

# Wildlife World

SPRING 2018  
ISSUE 13

people's  
trust for  
endangered  
species



**UK**

Tracking dormice

Bechstein's bats

Water voles

Polecats

## For the love of hedgehogs

A fighting chance for Britain's  
favourite mammal



ISSN 2049-8268

**Overseas**

Hiroa antelopes

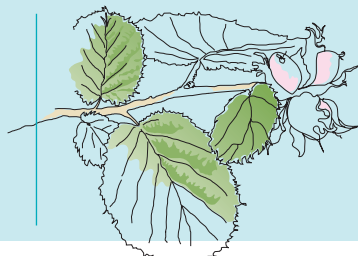
Sumatran elephants

Giant anteaters

Bonobos

### Habitat surveys

Our Insider's Guide to surveying precious landscapes, and how you can get involved



### Slow loris

A new Conservation Partnership turning around the fortunes of these threatened nocturnal primates

### Killers on the loose

Large predators are a key component of functioning ecosystems, but can we really learn to live with them?





## Bringing the wild back to life

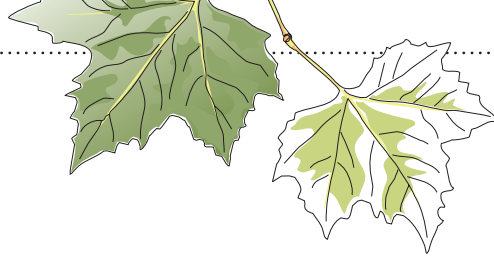
*Wildlife World* is published by People's Trust for Endangered Species

Our wildlife is disappearing. Almost two thirds of species in the UK have declined in the past 50 years. There's nothing natural or inevitable about this. It can be stopped. And everyone can play a part. That's why People's Trust for Endangered Species exists.

 Find out more  
[www.ptes.org](http://www.ptes.org)

### NOBLE CHAFERS

Fruit trees in traditional orchards develop pockets of decay at a relatively young age. This so-called standing dead wood remains dry as it decomposes, and is vital to beetles like the rare and beautiful noble chafer. Both adults and grubs of these saproxylic (deadwood dependent) insects feed and shelter in cracks and rot holes, and even a dead tree can teem with life for years, given a chance. Please help us protect these unique habitats for the future.



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© Billy Dodson



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© Linda Pridmore

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## Welcome



© Dave Willis

We're living through extraordinary times and for the last year or two I've found myself lurching from elation to despair with exhausting speed, sometimes several times a minute – usually while scanning my social media feed. Perhaps a case of too much information. It leaves me frazzled from time to time. Fortunately PTES deals mainly in hope, and it's always good to read about the action being taken in the name of endangered species around the world, with your help.

The fact is, we all need something to ground us and somewhere we can reset, and there's increasing evidence that nature is both the something and the somewhere. But we know we're losing it, and fast. And just maybe we're starting to realise what that might mean. Youth engagement in conservation is snowballing, businesses are greening and even governments are talking the talk. Is the tide turning? I do hope so. ●

Dr Amy-Jane Beer, Editor  
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© Harry Green

**Harry Green** has been our ‘man on the ground’ at Rough Hill Orchard since 2003, and we couldn’t be without him.

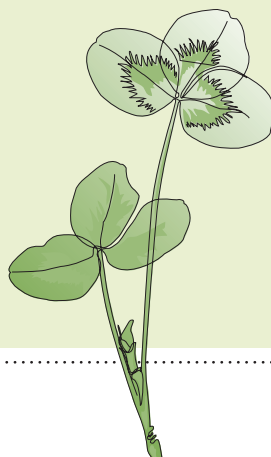
I’ve been interested in natural history most of my life and involved with wildlife conservation since the 1960s, especially with Worcestershire Wildlife Trust – 2018 is our 50th anniversary. I first heard of Rough Hill Orchard in the 1980s through botanist friends who knew it as a small patch of flowery limestone grassland – unusual in Worcestershire – on terraces of fine old apple trees. But by the 1990s heavy scrub threatened to smother the flowers. Thankfully, in 2003 PTES stepped in, bought the site, and restoration began.

It wasn’t easy. The site is steep and slippery and the brambles were so ferocious that our first efforts at clearance involved heavy machinery. Eventually small Dexter cows joined in the effort and volunteers still pitch in annually with tractor and flail. We’ve planted around 60 local varieties of apples to replace those succumbing to old age, while the remaining veterans support a remarkable fauna in their decaying wood. So far we’ve not recorded noble chafers, though they are present not far away, and the search for these nationally scarce beetles has been another part of my life with PTES for the last 20 years or so.

Despite the challenges and my complaining knees, I’m very fond of this peaceful bit of Old England. The work is rewarded by summer days with abundant bees, crickets, butterflies, dragonflies, garden warblers singing and the slow recovery of flowery grassland. And in September, of course, there are apples! ●

[Find out more about becoming a volunteer](http://www.ptes.org/volunteer)  
[www.ptes.org/volunteer](http://www.ptes.org/volunteer)

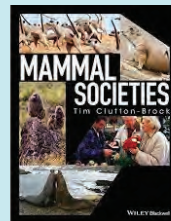
“  
 Despite the challenges and my complaining knees I’m very fond of this peaceful bit of Old England  
 ”



**THE RED SQUIRREL: A FUTURE IN THE FOREST**

Neil McIntyre & Polly Pullar  
 RRP £25

This glorious photo-book, crowd-funded as part of Scotland: The Big Picture, makes a powerful case for the expansion of Scotland’s forests.



**MAMMAL SOCIETIES**

Tim Clutton-Brock  
 RRP £45

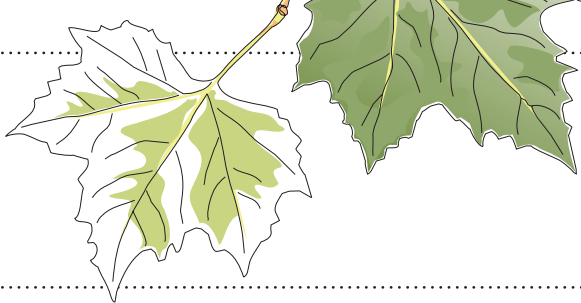
An acclaimed new textbook that lifts the lid on social evolution in all mammals, including humans. Awarded Book of the Year 2017 by the British Ecological Society.



**BLUE PLANET II**

Book £25 DVD £11.99

Was this, at last, the series that changed everything? Relive your favourite moments from last year’s Attenborough epic on the page and on screen.



# Missing lynx: can we live with big, bad wildlife?

In a nation where tabloid headlines scream about 'rogue foxes', **Amy-Jane Beer** asks whether reintroducing the larger predators necessary for full ecological restoration is a realistic option?

It's the dream of many conservationists – a landscape with functioning ecosystems, in which key species have been restored to play their natural roles in regulating, checking and balancing communities of plants and animals. Many of these lost lynchpins are predators – big, toothy and clawed, which for millennia found themselves at odds with humankind, not necessarily as a threat to life, but as daily competition for resources including meat.

The mechanism by which large predators exert their influence is known as a 'trophic cascade'. By definition, top carnivores are rare, because the amount of available energy in a food chain declines drastically at each step. Even in small numbers, these hunters have a significant impact, and not only in terms of the number of prey they eat. In Yellowstone National Park, the reintroduced wolves had effects even ardent supporters of the scheme hadn't expected. The resurgence of willow and aspen groves along river courses as the Park's huge elk population adopted natural predator avoidance behaviour led to spectacular gains in biodiversity, bioabundance and ecological complexity that have thrilled ecologists and the general public alike.

There is often talk of reintroducing wolves here in the UK too. The impact of deer on our landscape is greater even than in Yellowstone, and something needs to be done. Another deer-hunting candidate for reintroduction here is the Eurasian lynx – Natural England are considering an application for the trial reintroduction of six animals to Kielder Forest in Northumberland. The application, the first of its kind, has been made by the charity Lynx UK Trust, but not everyone is happy – sheep farmers in particular.

The truth is, there are still sectors of the British population who can't even tolerate the presence of foxes. Our recovering badger population is disproportionately punished for a disease carried by a wide variety of other species, including cattle, which readily infect one another. Otters are doing well, but already there are grumbles about their resurgent numbers from some anglers, fish farms and keepers of ornamental koi. Even the entirely herbivorous beaver, known to bring a host of biodiversity and landscape benefits, was resisted, causing Britain to lag behind 24 other European countries in its effort to restore this vital component of our native fauna.

Two lynx escaped from British zoos last year. The young female from Borth Animal Kingdom wildlife park in Ceredigion was shot as soon as she ventured within range of a populated area. The male, which absconded from Dartmoor Zoo, was luckier – keepers managed to trap and return him to captivity so he didn't meet a similar fate. A wolf escaping from the Cotswold Wildlife Park in July 2017 was killed. Another that spent a few hours on the loose in Berkshire in January this year was recaptured, with admirably little fuss. These varied responses and

outcomes highlight our patchy national attitudes to free-roaming large carnivores.

Can we learn to deal with these animals calmly? I hope so, but it's sometimes hard to imagine a Britain where informed scientific consensus is heard, where scaremongering is given short shrift while legitimate concerns can be aired and addressed without a war of words breaking out. It's up to every informed person to make that happen and, until it does, the missing lynx, and certainly the wolf, will remain lost to us. ●

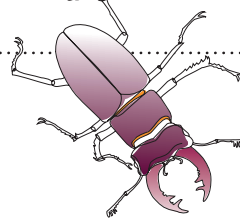


**There is often talk of reintroducing wolves here in the UK too**

© Biological Zoology GmbH / Shutterstock.com



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



We round up 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](http://www.ptes.org)

## Last days of the northern white rhino

An iconic subspecies faces functional extinction as the last male sadly dies.



© Stockphoto.com / Hana

The last male northern white (or square-lipped) rhinoceros has died, aged 45. Known as Sudan, he was finally put to sleep, after months of poor health. This has put an end to any faint hope of natural reproduction and leaves Sudan's aging female companions, Fatu and Najin, as the sole representatives of the subspecies. The population was almost completely wiped out by poaching during the 1970s and 1980s. Poaching was fuelled by demand for rhino horn for use in traditional Chinese medicine, and for dagger handles in Yemen. ●

## Neonicotinoids: time to move on?

Evidence grows in favour of a wider ban on pollinator-harming pesticides.



© Megan Ginter

A recent report from the European Food Standards Agency based on combined data from 1500 previous studies has emphasised the risk posed to bees and other pollinators by three neonicotinoid

pesticides previously used widely in agriculture: clothianidin, imidacloprid and thiamethoxam. So-called 'neonics' also feature in many gardening products, household bug sprays and pet flea treatments. As well as harming non-target pollinators, they are thought to have a severe impact on aquatic invertebrate communities. Temporary restrictions are in place in the UK and EU, prohibiting the use of neonics on flowering crops, while important research into their wider effects is carried out. The results suggest that alternative solutions are badly needed. In modern intensive agriculture, expectations of productivity rely heavily on the use of pesticides, but threats to pollinators have to be taken seriously. Environment minister Michael Gove is said to be considering extending the UK ban on neonicotinoid use to non-flowering crops, including wheat. ●

## Wood pasture videos

Public information films offer insight into these precious but little-known landscapes.



Wood Pasture & Parkland Network

A series of short films is soon to be released by the Wood Pasture and Parkland Network (WPPN), of which PTES is a member organisation. WPPN is a small group of specialists working to promote the value of the priority habitat wood pasture and parkland. The new films will raise awareness of this valuable part of the British landscape, explaining what wood pastures and parklands are, their incredible and unique value to wildlife, and describing their long and varied history. These are understudied and historically overlooked habitats, and general awareness of their value and even their existence is low. Recently, however, interest has been gaining momentum thanks in part to a recognition of the ecological importance of dead wood. We hope to continue to work with and

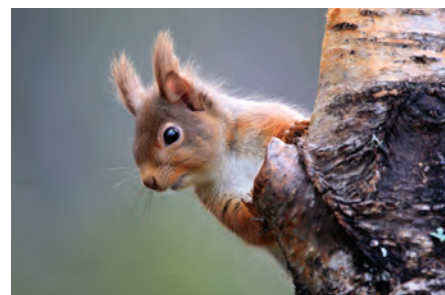


© WPPN

promote these amazing habitats. The films will be hosted on the brand new WPPN website. For more information on this and our other wood pasture and parkland work, please visit [www.ptes.org/wppn](http://www.ptes.org/wppn). ●

## Red revival news

Native squirrels are turning a corner in Scotland, thanks to control of greys and a new translocation effort.



© Stockphoto.com / StefanHiro

A pair of ambitious red squirrel projects, both of which PTES has contributed to over the years, are reaping dividends in Scotland. The Saving Scotland's Red Squirrels project reports that numbers throughout Scotland have stabilised, and that significant gains have been made in the northeast, in particular in Aberdeenshire, which is now effectively grey squirrel-free. Controlling invasive greys, which carry a pox virus almost invariably fatal to their native cousins, is essential in protecting red squirrel populations. It's taken five years, but numbers of reds appear to be responding quickly to the new areas of safe habitat. Monitoring will continue for at least a further five years to ensure the greys really have gone. Meanwhile a translocation effort is creating new red squirrel populations in parts of the species' former range from which they have been absent for up to 50 years. Recognising that areas of pine forest free from greys existed in several parts of the western Highlands, our partners, Trees for Life and the Highland Wildlife Foundation, sought strong red populations elsewhere from which animals could be captured and brought to create new colonies. ●

## A friend in need

Parliament has a new hedgehog species champion.



© PTES

PTES CEO, Jill Nelson and Hedgehog Officer, Emily Wilson, recently visited Westminster to brief hedgehog champion Chris Grayling, MP on the findings revealed in the *State of Britain's Hedgehogs Report 2018* (see p12). Mr Grayling is particularly keen to tackle the threats to hedgehogs from traffic, and, as Secretary of State for Transport, he is perfectly placed to help us develop ways to mitigate for them when building roads, whether that be warning signage, wildlife tunnels or bridges. We're seeking the best way forward and, with Mr Grayling's support, we hope to make the solutions national. Mr Grayling has also written to his 650 fellow MPs about *Hedgehog Street*. We can't wait to hear back from more enthusiastic parliamentarians who want to help this national treasure of a species. ●

## Rhino ranger killed in the line of duty

Tragic news from our rhino project partners in India.



© Danish Jarambhanu

We were deeply shocked to hear of the death of Lankeswar Lahkar, a frontline forest ranger in Manas National Park, where we are funding vital conservation work. Lahkar was attacked and killed by a male rhino called Raja, who was rescued as a baby in 2008 in Kaziranga National Park and transferred to Manas in 2012. Lahkar was

two years from retirement and leaves a wife, two sons and three daughters. The family were visited shortly after the tragedy by the forest minister and a member of the local legislative assembly, who provided the assurance of financial compensation and the offer of a job for another family member should they wish it. We would like express our condolences and pay tribute to him for his dedication to the wildlife that calls Manas home. ●

## More dormice for Warwickshire

The next phase in our clustered reintroduction of dormice is upon us.



© Lorna Griffin

Following a series of dormouse reintroductions to Warwickshire in recent years, our breeders are preparing a fifth batch of animals for release in summer 2018. Meanwhile carefully targeted habitat work is being carried out by Warwickshire Wildlife Trust to improve connectivity between sites and members of the Warwickshire Mammal Group and Dormouse Conservation Warwickshire are conducting regular monitoring of nine sites, so we'll soon know if our hopes of natural spread come to fruition. ●

## DATES FOR YOUR DIARY:

### 26th March – 24th June 2018

Let us know how your wild neighbours are doing by taking part in our *Living with Mammals* survey. You can take part online at [www.ptes.org/lwm](http://www.ptes.org/lwm) or email [lwm@ptes.org](mailto:lwm@ptes.org) for your free survey pack.

### 2nd–5th August 2018

We're making our debut at *Countryfile Live*, the BBC's annual nature festival. You can buy your tickets in advance at [www.countryfilelive.com](http://www.countryfilelive.com). Come and say hello!

Find out more [www.ptes.org/get-involved](http://www.ptes.org/get-involved)



## Nelson's column

# Making contact

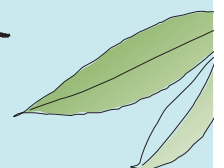
An encounter with a wild animal can be a delight and sharing the experience a pleasure, though of itself it's of little conservation importance.

But systematic recording of multiple personal encounters adds up to a great deal more than the sum of its parts. Our surveys have collected thousands of sightings over many years, decades in some cases, and we use the information to see long-term trends in the status of individual species. We spotted that hedgehogs were in trouble by doing exactly this. And we were quick to act to help them.

The biological data we collect is carefully anonymised and shared with the National Biodiversity Network, the national repository for wildlife data. Here it's used by conservationists to understand the bigger picture and focus action where it's needed most. If you've ever taken part in one of our surveys, yours may be one of the astonishing 117,209 PTES records now held on that network, accessed by experts 815 times in just the last year. A fine example of how together we can make a difference for wildlife.

Thank you for sharing your encounters. That information is priceless to us.

*Jill Nelson*



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

# Conservation in the slow lane

There's no doubting the clown-faced appeal of a slow loris. But a cute appearance is a big problem for these little Asian primates – the illegal pet trade is rife in much of their range. PTES has supported the Little Fireface Project for many years, during which time project leader Professor Anna Nekaris has named three new slow loris species, trained more than 300 students, practitioners and law enforcement officers, conducted field studies in ten countries, launched an internet campaign against the loris trade and started the first-ever, long-term field study. There is still much to achieve, and we're delighted to be helping with a new Conservation Partnership Award.





A PTES Conservation Partnership Award, totalling £100,000 over five years, will help the Little Fireface Project achieve goals in three key areas:

## Loris ecology

**A**nna's study of Javan slow lorises will soon reach a big landmark – the first continuous, 10-year study of its kind for lorises or any nocturnal old world primate. Already the team have data on the detailed movements of over 60 individuals from eight families, and the study recently expanded to take in population genetics in order to assess the viability of fragmented

populations. Understanding how these lovely animals use the landscape, and, in particular how they disperse through it, is vital in safely releasing rehabilitated or captive bred lorises to the wild. As one of the only radio-tracking studies on Java, the project also provides capacity building opportunities for ten or more Indonesian students each year. ●

## Community coffee

**W**orking with agroforestry interests, LFP has identified organic, shade-grown, wildlife-friendly coffee as an increasingly sought-after commodity, whose production can have positive impacts for slow lorises and local people. The team will provide training in organic and Fairtrade certification for local coffee cooperatives,

advise on exports, and promote the economic and biodiversity benefits of intercropping coffee with native trees, a practice that increases forest cover. The team will monitor biodiversity in organic, non-organic and neutral plots, and examine the role of lorises and other species in pollination, crop quality and pest control. ●

## Selfish selfies

**T**he rapidly increasing popularity of slow lorises as pets and photo props is fuelled by social media, in particular Instagram. LFP has already launched awareness campaigns on Instagram and Line, the second most popular social media platform in Indonesia. Now they are offering training throughout SE Asia on how to identify, confiscate and release slow lorises safely and appropriately. ●



## Saving the underdogs

**T**he population crashes suffered by lorises and pangolins serve as a warning. LFP use their experience to campaign for other heavily traded species, including song birds, owls, civets and

macaques, which face an imminent but little-publicised threat from similar exploitation. Your support for lorises through PTES will also help these other traded animals. ●

# Scrapbook



## Certifiably brilliant Bridlesford

We were recently honoured to host a meeting of the Royal Forestry Society at Bridlesford Woods, our reserve on the Isle of Wight. The event puts our woodland and wood pasture habitat restoration work firmly on the national map.

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!



## Red squirrels' big picture

A heart-warming short film, made by Scotland: The Big Picture, features some work we're funding in the Scottish Highlands with Trees for Life and the Highland Foundation for Wildlife. The seven-minute documentary follows project officer Becky Priestley as she captures and translocates red squirrels from parts of the Highlands where they are doing well, to one of ten new west coast sites. So far the work is proving highly successful, with squirrels beginning to thrive once more in areas of prime habitat where they've been absent for as long as 50 years. You can see the film at [goo.gl/WE7MsF](http://goo.gl/WE7MsF)

Dear PTES

This month, our forest patrol staff prevented the spread of two large fires, deliberately lit to clear land, in the Lamandau Wildlife Reserve. Their heroic action prevented the loss of thousands of acres of tropical forest. The reserve is home to an increasing population of more than 500 critically endangered orangutans.

Happily, at the end of January, we celebrated the birth of a new infant orangutan, born to Holo. We named the baby Happy!

Best regards

*Dr Pak Ade*



A big welcome to little Benjamin, a new son for our Outreach Officer, Emily Winstone, and her husband Daryl!



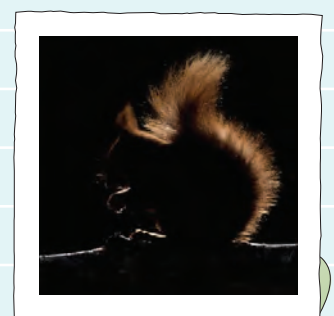
## Pearl's passion for fashion

Our Egham shop became the place for retro chic recently, thanks to a huge donation of 1980s fashion from one of the store volunteers. Lisa Hayden's late grandmother, Pearl Webster, lived the high life with her nightclub owner husband, and rarely wore anything twice. A very welcome boost to the sterling fundraising done by everyone in the shop. Thank you, Pearl and Lisa.

 /PTES

Favourites from Twitter

@PeteWalkden1973: red squirrel





© Barry Gray

## Batropolis

In 1995, on the advice of bat ecologists, a PTES grant was used to open a second entrance to a mine in north Leicestershire, with a steel grille over the entrance to protect it. Monitoring by Derbyshire, Nottinghamshire and Leicestershire and Rutland Bat Groups has shown that five species of bats (including Brandt's, above) now use the site for swarming. Ringing recaptures show that bats come from up to 60km away. Thanks Leicestershire and Rutland Wildlife Trust for this wonderful update!



Happy, our new arrival, with mother Hola

Forest fires



© Orangutan Foundation

f/ptes.org

### Favourites from Facebook

Our colleagues at David Wilson Homes are working with BHPS, PTES and RSPB Love Nature to ensure that the Drayton Meadows housing development is wildlife friendly.



'Hedgehog Highways' are part of a wider campaign to support wildlife on DWH developments. Here, Marc and Georgie are putting the first of many green signs in place. **Barbers Estate Agents**

# A day in the office with...

**Laura Bower,**  
PTES Conservation Officer



My office is ever-changing. Today I'm in the PTES office in Battersea checking stag beetle data, but tomorrow I could be on a ferry to the Isle of Wight to meet contractors at our Briddlesford Woods reserve, or driving to Worcestershire to tackle bramble in our traditional orchard, Rough Hill. My daughter is six, and so for some days each week my office is at home between school runs. Occasionally my office is in front of a radio mic or a TV camera, recording interviews about stag beetles, hedgehogs or dormice for *Springwatch* or *Countryfile*.



Filming for Countryfile

Then there are always enquiries to respond to. Josh in Wimbledon wonders what to do with the stag beetle larva he just dug up. Sarah in Scotland thinks she has spotted a wildcat in her garden – where should she report it? A school in Bristol would like some wildlife fact sheets, and Pam wants to know if she can visit Briddlesford Woods. There's a meeting with a potential new grazer to set up, a

trustees' report to write and a grant to apply for. But the best part of my job is getting out there, to check dormouse nest boxes, to plant apple trees, to meet local volunteers or to help with a moth survey.

It's been fun sharing my day with you, but I've got to go – I'm due on a conference call about conserving wood pasture and parkland... ●



At Rough Hill with Warden Harry Green

## Another star is born

When Shirley the slow loris had a baby, our friends at the Little Fireface Project asked if we would like to name her. We suggested Star – as all the animals in a maternal group are given a name starting with the same letter. She'll be in good twinkly company as an older loris in the 'B' line is called Bintang (which means star in Indonesian).

© Doc Warratt

## What can I do?

The challenges for conservation can sometimes seem insurmountable, but we are firm believers that little actions add up. Why not try one of these this spring...

- 1** Sow a nectar-rich, wild-flower mix for pollinators. Even a window box will make a difference. You can buy Seedball seedbombs in our online shop [www.ptes.org/shop](http://www.ptes.org/shop), perfect for quick, bee-friendly flowers.
- 2** Avoid trimming hedges and shrubs until winter when this year's baby birds have fledged and baby mammals are fully grown.
- 3** Take the Plastics Pledge and say 'No thank you' to single-use plastics such as drinking straws, cutlery, drink bottles and coffee cups.



© iStockphoto.com/DanmarkKuzniek



# For the love of hedgehogs

update

**Where are our beloved hedgehogs? It's a question PTES has been attempting to answer, with the help of the British Hedgehog Preservation Society and an army of researchers and volunteers for whom collaboration and the hedgehog's enduring popularity are key, as Amy-Jane Beer discovers.**

One of my earliest memories is of a hedgehog. Or rather, of the mysterious, faintly alarming *toc-toc-toc* sound made by one with its head stuck in a yoghurt pot as it blundered around on the patio, colliding repeatedly with the dustbin. My dad, a hero in more ways than one, went out and extricated the befuddled animal and we watched it snuffle along a flower bed and out through the hedge at the bottom of the garden. That was 1973, and I was two or three. If I was growing up now, such an experience might be far from everyday.

It's ten years since hedgehogs became a priority species for conservation in Britain, following alarming evidence of their decline, much of it gathered by PTES and the British Hedgehog Preservation Society (BHPS). Since then both organisations have continued to push hard on all fronts, accumulating more data, devising and implementing conservation measures, and spreading the word through an amazing network of over 47,000 local Hedgehog Champions.

Perhaps the most striking thing about current hedgehog

research is the level of collaboration. And while this might seem an obvious way to make progress, it isn't always the case. Territoriality is as common among scientists as it is in wildlife. But not in hedgehogs, and not, it seems, in the people who study them. 'Collaboration is absolutely

fundamental' says Lucy Bearman-Brown of Hartpury College in Gloucestershire, of her work with colleagues at both Nottingham Trent and Reading Universities, 'We couldn't work without it.' And the same #TeamHedgehog spirit is apparent elsewhere, uniting individuals and institutions, academics and amateurs, charities, NGOs and community groups across Britain and Europe. 'Social media plays a part', says Abi Gazzard, whose study of urban hedgehog ecology in Reading relies on access to dozens of private gardens. 'Community involvement is so important, and we organise a lot through Facebook.'

Aided by social media and smartphone technology, we're in the age of the citizen scientist, with enormous public

engagement in recording efforts like PTES' *Living with Mammals* and *Mammals on Roads* and the RSPB's *Big Garden Birdwatch*. This influx of data is proving invaluable in tracking the fortunes of our wildlife, but when it comes to hedgehogs, there's another factor. After all, the hedgehog is the nation's favourite mammal (confirmed by a public poll in 2016, as if there was any doubt), a creature which author, BHPS spokesperson and self-confessed fanatic Hugh Warwick often claims is the most important species on the planet. And he has a very valid point. Hedgehogs matter, not least because as generalists, their decline is indicative of a wider ecological malaise. On the plus side, if we can fix the problems hedgehogs face, we'll probably have fixed a whole lot of other issues as well, including fragmentation of habitats and communities and widespread declines in bioabundance and biodiversity caused by agricultural intensification.

It's three years since a landmark report, *The State of Britain's Hedgehogs*, detailed the results of four major recording efforts: *Living with Mammals* (PTES); *Mammals on*

*Roads* (PTES); the *Breeding Bird Survey* (BTO, RSPB and JNCC) and the BTO's *Garden BirdWatch*. All pointed to a protracted and worrying decline. Now there's a follow-up, *The State of Britain's Hedgehogs 2018*. Three years may not be long, but the studies are tracking

a rapidly changing picture, and identifying emerging patterns is key to improving the outlook for hedgehogs and other species.

The news is mixed. There is a real contrast between the fate of hedgehogs in urban and rural areas. New results reinforce the message that rural hedgehogs are in trouble. The problems they face include the intensification of agriculture, with its associated loss and fragmentation of habitat, and reduction in the availability of prey. Insects are a vital component of the hedgehog diet and if our insect fauna has suffered anything like the declines reported from a German nature reserve last year (more than 75% since 1989), it won't only be hedgehogs that are suffering from inadequate food. Roadkill is a particular

**Hedgehogs matter, because as generalists their decline indicates a wider ecological malaise. But if we can fix the problems hedgehogs face, we will probably have fixed a lot of other issues as well.**

problem on rural roads, which are poorly lit and have higher speed limits than urban routes. Then there's predation. Both foxes and badgers kill hedgehogs, though generally only badgers tackle adults. It's not yet clear how much of a threat is posed at population level, but ecologists at the Wildlife Conservation Research Unit, University of Oxford recently published a paper examining the data and showing a positive correlation between abundances of hedgehogs and foxes at the 10km square level. This suggests that habitat areas that suit foxes are also good for hedgehogs. When it comes to badgers the data show a negative correlation. In other words, areas with lots of badgers tend to have fewer hedgehogs. However, in some places, the two species appear to coexist as they must have done for millennia. There is more work to be done about this and other potential rural challenges, such as competition for invertebrate food from rats and stocked pheasants.

PTES grantee Lucy Bearman-Brown is looking specifically at another aspect of rural hedgehog ecology, namely hibernation sites. With the extensive grounds of Hartpury College and Nottingham Trent University's Brackenhurst campus as study sites, she's found a clear tendency for hedgehogs to select hibernation sites close to buildings. 'In my radiotracking studies there were nights I'd search for hours over acres of fields and yet the only nests I'd find were within a stone's throw of the carpark. In fact I can see three nest sites from my office window! For reasons we don't yet fully understand, rural hedgehogs seem to be associating with buildings, both in summer for breeding and in winter for hibernation.'

PhD student, at the University of Reading, Ben Williams says he grew up without ever seeing a hedgehog. 'Older generations talk of hedgehogs being everywhere in gardens, but it wasn't like that for me, or for a lot of other people I



## You can help hedgehogs

There are so many ways you can help our prickly friends, here are just a few ideas:

**Link your garden:** Hedgehogs can roam around a mile each night but fences and walls are getting in the way of their plans! It's important that we link up our gardens with *Hedgehog Highways* – 13 x 13 cm holes – to let them through. Every hedgehog hazard removed and every new hole in a garden fence can make a difference for hedgehogs, opening up important habitat for them to safely make use of. And it's not just hedgehogs that benefit. Gardeners stand to gain from the natural pest control and hedgehog themed events are working wonders for neighbourhood relations.



**The BIG Hedgehog Map:** If you've made a *Hedgehog Highway*, please put it on the [bighedgehogmap.org](http://bighedgehogmap.org). Ensure everyone knows what the hole is for by marking it with one of our snazzy *Hedgehog Highway* signs, available from [ptes.org/shop](http://ptes.org/shop). And don't forget to tell us whenever you see a hedgehog (dead or alive). Report it at [bighedgehogmap.org](http://bighedgehogmap.org).

**Living with Mammals:** Between the last week of March and the end of June, tell us what's going on mammal-wise week-by-week in your garden or other neighbourhood space at [ptes.org/LwM](http://ptes.org/LwM)

**Mammals on Roads:** From July to September use our handy app to report wild mammals spotted on car journeys. Search for 'mammals on roads' and download the app free at Google Play or the App Store, or take part online at [ptes.org/MoR](http://ptes.org/MoR)

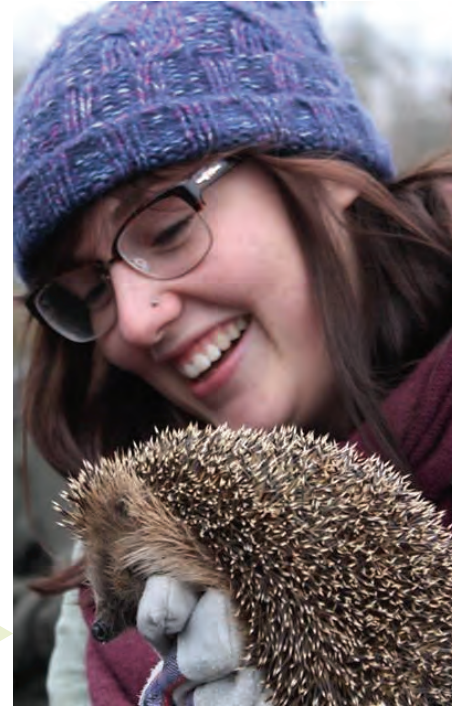




**ABOVE:** This spring hoglet, photographed by Hedgehog Champion Cate Barrow, should have a good chance of surviving the winter.

**LEFT:** Hedgehog researchers like Lucy Bearman-Brown have to be as nocturnal as their subjects.

**RIGHT:** Like most hedgehog researchers, Abi Gazzard finds the job is as much about sharing the love as it is about science.



## Fact File

### SPECIES NAME

*Erinaceus europaeus*

### COMMON NAME

Hedgehog

### DISTINGUISHING FEATURES

The only European mammal covered in prickles. Adults 16–25cm long, weighing 400–1500g (the latter in autumn).

### HABITS

Crepuscular and nocturnal, typically hibernates between November and March. Omnivorous feeder, typically travelling a mile a night in search of food including a wide variety of invertebrate prey.

### LIFE HISTORY

Usually 4–6 babies born in spring after about 33 days gestation. Prickles harden within hours, weaned at 5 weeks, breed at one year, may live up to 10 years, if lucky.

### HABITAT & DISTRIBUTION

Hedges, woodlands and connected gardens provide ideal habitat in most of lowland Britain, Ireland, and mainland Europe.

### CONSERVATION STATUS

Declining and listed as a priority species for conservation in the UK.

know. It feels important to be doing something about that'. Ben is completing his PhD in a series of collaborative projects with Nottingham Trent and Cardiff Universities, with funding from PTES and BHPS. Much of his work focuses on population genetics, and in particular the impact of major rural roads on gene flow. Early indications are that the barriers posed by roads like the M4 may not be total. 'Our analysis isn't complete', says Ben, 'but we're seeing signs of connectivity. This could be the result of carers releasing rehabilitated animals in new areas, but it may suggest that some hedgehogs were able to cross these big roads. But that's likely to be a changing picture. The concrete central barriers being installed along motorways and dual carriageways are a significant obstacle whose impact may take a few generations to be apparent.'

There's more reason for optimism in towns. For example, between 2004 and 2012 the proportion of sites recording hedgehogs in PTES *Living with Mammals* survey fell sharply. Since 2012, the decline appears to show a levelling out – and by some measures even an upturn. A similar story is being told by data from BTO's *Garden BirdWatch*, which also gathers mammal records. Why should this be? Conservation biologist Abi Gazzard is using radio-tracking and footprint tunnels to study the movements of hedgehogs in urban environments in Reading – and looking into the features that make some gardens

particularly attractive. In a study taking place over several years, she also hopes to be able to monitor how habitat use changes when homeowners open up access to the gardens by making holes in fenced gardens. Again, the enthusiasm of the public is key – this is research that relies heavily on community participation but that, says Abi, has been an easy sell. 'It's a massive help that hedgehogs have such a big fanbase. They are so charismatic and tolerant of being watched, everyone seems to love them, and many people are already well aware of the decline, having seen it for themselves'. So she now has footprint tunnels in over 70 gardens, which householders check weekly. Ben Williams has met a similarly enthusiastic response. 'The interest shown by the public and their willingness to participate has been uplifting. We've had volunteers doing all sorts of things – including collecting droppings. It's not glamorous work, but this is an animal people love'.

So while the *State of Britain's Hedgehogs* report is no cause for celebration, we should be encouraged. It's not too late. Please sign up to the *Hedgehog Street* campaign at [hedgehogstreet.org](http://hedgehogstreet.org) to become a Hedgehog Champion. And PTES and BHPS are already looking at new data sets from further survey work. 'Hedgehogs are a long-term commitment for PTES and the team at Hedgehog Street', says Hedgehog Officer Emily Wilson, 'I hope we can be here as long as they need us'. ●

# Field notes: Dormouse detectives

Alison Looser and Simone Bullion of Suffolk Wildlife Trust have been trialling a new method for surveying one of Britain's most elusive small mammals.

Surveying hazel dormice is rarely easy – not only are they small and nocturnal, they spend up to three quarters of the year tucked up in hibernation or summer torpor, and their active hours are mostly spent well out of sight in trees and dense thicket vegetation. Recording their presence is often a case of searching for field signs rather than the dormice themselves.

We've been investigating the potential of a new monitoring technique using footprint tunnels and comparing the results with those from traditional methods such as searching for gnawed nuts and surveys using nest boxes and nest tubes. Dormouse footprints are easily distinguished from those of other small mammals, as they have distinctive triangular-shaped palm pads, while the pads of similar-sized wood and yellow-necked mice create rounded marks.

We surveyed a dozen sites in south Suffolk, placing 50 nest tubes, 50 nest boxes and 50 footprint tunnels at each site. We divided our sites into areas of woodland, hedgerow and scrub. Each site was surveyed from early April to late November, with regular checks of the tunnels, tubes and boxes and additional searches for nuts and natural nests.

Of the 12 sites, 10 showed evidence of dormice and we found the footprint tunnels to be a very sensitive method of detection. In total we recorded 1680 sets of dormouse footprints over the year, from 316 different tunnels. We found a total of 93 individual nests in nest tubes and 61 nests in nest boxes and recorded 182 actual dormice throughout the season. Overall, the footprint tunnels gave a detection rate

of approximately 28%, compared with 3% for nest tubes and 2% for nest boxes.

In addition to their efficacy, tunnels have several further advantages. They can be used without a licence, although training in their use is recommended to ensure the best outcome. They may be more suitable in areas where there are high levels of public disturbance, as the risk to dormice is reduced. They're also cheap, costing about £2 per unit, excluding the card, oil and carbon powder. We're delighted by the results. ●

## Footprint tunnel design

The footprint tunnels are made from sections of square black drainpipe, with plywood inserts forming runways and a landing platform at either end of the tunnel. Footprints are recorded on a replaceable white card in the middle of the tunnel. At either end of the card are strips of inked masking tape, which a passing dormouse cannot avoid walking over. The special 'ink' is homemade from a mixture of ultra-fine activated charcoal powder and olive oil. Unlike water-based inks, this mixture doesn't easily dry out when exposed to the air.



**ABOVE:** The footprints left by dormice in the tunnels (left) are easily distinguished from the round marks left by true mice such as wood mice (right).

**LEFT:** The footprint tunnels resemble the tried-and-tested nest tubes widely used for monitoring purposes.





# Toxic shock

The recovery from near extinction of polecats in Britain since the early 20<sup>th</sup> century is a great success story, but recent research suggests that a worrying majority are being exposed to anticoagulant toxins used to control rats.



Research in the 1990s showed that approximately 30% of English and Welsh polecats had traces of one or more rodenticides in their livers. Since then, polecats have expanded in numbers and range, but given the increasingly widespread use of ever more potent rat poisons, we decided it was time to look again at the issue. We funded **Katie Sainsbury** at the University of Exeter to do the work. The results are sobering, with 79% of examined polecats now testing positive. Some of this increase may be due to improvements in the sensitivity of analytical techniques but, even taking this into account, there's still a 1.7 fold increase.

Despite the apparently widespread exposure, Katie's results can't tell us how

much, if any polecat mortality can be attributed to rodenticide poisoning. Most of the results come from the victims of roadkill, and the recovery of polecats nationally appears to continue. However it is possible that rodenticides may be hampering this recovery, or may do so in future.

Minimising the exposure of non-target animals to what are inherently inhumane substances is clearly desirable. And yet surprisingly little is known about how and where rodenticides are used in different landscapes. So the next steps for Katie and her colleagues are to investigate how different usage practices might affect the risks of exposure and how these risks can be reduced for polecats and other wildlife. ●



**LEFT:** Polecats are making a welcome comeback into England from their Welsh stronghold.

**BELOW:** Post mortem analysis can indicate the presence of ingested toxins but it's not always clear what role these might have played in death.



## Field notes: Tales from the riverbank

A wet English riverbank might not be everyone's ideal office, but **Merryl Gelling** of the Wildlife Conservation Research Unit, University of Oxford, thrives on the outdoor elements of her water vole research.



How do water voles respond to disturbance of vegetation in their riverside habitats? I've always been a practical person, so when it came to answering this question, often asked by and of ecological consultants, the logical approach was to get out and see for myself. Hence, supported by PTES, I found myself on a series of beautiful river banks, persuading landowners to let me remove vegetation from small sections to see whether water voles would subsequently move away. The responses varied from 'No problem' to 'Desperately need research, but do it elsewhere', but eventually we acquired enough sites for a rigorous study.

We needed to radio-tag the water voles before vegetation removal, and that means catching them. After trawling the riverbank for tell-tale signs of well-used areas, we set traps. Doing so effectively means thinking like a vole. Water voles are prey for all kinds of predators, and so traps need to be placed in dense riverside vegetation, adjacent to well-used feeding stations or latrines – places where the voles feel safe. Inevitably I ended up in the river on more than one occasion while trying to ensure the traps were stable, hidden and not likely to be rolled into the water by an active occupant. Apple, as all water vole researchers know, makes a tempting lure – but not just any apple. 'Pink Lady' seemed to work best – these are rodents with expensive tastes!

The long hours, the English weather and the large amounts of equipment we needed to hump around made it hard work. But watching a water vole oblivious to your presence, methodically pulling down stem after stem of vegetation, rejecting the last pieces in a pile of feeding remains? Some might call it priceless. And if our research helps protect vulnerable populations, it's definitely worth it. The results will be published soon. ●



# Field notes: In search of giant otters



Adi Barocas is embarking on another PTES Conservation Partnership, monitoring giant otters in the Peruvian Amazon. These impressive carnivores have been enjoying a modest recovery – but the expansion of gold mining brings new challenges.

It's early morning on the lower Madre de Dios river. With my field assistants, Panchito and Juan, I step off our project boat, the *Chavaropana* (meaning 'giant otter' in the Matsigenka language) and follow a trail past gravel mounds and pools of murky brown water – signs of active gold mining. In sand by the trail, Panchito sees fresh otter tracks. We approach an oxbow lake with a small pool containing a *chupadera*, a machine for pumping sediment and water from the lake bottom, and stop to inflate our research kayak.

From the inflatable, we scan the banks with binoculars. I'm new to giant otters, having recently joined a team made up of researchers from San Diego Zoo Institute for Conservation Research and the Wildlife Conservation Research Unit, University of Oxford. I don't know much about these otters yet, but the chances of finding one in such a disturbed site seem slim.

It turns out I'm wrong. After 15 minutes, Panchito whispers "lobo." *Lobo de rio* – literally 'river wolf' – the local name for giant

otters. This one swims past our kayak, inspecting the intruders before disappearing into the swamp vegetation.

As we disembark, two miners arrive to start their morning's work with the *chupadera*. They tell us about a football tournament they took part in the previous day, admire our new boat and ask what it's for. We say that we're here for the otters, but don't mention mining.

We take the trail back to our boat and move downriver. At the next heavily mined lake, we again find giant otters, a pair this time. This is the first detailed survey of this area since 2008, when only one group was found in these seven oxbow lakes. Finding several giant otters persisting here is both encouraging and surprising, and provides us with an opportunity to assess the effects of habitat destruction and water contamination on these large carnivores. Jessica Groenendijk, who's studied giant otters here for several years, thinks they may be mostly solitary individuals trying to establish new territories and families after

leaving their birth group. They may have to settle for lower quality territories, since the good ones are already taken by others.

We'll return several more times over the next five years to monitor the situation and assess the impact of mining activities on the otters' ability to hunt, survive and reproduce. We'll also sample fish and compare the results with those from the protected, more pristine waters of Manu National Park. ●



**TOP:** Giant otters are highly social, with families of up to 20 living in close-knit groups.

**ABOVE:** An inflatable kayak is the ideal vessel for exploring the complex and changeable habitats of oxbow lakes, which are only connected to the river during seasonal floods.

**LEFT:** Giant otters are carnivores. The team will be checking fish caught near mines for signs of chemical contamination.



# Elephants for neighbours



Wild elephants aren't easy to live with, especially when pressures on their natural habitat force them ever closer to human settlements. We're tackling this thorny problem in Sumatra, home to a critically endangered subspecies of Asian elephant.

**A**manda Korstjens of Bournemouth University has seen for herself the damage done by raiding Sumatran elephants in the island's Leuser ecosystem – crops obliterated, homes destroyed, lives and livelihoods threatened. The problem is caused by drastic deforestation, which leaves the elephants nowhere else to go – and that's a problem for everyone. We're funding Amanda and her Anglo-Indonesian research team to discover exactly how elephants use the Leuser landscape, so that future conservation measures can target the most important habitats. It's vital that reserves are created in the right places, and that they are connected by corridors the elephants will

use. The project team has already been gathering information on the movements of elephants by conducting transect surveys to record the quantity, location and condition of dung heaps. This can indicate elephant activity across different areas. The team is training rangers in the survey methodology, and supporting four Indonesian students to do some related research work. Drones are also being used to survey the project area – mapping habitat and vegetation types so that the authorities can base their decisions on sound ecology and create a landscape in which humans and elephants can live peacefully, side by side. ●



# 500 and counting



The status of Kenya's critically endangered hirola antelope is hanging in the balance, with just 500 individuals remaining in the wild. With PTES support, **Ali Hussein** is pulling out all the stops to save them.

**O**f 91 antelope species worldwide, 25 are at serious risk of extinction in the wild. The situation for Kenya's elegant hirola is especially perilous. The 500 individuals that remain are threatened by poaching, changes to their habitat and competition for grazing with livestock. **Ali Hussein** is tackling the problem on all these fronts in East Kenya, hoping to reduce needless losses, boost breeding success and expand the area of available habitat, all with the support of local pastoralists. Ali's vision is to bolster the hirola population and enhance livelihoods in local human communities so that poaching loses its appeal.

With PTES support, the team is restoring areas of grassland habitat which, in the absence of once abundant elephants, have become overgrown with trees. So far some 2,470 acres have been

cleared and 490 acres reseeded with nutritious grasses. Following recent droughts, one hungry hirola jumped the fence to access the restored grass, so the team are clearly on the right track. Incidences of poaching are declining thanks to daily patrols by newly recruited and trained rangers. The next priority is fences. By establishing extensive enclosures, within which hirolas and their grazing are protected, Ali aims to increase both breeding success and survival. By ensuring the project is community-based and managed by locals, who also see benefits, the project is making real headway and avoiding some of the problems encountered by previous conservation efforts. ●



**LEFT:** Ali's project sites in East Kenya, before and after grassland restoration.

**BELOW:** Hirolas are unsuited to life in captivity, so conservation of the tiny wild population is their only hope.



© Ali Hussein



## Beware, anteaters crossing

Arnaud Desbiez and his team are assessing the impact of roads on the iconic giant anteaters of the great cerrado grasslands of Brazil.



Giant anteaters breed slowly and have large home ranges, so roadkill and barriers to movement are potentially a considerable threat. Funded by PTES, Arnaud's team is surveying 1,337km of highways running through pasture and eucalyptus plantations. They record anteaters killed in vehicle collisions and the results so far are alarming, with 218 dead anteaters. Meanwhile eighteen animals, captured along one 30km stretch, have been fitted with tracking collars, in order to help the team discover where roads and traffic impact them most. The study area covers eight enormous ranches, and not all the owners were initially keen. However one rancher, whom the team had to work hard to convince, has now erected a huge sign featuring an anteater (right), urging drivers to respect wildlife. Quite a conversion! We'll keep you posted as the project continues. ●



© Stockphoto.com / Gabalip

## Healthier progress for Ethiopian wolves



Encouraging signs of recovery for rare canids in the Bale Mountains.

Some while ago we supported Claudio Sillero's pioneering work with Africa's rarest and most threatened carnivore. The programme continues despite political upheaval in Ethiopia, and wolf numbers are up again by a third after recent outbreaks of rabies and distemper.

Disease is a major threat to these magnificent animals and it's vital that outbreaks are detected quickly and efficiently. The training provided by the project to local management teams and veterinarians ensures they know exactly what to look out for. Meanwhile, to reduce the risk of disease transmission, over 3,300 domestic dogs living in and around the National Park have been vaccinated. These practical measures are backed up by outreach work in local communities and schools, raising awareness of the infection risk to the wolves from domestic livestock. And to make sure that no more local populations of wolves become extinct, a translocation programme is underway. ●



© Claudio Sillero

## Beleaguered bonobos



Bonobos are only found in the Democratic Republic of Congo, where fewer than 25,000 remain. They're facing threats from illegal hunting for bushmeat and the wildlife trade as well as loss and fragmentation of their forest home.

The Iyondi Community Bonobo Reserve (ICBR) should be a haven for these remarkable apes, the gentler cousins of chimpanzees, and our closest non-human relatives. But numbers here are dwindling. Poaching and encroachment are rife in the south of the reserve and evidence collected by our partner organisation, the African Wildlife Foundation (AWF), shows that rangers are essential in limiting harmful interactions with humans.

Following our successful partnership with the AWF in another reserve, we're now equipping 24 rangers and eight local scouts to carry out regular patrols. They've already started in the southern quarter of ICBR and aim to cover the whole reserve over the next two years. To secure local revenue to support long-term conservation, the team has also persuaded the provincial governor to allow controlled wildlife tourism in the reserve. ●



© Billy Dodson



© Henry Schofield

## Field notes: Wild bat chase



Fancy the life of a bat biologist? PhD student **Patrick Wright** of the Vincent Wildlife Trust shares an insight.

**S**unrise catches up with me on the M5 on my way to a special piece of broadleaved woodland near Trowbridge in Wiltshire. I'm due to meet seasoned bat monitors Keith Cohen and Lis Weidt and a group of volunteers for a day of bat box checking. This type of woodland reached an all-time low in Britain during the 20th century, and habitat fragmentation is a serious problem for woodland specialist species – even flying ones. I want to find out how closely British populations of the little known Bechstein's bat are related and whether they show signs of isolation and inbreeding. I'll use this information to see what effect landscape features such as roads and urban areas might be having on the genetic connectivity of populations.

It's physically tiring work – the siting of the boxes requires us to carry a ladder for access but, thanks to a pungent batty whiff, it's often possible tell an occupied box before it's even opened. A quick peek is enough to identify the large ears and foxy faces of Bechstein's bats and they are lifted out carefully and placed in cloth bags. Newcomer volunteers get a chance to see

the species up close, but weighing, measuring and ringing is done swiftly to minimise disturbance. I take samples to use for molecular profiling back in the lab.

Next day I'm at Bernwood Forest Buckinghamshire, to meet my supervisor Henry Schofield and local ecologist Chris Damant, who has identified potential Bechstein's roosts using radio-tracking. This is worth investigating as the site is at the edge of the species' known range. A promising hole in a large oak turns out to still be occupied by a green woodpecker. No point trapping there, but the nearby woodland looks good, and we set up the harp traps just after sunset.

Within thirty minutes we have a Natterer's bat, then a Daubenton's. Several more follow, but it's gone eleven when we catch first one, then a second Bechstein's. Both are females, the first we estimate to be just two months old – full-grown but with her delicate finger joints not yet fully ossified. By 1.30am things have gone quiet. The sky is clear and the air is getting colder so we call it a night. There are plenty more trapping nights to come. ●

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

### DHOLES



© Bobber/Cow

Jan Kamler's project investigating the range and feeding ecology of Asian wild dogs in Cambodia has provided valuable insights into the species' requirements. The results will be presented to the Cambodian Environment Ministry this year in order to inform future conservation. ●

### SIAMESE CROCODILES



© Flora and Fauna International

Also in Cambodia, our joint efforts with Fauna and Flora International to protect Siamese crocodiles continue, funding reintroductions, sanctuaries and regular monitoring of the remaining precious colonies by community wardens. ●

### TIGERS



© Alice Masters

Intern **Alice Masters** is developing a field-based method for quickly extracting tiger DNA from samples of dead material. The technique will identify the material to subspecies, providing valuable data for conservation and law enforcement authorities. ●

# The Insider's Guide to... Habitat surveying



Our Insider is **Megan Gimber**, Key Habitats Project Officer for PTES. Megan leads our Wood Pasture and Parkland project.



## What and why?

Understanding habitats is crucial in the fight against extinction. When trying to understand why a species is declining, ecologists start by looking at the places where the species lives. The condition of a habitat can give insights into the reasons for the decline and suggest ways to halt, or even reverse it.

A lot of conservation work relies heavily on people-power, and volunteers can make huge contributions to habitat surveys. Many of the statistics you hear about wildlife and wild places come from large-scale, citizen science surveys, which collect data in quantities that would be otherwise impossible.

A huge amount of what we know about the scale of habitat decline, and about the condition of what remains, comes from volunteers. With a detailed understanding of habitat conditions, we're better placed to know how we can help, be it by focusing on specific locations, isolating a cause or identifying common issues affecting poor condition sites. We can also discover how well-connected the remaining good condition sites are – a crucial factor in the survival of the species that depend on them.

## Step 1 – Plan your survey

First, it's necessary to define a survey area. For our wood pasture, parkland or orchard surveys, we consider where volunteers are based, how far they are willing to travel, and then send out maps of sites that need surveying nearby. Or, if there's a specific site that someone wishes to look at, we can make a map of that instead. Surveyors need permission from the landowner and to agree a suitable time to visit.

If you're heading out on a survey there are a few other things that can usefully be done in advance. For example, for our wood pasture survey, you need to be able to estimate distances by pacing

– much more practical than struggling with a tape measure in brambles or tangled around a tree.

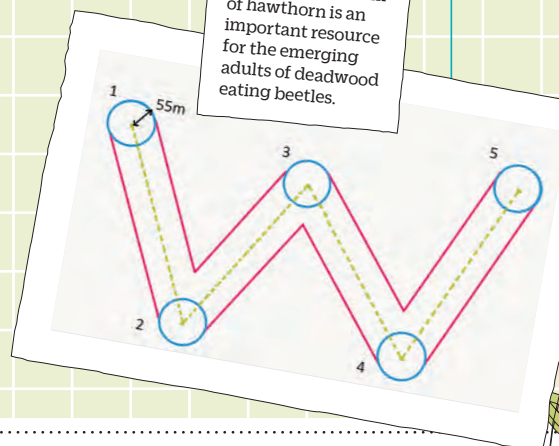
## Step 2 – Measuring and estimating

In almost every habitat survey, there's a need to record, measure or estimate aspects of the habitat. In combination these give a detailed snapshot of the site. For instance, counts of trees and estimates of percentage grass or canopy cover can tell us whether a wood pasture has the right structure to promote open-grown trees. It also indicates how tree density might affect the pasture and whether the site is at risk of 'infill' (that is gradually converting to secondary woodland through neglect).

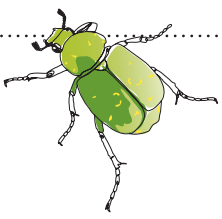
It takes a while to get your eye in, but we have some tips to get volunteers started. It's always good to walk around the site because impressions of things like canopy cover vary surprisingly from different viewpoints. We supply a visual



Surveying is great for honing ID skills. The spring blossom of hawthorn is an important resource for the emerging adults of deadwood eating beetles.



In our wood pasture and parkland survey we ask volunteers to walk a structured route. Here, the blue circles represent point surveys, where counts and estimations are made, while the zigzag line is a series of transects which surveyors walk and note what they see.



guide to indicate how those percentage covers may look.

While accurate estimates are important, a couple of percentage points either way won't matter too much, as the difference between, say, 36 and 37% isn't critical. However arranging to survey with another person and averaging estimates when perceptions differ can improve reliability, and make the day more sociable.

### Step 3 – The specifics

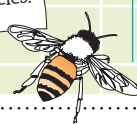
As well as measuring, you'll often be asked to search for specific habitat features. For example, in both our wood pasture and orchard surveys we're particularly interested in dead wood – a rare habitat, home to even more rare species, and an important indicator of good habitat condition.

We may ask surveyors to search for particular animals or plants. For example, knowing whether a site has a range of shrubs like hawthorn, elder, bramble and willow helps us know whether there's enough pollen and nectar for emerging beetles and other pollinators. Many of the rare species inhabiting dead wood do so only as larvae, but when they emerge as adults it's this floral forage they need.

Occasionally, a rare or threatened species might be the reason for the survey. As part of the orchard survey we ask volunteers to look for signs of noble chafer beetles. This is an unusual challenge, involving searching through wood mould in tree rot holes for the 'frass' (droppings), that indicate the presence of larvae.



As the dead heartwood of a tree slowly decays, it becomes both food and nursery for an amazing array of insects. The deadwood in hollowing trees is an increasingly rare habitat, home to increasingly rare species.



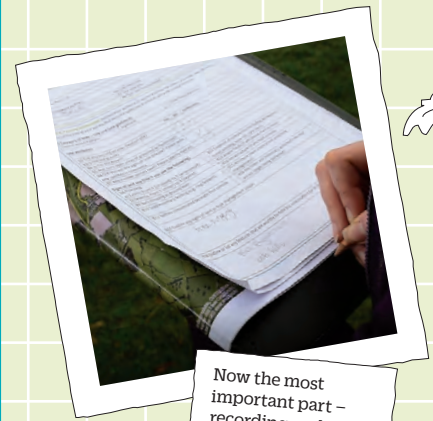
Veteran trees may hold the most wildlife value, but young trees are the veteran trees of the future. Looking for saplings can also help us understand whether the grazing levels are appropriate.



Estimating canopy cover is usually done by eye and becomes second nature with a little practice. This picture shows about 80% cover.

### Step 4 – The data

Data submitted to PTES, whether on paper, via an app or through our website, goes into our central databases. Analysis reveals the areas of the country where a particular habitat is in favourable condition, and this is a good head-start in the search for remnant populations of endangered species. It often also highlights areas of degradation, which can be useful in directing restoration or other efforts.



Now the most important part – recording and submitting the data! We accept results on paper, online and via our specialist survey apps.

## In practice

Wood pastures and parklands are characterised by big, old trees in open pasture-land, often containing some of the oldest living specimens in our countryside.

Though they provide a direct link to bygone landscapes and positively teem with life, including many rare and threatened species, these sites have been historically overlooked and understudied. Our current survey project is seeking to change that, but we are essentially starting from scratch. There are no reliable estimates of either the extent or the general condition of this incredible habitat, so all the data we are sent really helps.

The survey is both enjoyable and relatively simple to do, and yet it can tell us so much. If you fancy a proper 'walk in the park', and would like to volunteer to survey, please visit [www.ptes.org/wpp](http://www.ptes.org/wpp)



Heading for the spreading shade of an open-grown oak



African lions are in trouble. Numbers have halved in 20 years with only 24,000 remaining, making them as rare as rhinos. Pressure is mounting as their living space vanishes, their prey are poached for bushmeat and conflict with local people increases.

Human-wildlife conflict is one of the most severe and rapidly growing threats facing wildlife today. Lessons learned from the lion work we support in Africa are informing wildlife conflict resolution worldwide.

Your support is vital.

Thank you.



people's  
trust for  
endangered  
species