enclaves where they had been historically known, and also described some new populations. Sadly, we also had to report some local extinctions. We estimated a global population of just 500 adult and sub-adult wolves, in six populations of which Bale is the largest, with some 300 animals. With the recovery of numbers in Bale the species was down-listed to endangered, but our extensive surveys had shown that the conversion of Afroalpine habitats to agriculture was putting the smaller populations at serious risk of extinction. EWCP expanded its operations to the northern Highlands of Ethiopia at the turn of the millennium. Here, human pressure is higher and wolf habitats are degrading steadily.

Ethiopia is often remembered for the droughts and famines of the 1980s, but in fact the Highlands contain vast expanses of fertile land, that sustain one of the highest human densities of rural Africa. More than 80% of the population, which now exceeds 90 million, live in the Highlands.

Our challenge, in this crowded landscape, is simple and unequivocal. How can we save the world's rarest canid? The five pillars of the EWCP approach are monitoring, disease control, education, outreach, capacity building and habitat protection. We set ourselves a mission to secure viable and ecologically functional Ethiopian wolf populations and habitats, and to emphasise the species' role as a flagship for the entire ecosystem, including its human dependents. In 2011, experts, governments, conservationists and local community representatives gathered in the city of Lalibela to work out a strategic plan that would guide our work for the next 10 years.

Managing the threat of rabies remains a cornerstone of our work, as recurrent outbreaks continue to kill wolves. We vaccinate domestic dogs in and around the National Park, conduct education campaigns, and vaccinate wolves when an outbreak is detected. By creating a *cordon sanitaire* of immunised packs, we have prevented outbreaks from spreading widely across the Bale population. We have begun piloting an oral vaccine for the wolves and the results are very promising.

Protecting the smaller wolf populations, where man-made threats are greatest and the animals' behaviour is poorly understood, remains a top priority. But we need to know much more about the factors driving

Top and right: © EWCP

© EWCP

RIGHT: The fertile plateaux of the Ethiopian Highlands were once a mosaic of forest and open habitats such as grasslands and heaths. The team are mapping the wolves' use of the remaining pockets of wild space.

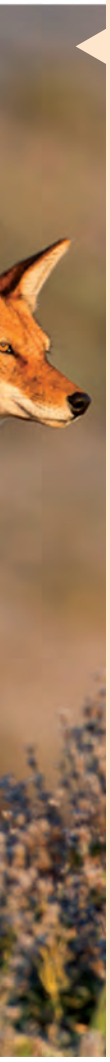
habitat loss in remote areas, and the needs and attitudes of local people. So, with PTES support, we have begun specifically researching these areas. This vital work will inform future conservation across northern Ethiopia.

Our eyes and ears in remote wolf ranges are our 'Wolf Ambassadors', wonderful people who help us build links with their communities and inform us of problems as they arise –such as illegal encroachment and outbreaks of disease in local dogs. We're also training communities to assess for themselves the condition of natural resources in their area – including Afroalpine pastures, sources of firewood and water. This exercise led to important discussions about environmental exploitation and to a variety of outreach activities.

Our research is contributing to understanding of how human disturbance, grazing and other land uses are affecting both wolves and their prey. An extensive study of rodent populations in South Wollo showed how prey species respond to different management practices, and where habitat degradation is becoming unsustainable. We hope to begin long-term monitoring of rodents in this area and assess the potential for restoring both habitat and a prey base for the wolves. A detailed study in North Wollo showed that wolf foraging behaviour is influenced by the presence of people and livestock – and that the timing of disturbance is important. For a solitary hunter of small mammals, any change in prey availability can be energetically costly and, unfortunately, lambs are a tempting target for hungry wolves. Thus we are also gathering information on livestock predation so that we can identify where human-wolf conflict is most likely to arise.

Sometimes the task of saving Ethiopian wolves seems enormous, but the longevity of our programme is bearing fruit. Not only do we know the wolves better, we have had the opportunity to learn from both failure and success. We've worked with a diverse range of partners and collaborators including the Ethiopian Wildlife Conservation Authority and the regional governments, the Born Free Foundation in the UK and the Wildlife and Conservation Network in the USA. Claudio and I base ourselves at WildCRU in Oxford and visit Ethiopia regularly. Eric Bedin is our Field Coordinator in Ethiopia, in charge of implementing all project activities with a dedicated team of over 40 Ethiopian nationals. Among this fantastic team I want to single out Fekadu Lema, Gebeyehu Rskay and Girma Eshete who work so hard on the activities funded by PTES. ●

Our challenge is simple and unequivocal. How can we save the world's rarest canid?



Fact File

SPECIES NAME
Canis simensis

COMMON NAME
Ethiopian wolf, Abyssinian wolf, Simien fox, Simien jackal, *ky kebero* (Amharic), *jeedala fardaa* (Afan Oromo)

DISTINGUISHING FEATURES
A tawny rufous wolf with distinctive black and white marks, long legs and long muzzle; weighs about 16kg.

HABITS
Complex sociality in which animals live in families of up to 18 animals, defending shared territory and helping the dominant pair raise pups, but hunting small mammals alone by day.

LIFE HISTORY
Typically long-lived; females tend to disperse, dominant females synchronise oestrus and bear litters of up to six pups.

HABITAT & DISTRIBUTION
Endemic to Afroalpine grasslands and heathlands above 3,000m in Ethiopia.

CONSERVATION STATUS
IUCN Red List: endangered. Protected by law in Ethiopia. Global population estimated at 500 adults and subadults in six populations; no captive populations.

© Ian Davidson-Watts

A year in the woods

There's always a lot going on at our woodland reserve at Briddlesford on the Isle of Wight. Conservation Officer **Laura Bower** and Dormouse Officer **Ian White** report on just some of the developments in 2015.

Managing a nature reserve is a balancing act. Some areas need regular intervention to remain in the desired condition; others are better left to nature. At Briddlesford Woods we have to keep paths and rides clear so that people and vehicles can pass safely, and maintain gates and stiles, fences and water troughs. At the same time we must nurture habitat to support the reserve's extraordinary variety of species, many very rare. We constantly monitor populations of plants and animals to make sure we're getting the balance right.

Roosting bats

Ecologist and expert bat surveyor Ian Davidson-Watts was back last summer to continue his 2013 radio tracking work to locate roost sites and map the way bats use the different areas in the wood. Ian is particularly interested in the effects of woodland management. He's been studying the roosting and foraging ecology of Bechstein's bats since the discovery at Briddlesford of one of the first known breeding colonies in the UK in 2002. These rare bats roost preferentially in woodpecker holes in ash trees, and Ian has found that the same hole can be used repeatedly over many years. 'Our surveys in 2013 and 2015 found the colony using the same roost hole where we first found them in 2002.'

Moth magic

In August last year we were excited when surveyors from the Isle of Wight Natural History Society recorded the exceptionally rare triangle moth. It was only the second time the species has been documented on the Isle of Wight – the first was just two days previously at Parkhurst Forest, the neighbouring Forestry Commission woodland. Triangle moths are restricted to oak and beech woodlands in southeast England and are declining. County Moth Recorder Iain Outlaw described the discovery as 'an absolute delight, and testament to the quality of the habitat at Briddlesford.'


Rare triangle moth found at Briddlesford Woods
© Ian Outlaw

Dragons and damsels

The 14 ponds at Briddlesford are regularly surveyed by a local dragonfly expert. The ponds are all very different, with varying amounts of bare ground, open water and emergent vegetation. Another first for Briddlesford in 2015 was the emerald damselfly. This metallic green gem favours shallow water sites with dense stands of rushes and reeds. The presence or absence of certain dragonflies can tell us how the habitat is developing and whether we need to fine tune our management of the pond or surrounding fields.

Dormice

The wet summer of 2015 was a strange one for Briddlesford's dormice. We found no evidence of breeding activity in spring and recorded very few litters in September. But as conditions dried up later in the season the dormice did their best to catch up, and our October nest box check revealed one of the largest numbers of young animals we've ever recorded in the reserve. In September we erected an arboreal bridge (shown to the right) to see if dormice would use it to cross the restored steam railway line. Both dormice and red squirrels took to it very quickly and the project featured on the BBC's *AutumnWatch* in November. The bridge was taken down for winter but has gone up again this spring and we'll be monitoring the comings and goings over it throughout the year. ●


Emerald damselflies can be identified by posture – they hold their wings half-closed, not folded like other damselflies
© Dave Dana

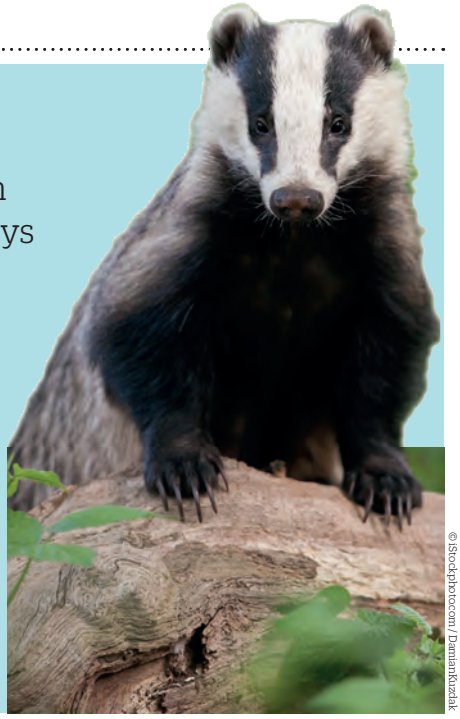

© PTES

Monitoring our mammals

Our long-standing commitment to British mammal research continues in 2016 through our flagship citizen science surveys *Living with Mammals* and *Mammals on Roads*.

Thanks to the sterling efforts of our volunteers, our two long-running mammal surveys track the fortunes of mammals in built and rural landscapes. Recent results show the decline in hedgehog records continuing, as reported in the *State of Britain's Hedgehogs 2015* in November. We are also seeing significant changes in bats and mice, and an increase in the proportion of sites that report badgers. An article about *Living with Mammals* was published in the February issue of *British Wildlife*.

Being able to record observations online has made it much easier for volunteers to take part in these the surveys. We've recently upgraded the webpages for both *Living with Mammals* and *Mammals on Roads*, so please take a look and get involved this season (**www.ptes.org/surveys**). *Living with Mammals* starts in April and *Mammals on Roads* in June. Every record, whether paper or digital, adds to our knowledge and underpins our efforts to conserve wildlife, so we are grateful to everyone who gets involved. ●



© iStockphoto.com / DamianKuzdak

Great Stag Hunt

We've been collecting data on Britain's most spectacular beetle since 1998. **Laura Bower**, our Conservation Officer, asks whether it's time you joined in?

We're currently busy exploring the data from over 6,000 stag beetle records submitted to the *Great Stag Hunt* website in 2015. Thank you if yours was one of those records. Sightings came from Gloucestershire to Suffolk and Dorset to Kent. As well as seeing adult beetles, many of you reported digging up larvae whilst gardening throughout the year. This is easily done if you're in a stag beetle area. The best thing to do is not panic, but put the larva back under the ground with as much of the original soil and rotting wood as possible, and don't forget to record your sighting.

We're having another big push for stag beetles this year. Please visit **www.ptes.org/stagbeetles** to find out more or to sumbit your records. If you can take a photograph to aid identification, so much the better. You'll also find tips on creating log pile habitats for these magnificent insects. ●

© William Basston. Larvae © iStockphoto.com / nicolasprmola

We're used to seeing pictures of magnificent male stag beetles wresting – but this male seems a little confused – the beetle he's hoisting into the air is a female!

Water voles on the map

2015 was the first year of our new National Water Vole Monitoring Programme, and we were delighted by the response.

Following the launch of the NWVMP last year, information from 188 sites was submitted online, well above our initial target of 100 sites. Thank you to everyone who took part. We are now analysing the data to reveal the current distribution of water voles at the sites visited and make comparisons with the last two national surveys back in the 1990s.

This year, we're asking volunteers to visit their sites again in May so we can monitor what changes might be taking place year on year. There are plenty more sites still available to survey if you would like to get involved.

To find out more about the NWVMP and register if you'd like to take part, please visit **www.ptes.org/watervoles** before the beginning of May or send us an email at **watervoles@ptes.org**. ●

© Helen Hotson / Shutterstock.com

Monitoring water voles is vital work, but also enjoyable – a perfect excuse for dallying by a quiet waterway in the glorious month of May. Why not join in this year?

SMART thinking

We're investing in Spatial Monitoring and Reporting Tool (SMART) software to help eco-guards protect endangered bonobos from poachers in the forest of the Democratic Republic of Congo (DRC).

In a project coordinated by **Alain Lushimba** of the African Wildlife Foundation, PTES is helping protect and monitor the highly threatened bonobos of the Lomako-Yokokala Faunal Reserve in northern DRC. We've invested in laptop computers with solar chargers and funded a two-week training course for eco-guards, in which they learned to use the software to plan their patrols, record and manage data, and produce reports. In the last year, these patrols have lead to 15 poacher arrests, the confiscation of numerous hunting weapons and traps, and the dismantlement of 76 hunting camps in the reserve. A further seven people encountered in the forest were released after a sensitisation exercise designed to help them appreciate the importance of local conservation. The eco-guards have also recorded 105 bonobo nest sites, many of them concentrated in an area also frequented by another of the region's threatened species, the elusive forest elephant. ●

© Alain Lushimba

Hoolock gibbons

Jihosuo Biswas coordinates our project to conserve this large primate in the Karbi Anglong District of Assam, through a combination of research, community engagement and outreach.

Endangered western hoolock gibbons are declining throughout their range. Jihosuo estimates that only 392 gibbons remain in 140 small groups in Karbi Anlong. They live in fragments of habitat threatened by destructive slash and burn cultivation (known as *jhoom*) and illegal logging. They are also hunted. Jihosuo reports high juvenile mortality and low recruitment – meaning relatively few young gibbons make it to breeding age. The project trained 67 rangers and supplied them with essential kit including uniforms, binoculars, and survival equipment, and morale is greatly improved as a result. 1,383 school children attended education events and local people enjoyed several community education programmes. Public perceptions of the gibbon's plight are being assesed via questionnaire. ●

© Jihosuo Biswas

A brighter future for South African sungazers

Our project to protect South Africa's unique sungazer lizards and their habitats made great progress in 2015.

Our team from the Endangered Wildlife Trust (EWT) has visited 120 farmers throughout the sungazer's range, inviting them to join a species stewardship scheme. Twenty of these farmers were awarded honorary Sungazer Custodian status. The idea is that their commitment to conserving sungazers on their land will inspire others to join in. Sungazers don't breed in captivity, but the team is monitoring the success of a population of sungazers translocated to Golden Gate National Park. The project now has two field officers and Masters student **Zwelakhe Zondi** is making a study of the trade in sungazers as constituents of traditional medicine and as pets. An exercise was carried out with the South African National Biodiversity Institute, demonstrating that any exploitation of these unique reptiles will damage their survival status. This information is crucial in banning future trade. A new biodiversity management plan for the species is now awaiting ministerial approval. ●

EWT Field Officer Bradley Gibbons presents a Sungazer Custodian sign to conservation-minded farmers.

© EWT

Snow leopard insurance

For Mongolian herding families, who often live on less than $2 a day, the loss of just one animal can be disastrous. So it's not surprising that relationships with their wild snow leopard neighbours are sometimes strained.

As well as their natural, wild prey, snow leopards occasionally take domestic livestock. Retaliation to prevent future attacks is a natural reaction by herders, and depending on where they live, they may use traps, poison, and rifles to kill these critically endangered big cats.

Finding a way for herders and snow leopards to co-exist is critical for the long-term survival of the species. One successful solution is the development of community-led insurance schemes that compensate for livestock losses, providing an economic safety net and reducing antagonism towards predators. The compensated families agree to cease retaliatory killings.

Our project leader, **Bayara Agvaantseren**, set up such a programme in Mongolia. Here the local community now manages a pool of money specifically for reimbursing families who lose domestic animals. Each scheme is focused on a local community, which may actually cover a large area due to the nature of the herding lifestyle. The number of households within the area allowed to join is unlimited. The programme is now well established and the conservation team is slowly withdrawing, leaving the community to manage the programme themselves. The original 30 households involved naturally divided into three more manageable groups. Each household pays an annual premium of 66 cents per small animal, and $5.50 for cattle. The compensation rates – at $16 for a goat and $125 for a cow – are slightly below market rates, but the money goes a long way to ensuring a stable future for both snow leopards and herders. ●

© Dennis W Donohue / Shutterstock.com

Tense times in Tanzania

Despite our best efforts to protect an endangered species, sometimes their numbers continue to decline. At these times we need to reconsider and adopt a new approach.

Bernard Kissui and his team in Tanzania have monitored the local lions since 2003. They collect lion sightings several times a year and make estimates of population size based on lions known or assumed to be still alive. Sadly the long-term trend revealed by the data suggests there are fewer lions now that there were ten years ago.

Between November 2014 and summer 2015, more than ten lions were lost in retaliatory killings around the villages between Tarangire and Manyara National Parks. Sadly such events aren't unusual, but to record so many in a short space of time and a limited area is alarming. The team records how and when the killings happen, the means used to protect livestock and their efficacy. They use this information to plan for the future. Lions are often blamed for the actions of other carnivores. Of over 1,000 recorded livestock attacks, about 50% were likely by hyenas. Many of these incidents happen in the wet season, when wild prey are migrating and predators are on the move. This kind of information can be used to protect livestock. The project is also assisting with the construction of night time stock enclosures, or bomas. By working with the community to reduce human-lion conflict Bernard and his team hope to also limit the resulting losses to wildlife. ●

Between November 2014 and summer 2015 more than ten local lions were lost in retaliatory killings

© iStockphoto.com / Anagramm

A spotlight on sea turtle bycatch

As many as a thousand sea turtles are caught in fishing gear each year in the Mediterranean, of which two thirds drown. We're helping local fishermen reduce this tragic loss.

The relative isolation of northern Cyprus has limited its economic growth and left this corner of the Mediterranean and its marine and terrestrial habitats better preserved than many. The small fishery operating in the area is largely sustainable and deploys only passive methods, in which gear is set and retrieved later. As a rule this is less damaging than active trawling, but there are still accidental consequences. The main problem is with bottom-set trammel nets targeting spinefoot fish. These are deployed in very shallow water, often on sea grass meadows, where young green and loggerhead turtles forage. The green turtle population of the Med is critically endangered, with only 300-400 adult females, and the 2,000-3,000 loggerheads there are regarded as endangered. It's vital for both species that the accidental death toll is reduced.

Trials elsewhere suggest that green LED lights on nets help turtles avoid them and reduce bycatch by 40-60%. With our support, Robin Snape of Exeter University's Marine Turtle Research Group is testing a similar system in northern Cypriot waters, with the cooperation of the local fishermen. The precise effect of the lights on the turtles is still the subject of research, but the fishermen confirmed that bycatch was much reduced. The design of the lights needs further modification and testing but the willingness of the fishing community offers great hope in this critical area for marine turtles.

endangered

Green turtles are easily snagged in fine fishing nets, which prevent them reaching the surface to breathe.

A life line for northern river terrapins

We're building on the promising start to a captive breeding and reintroduction programme aiming to restore a critically endangered reptile to its rightful home in Asia's greatest wetland.

Northern river terrapins once thrived in the complex waterways of the Sundarbans, the area of low-lying land carved up by the vast spread of the Ganges Delta. But the population was devastated by deliberate harvesting for meat and also suffered from accidental bycatch. None have been seen in the wild for more than a decade in Bangladesh, and even longer in India, despite extensive searches. The species is listed as critically endangered by the IUCN and, with no viable breeding population in the wild, their future is so precarious that captive breeding and reintroduction is the best hope for their long-term survival.

In a breeding centre established in India four years ago, the Turtle Survival Alliance (TSA) and the West Bengal Forest Department nurtured 11 adults and 145 hatchlings. This captive population now urgently needs splitting up as an insurance policy against localised catastrophes such as cyclone damage or a disease outbreak.

Their future is so precarious that captive breeding and reintroduction is the best hope for their long-term survival

We're helping the TSA relocate 40% of their terrapin stock and study their survival, dispersal and habitat use. Early in 2016, five juvenile females and five males were released within the same nature reserve wearing acoustic tracking tags. Meanwhile at the breeding centre, the team is working on how to balance the sex ratio of juveniles being hatched. Sex determination in terrapins is influenced by incubation temperature. We're also funding improvements in husbandry to minimise the risk of disease. This will all pave the way for a scaled-up breeding and reintroduction effort that will restore viable and self-sustaining populations to both Bangladesh and India.

Mapping harvest mice

PTES intern **Debbie Wright** spent the past winter searching for harvest mice. Based at Warwickshire Wildlife Trust, she's been leading a team of willing volunteers to survey sites across the county – looking for the animals themselves and their nests.

Harvest mice are thought to have suffered a considerable decline over the past few decades, in conjunction with changes to farming practice across the countryside. However their true status is unknown. Harvest mice are very difficult to monitor – in part due to their being one of the smallest mammals in the world. What's more, they tend to occupy ephemeral habitats that might easily change over time. To date, no wholly successful method of monitoring harvest mice has been developed to tell us how they are faring. However we can at least plot the whereabouts of animal sightings and field signs regularly, giving some indication of their distribution, if not their abundance.

Harvest mice are very difficult to monitor – in part due to their being one of the smallest mammals in the world

Armed with determination and lot of Longworth traps, Debbie set out to look for this elusive animal. She met with great success. Not only did the team find nests at numerous sites, and owl pellets containing harvest mouse remains, they also managed to trap many live harvest mice, particularly during October and November. Buoyed by these great results, we extended our support for the project by two months so that Debbie and her team could investigate even more sites. She'll be reporting her results at the Spring meeting of the Mammal Society, and in the next issue of *Wildlife World*.

And there's more! We don't have room to tell you about every project, but your donations have also been supporting...

POISONED POLECATS

As Britain's polecats show promising signs of recovery, we've awarded new funding to Professor Robbie McDonald of Exeter University for work investigating the exposure of polecats to rodenticides.

WHERE ARE BATS GOING?

Recent technological advances have revolutionised bat surveys, providing previously unimaginable volumes of data. We're funding Professor Fiona Mathews to take things a step further, using acoustic tools to identify not only the number and species of bats passing, but also the direction in which they are heading.

WHAT DORMICE WANT

In parallel projects at Manchester Metropolitan and Exeter Universities, Edwin Harris and Cecily Goodwin are investigating the impact of woodland management on hazel dormice, so that we can better advise landowners lucky enough to have dormice on their patch.

The Insider's Guide to...

Translocation

Our Insider is zoologist **Dr Jenny MacPherson** of Vincent Wildlife Trust, who is currently managing the Pine Marten Recovery Project for England and Wales.

© Edward Delaney

What and why?

Conservation translocation is the managed movement of animals or plants from one location to another to achieve a measurable benefit for the population, species or ecosystem. The term covers reinforcements, intended to boost an existing (but often small) population; reintroductions, which aim to restore a species to part of its natural range from which it has gone extinct; and conservation introductions, also called assisted colonisations, that aim to establish new populations of a species beyond its previous natural range. Habitat loss and fragmentation, among other things, have led to population declines and local extinction for many species. Translocations are a widely used tool in situations where natural recovery or recolonisation is unlikely. But it's not an easy option. All translocation projects need to have clear goals from the outset and be very carefully thought out.

Step 1 – Feasibility and consultation

First it's vital to think about whether translocation is actually the best action to take; in many cases it might be cheaper and less risky to focus on management efforts in areas where the threatened animal still occurs. However, if natural recovery or recolonisation are unlikely, then translocations may be appropriate. An initial assessment should look at whether the project is feasible and likely to succeed. Other land users and stakeholders should be consulted right from the beginning in order to understand the potential human impacts and consequences of the action being taken. The support of local stakeholders is an important factor in deciding whether or not to proceed.

Step 2 – Site surveys

There should be careful checks of the habitat in the proposed release area. The site should meet all the needs of the released individuals and their offspring, throughout all stages of their life. This means ensuring there will be enough space, enough food and enough shelter to support a viable population. A suitable source of animals (or plants) must also be found and assessed to ensure the removal of individuals for translocation will not be detrimental. The possible ecological roles that the translocated organisms will have in their new environment must also be considered and care taken that the conservation interests of other species and habitats are not likely to be jeopardised by the translocation.

© Terry Whittaker

Ecological surveys assess the suitability of release sites, ensuring there is enough space and resources for a viable population of the subject species.

© Jenny MacPherson

Public education and outreach is an essential part of planning a species introduction.

Step 3 – Moving animals

As part of the feasibility study and translocation plan, an assessment should be made of the number, type (i.e. adults, juveniles or a mix) and sex ratio of individuals required to maximise the chances of the translocation being successful. Then the animals have to be captured. Capture methods, holding and transportation should all be designed to minimise stress to the animals and maintain the highest standards of welfare. We also have to consider the health and safety of humans involved in the process. A disease risk analysis is carried out well in advance to identify the level and type of health screening and surveillance that's

required. Once screened and selected, suitable animals should be moved to the new site as quickly as possible in suitable containers.

Step 4 – Release

The release protocol is all about reducing stress to the translocated individuals and maximising their post-release survival. For animals, the options are an immediate, or 'hard' release, or a delayed 'soft' release. With the soft release method, animals are confined temporarily within an enclosure at the release site, whereas with the hard release method they are released immediately on arrival. The potential advantages of soft release are that the animals have a chance to acclimatise to the new site and recover from the translocation process before being freed. It can also reduce any homing instinct and allow for the development of social relationships in some species. However, being kept in temporary captivity can cause additional stress and increase the risk of injury if animals try to escape. The pros and cons of both methods have to be weighed up, taking into account the biology and behaviour of each species.

Step 5 – Monitoring

Considerable time, money and effort go into planning and conducting translocations, along with ethical and welfare considerations for the animals themselves. Therefore it's incredibly important to know what happens next and whether the exercise is a success in the short- and long-term. If a translocation results in establishment, followed by reasonable population growth and long-term persistence, then further intervention may not be necessary, although future monitoring could still reveal unexpected problems. Alternatively, if monitoring reveals low post-release survival and low population growth, then further action may be needed. This might include additional 'top up' translocations or support such as the provision of supplementary food, shelter or nest sites. It's also important that any lessons learned are used to refine future translocation protocols and release site selection criteria. Finally, if a translocation fails, it is essential to know when and why, and to consider what else could be done to increase the chances of success before deciding whether to try again. ●

A pine marten accepts food offered during its long road trip from Scotland to Mid Wales, helping to ensure it arrives in good physical condition.

© Henry Schofield

A radio-collared pine marten explores the sights, sounds and smells of its new home from the safety of a specially built soft release pen.

© Terry Whittaker

Radio telemetry is a tried and tested means of tracking individual animals previously fitted with a transmitter, usually mounted on a collar.

© Terry Whittaker

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In practice

Restoring pine martens to the forests of Mid Wales

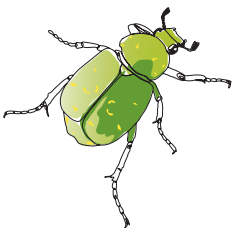
At Vincent Wildlife Trust, we're currently carrying out conservation translocations of pine martens from Scotland as part of the Pine Marten Recovery Programme for Wales and England funded by PTES and others. An initial feasibility study prioritised central Wales for the first releases. Engaging with communities in the area and having their support was crucial before we went ahead. In autumn of 2015, the first animals arrived in their new home. To minimise stress, we aim for the martens to arrive at their release site within 24 hours of being trapped. They are collected, health screened and given food and water before travelling. The ten-hour journey by road is best done overnight to keep the animals cool, calm and quiet, although that can be quite challenging for the driving team. So far we've released 20 adult pine martens in Wales: 10 males and 10 females. In autumn this year, we'll be releasing a further 20 at different woodlands within the same area to further consolidate the population. All of the pine martens are fitted with radio collars and will be monitored using a combination of radio-tracking, GPS, camera traps and scat surveys for the next three years. ●

Traditional orchards offer a superb mixture of woodland, pasture, meadow grassland, hedgerow and scrub, and as wildlife havens they add up to so much more than the sum of their parts. Their unique diversity supports a vast range of species, many of them under threat.

We are helping orchard owners restore and maintain their lovely old orchards by offering grants for trees and online video tips for orchard management.

Your support is vital.

Thank you.



people's trust for endangered species