

WILDLIFE

world

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Number 5

UK

Orchards latest
Water vole monitoring
Hedgehogs &
horticulture
Newts on the move

people's trust for endangered species |

OVERSEAS

Sea turtle update
Marsupial frogs
Cybertracking bonobos
Saving the big cats of Iran
Monitos del monte

Counting on you: 25 years of dormouse data

NATURE VS TECHNOLOGY

How can we make the most of technology without getting carried away?

BEAUTIFUL BRIDDLESFORD

Our island reserve is better than ever, thanks to careful management and volunteer help

WILD GARDEN

How to create a wild flower meadow in your own back yard





The winter of 2013/14 may have been unusually short, but boy, was it bad-tempered! Our local woods are a wreckage of snapped trunks and toppled trees, many of them still held in a precarious, creaking embrace by their neighbours. They should have been taken down by now, but such is the backlog of work created by February's storms, it hasn't happened. On the nearby East Yorkshire coast, beaches, cliff edges and a large part of Spurn Head disappeared in December's huge tidal surge. Two months later, on holiday in north Norfolk, I thought I might have found them again – dumped unceremoniously on the beaches of Blakeney and Cley, which lie 10 feet deep in shingle that wasn't there last year. Elsewhere, thousands of Christmas dinners were cooked on camp stoves, while others spent miserable weeks needing wellies indoors as well as out.

After a few years where cold and snow grabbed the headlines, it's been a sobering reminder that wind, rain and tide can be more devastating. And yet all this was followed by honeybees and birdsong in February and violets, primroses and blossom by the beginning of March. Spring seemed to arrive at least a month early, and nature wasted no time taking advantage – the green shoots of her recovery were well established before the

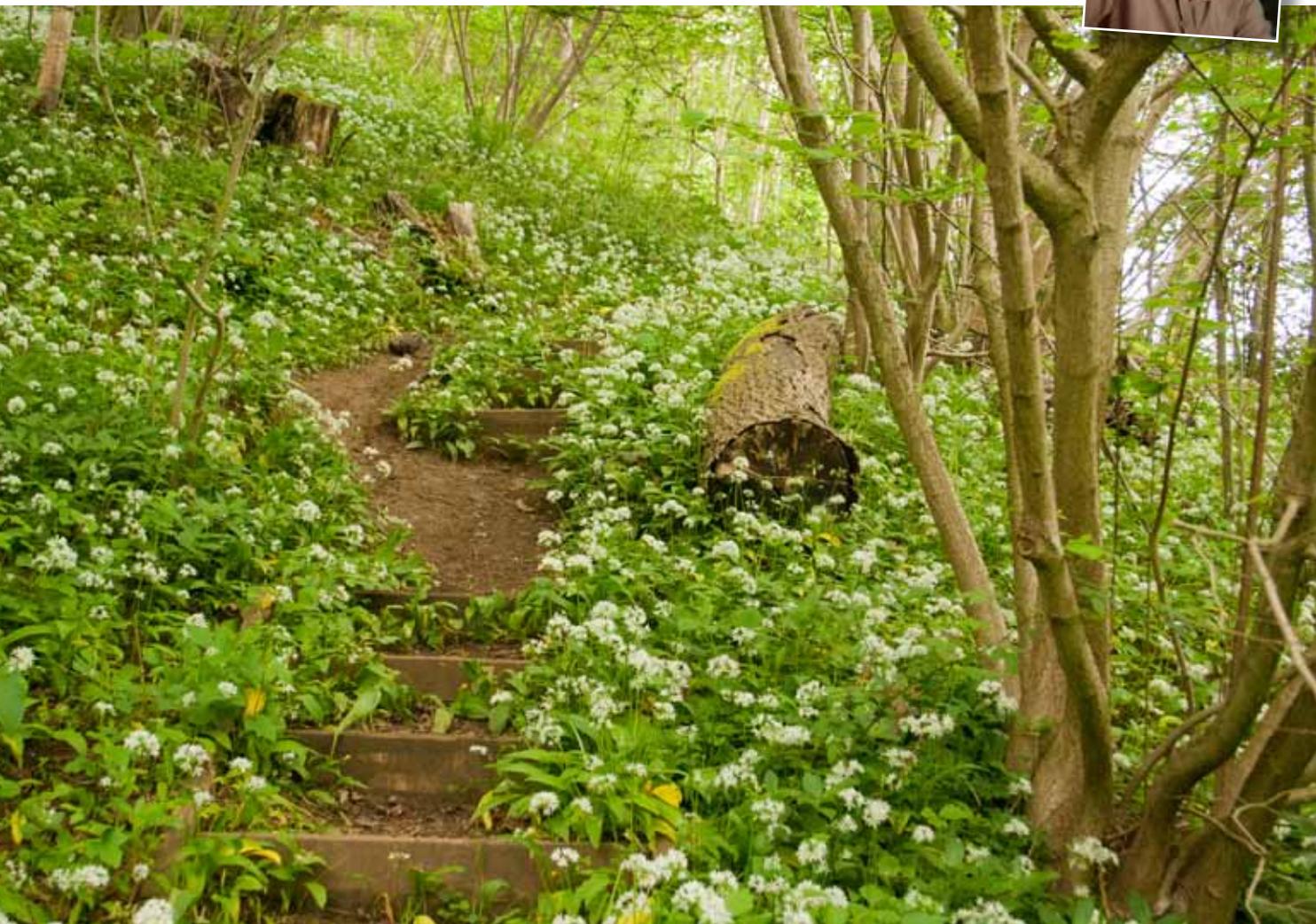
bureaucratic and logistical cogs of human infrastructure creaked into gear. But let's not be complacent. Nature may be magnificently responsive, but for individual species, the extremes we're experiencing make some life and death judgements difficult to call: when to rouse from hibernation, when to germinate, when to breed... timing matters. And as climate change modifies the rules, some will be caught out. In these changing times, it's vital that we take notice and consider the implications. Cue the many surveys and monitoring projects made possible by PTES.

I hope you enjoy this edition of *Wildlife World* – and look forward to the next one in which a fresh and exciting new look for both PTES and the magazine will be revealed...

Dr Amy-Jane Beer
Editor



Dave Willis



Wildstory.co.uk



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Make this magazine work harder...

When you've finished with this copy of *Wildlife World*, please pass it on to someone else or donate it to a waiting room collection – you might find us a new supporter!

If you've picked up this magazine and enjoyed reading about the projects that PTES funds you can support us for just £3 a month and receive two issues of *Wildlife World* every year. Please contact us at the address below for details.

people's trust for
endangered species



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Our Dormouse Monitoring conference held at the University of Reading attracted over 200 delegates. Talks by Pat Morris, Hazel Ryan, Lorna Griffiths, Sarah Bird, Simone Bullion, Ian White, Nida Al Fulajj, Roger Trout and Jack Grasse generated plenty of discussion and food for thought.



We've been selling the delicious apple juice from our own orchard at Rough Hill.



Lesser celandine



Wood anemone

Our favourite spring flowers have been out in force at Briddlesford!



Early purple orchid

Diane White

The mild weather brought hedgehogs out and about early this year - well over 500 sightings were reported to our Hibernation Survey before the end of February, including this one from Hedgehog Champion Belinda.



Belinda Home

PTES likes ...

Hedgehog
by Hugh Warwick
£9.99

(paperback)
Published by Reaktion as part of their much-loved Animal series, Hedgehog is a richly illustrated journey through the fascinating iconography of Britain's favourite wild animal.



BB's Butterflies
edited by Bryan Holden

£45 (limited edition hardback)
Celebrated author Denys

Watkins-Pitchford, or BB was he was known, nurtured a passion for wildlife, and for one species in particular. This book will strike a chord with anyone who has experienced the thrill of a hunt for Britain's most impressive butterfly, the purple emperor.

On the Trail of Red Squirrels

by Will Nicholls
£25 (hardback)

This first book from one of Britain's most promising young naturalists and photographers makes a perfect coffee table introduction to the beauty of our native squirrel, and the fight to secure its future.



For details of how to join in one of our Wildlife Encounters, surveys or other PTES activities, please visit www.ptes.org or scan the code and discover how you can help wildlife at home and overseas.



Frontline

AFTER 25 YEARS OF THE WORLD WIDE WEB, AMY-JANE BEER WONDERS HOW TO FEEL ABOUT EFFICIENCY-GAINING TECHNOLOGIES WHILE OUR CONSUMPTION OF RESOURCES CONTINUES TO SPIRAL AND OUR CONTACT WITH NATURE DIMINISHES.

TWENTY YEARS AGO I popped in to the insect lab at Royal Holloway, University of London, to check on the sea urchin larvae I kept in an incubation unit there. My friend and fellow postgrad Mike called me over to his computer. Mike and I both helped teach an undergrad practical class in vertebrate zoology, which included an assignment to draw an imagined transverse section through the student's own torso. 'I thought we could show this to the Z101 guys after they try and draw themselves,' Mike said, as he tapped a string of text into what I would now call a search engine. On the screen appeared pictures of a human torso, sectioned slice by slice. 'It's called the Visible Human Project. This guy on Death Row agreed that his body could be used for science. So they sliced him up and took pictures all the way through.'



We gawped for a few minutes. It wasn't just the grisly subject matter that captivated us. What made the images so memorable to me, and had Mike bouncing in his seat, was where they were coming from. Down a phone line, we were looking at something on a computer somewhere in America. Tim Berners-Lee's world wide web was only five years old in 1994 but Mike was already hooked. It took me a little longer, but by 1998 the internet was part of daily life, and in 2000 the ease with which I could source and exchange information meant I could pursue my career from home, so I quit my job and went freelance.

The internet has changed all our lives, one way or another. And with the secondary revolutions of social networking, GPS, smart devices, and specialist apps it has achieved power few would have imagined in the early 90s. These sister technologies have revolutionised almost every kind of industry, including wildlife research. A large proportion of the modern conservationist's toolkit is IT-based, and in this magazine you'll read about sharks tracked by satellite (p8), survey information gathered by smart device apps (p6 & p15), and see the results of reams of data sorted and analysed in an instant. Perhaps you're even reading the digital edition – in which case why not share a link to PTES – important messages can go viral around the world in a matter of minutes.

Far from being a Luddite trait, critical appraisal of new technology – even that which should improve efficiency and save resources – is essential. On my desk is a book by

another Mike, and another Berners-Lee (life is confusing sometimes). Mike Berners-Lee is author of *How bad are bananas?*, the result of his attempt to calculate the carbon footprint of almost everything from imported bananas, disposable nappies and legs of lamb to actions such as sending a text message or email, or achieving a university education. His research lead him to some depressing conclusions. 'Efficiency improvements *should* be saving resources, but in the absence of a cap on the quantity of fossil fuel we extract from the ground, we find that new technologies, even those that boost efficiency, actually lead to increased consumption,' he told me.

What of another criticism levelled at technology – that it insulates us from nature? I fret that the time my three-year-old enjoys on the iPad impinges on the hours he spends with real mud and frogspawn. But only today, the same device allowed him to check the migration progress of the ospreys his grandparents help monitor at Rutland Water. Is that a good thing? Or a case of 'too much information'? I asked Mike Berners-Lee what he thought about new technologies in conservation research and spreading environmental messages.

'I do set some uses of technology apart,' he said. 'If people use it to engage in some way with nature and then make lifestyle choices that save resources or put pressure on their MP, then that could be enormously powerful. Governments need ordinary people to tell them what is important. We should be having a much more thoughtful conversation about the real impact of different technologies.'

For better or worse, we live in a digital world imposed on a natural one, and increasingly it is difficult to separate the two. Despite my social media habit I'm a fan of time offline. Just taking lunch outside offers a valuable recharge and, sometimes, I even resist the urge to immediately tell Facebook about the birdsong.

The Visible Human is still online, at www.nlm.nih.gov/research/visible/visible_human.html

How bad are bananas? by Mike Berners-Lee and his new book with Duncan Clark *The burning question*, are both available from booksellers online and off.

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



Hogging the limelight at Hampton Court

HEDGEHOGS

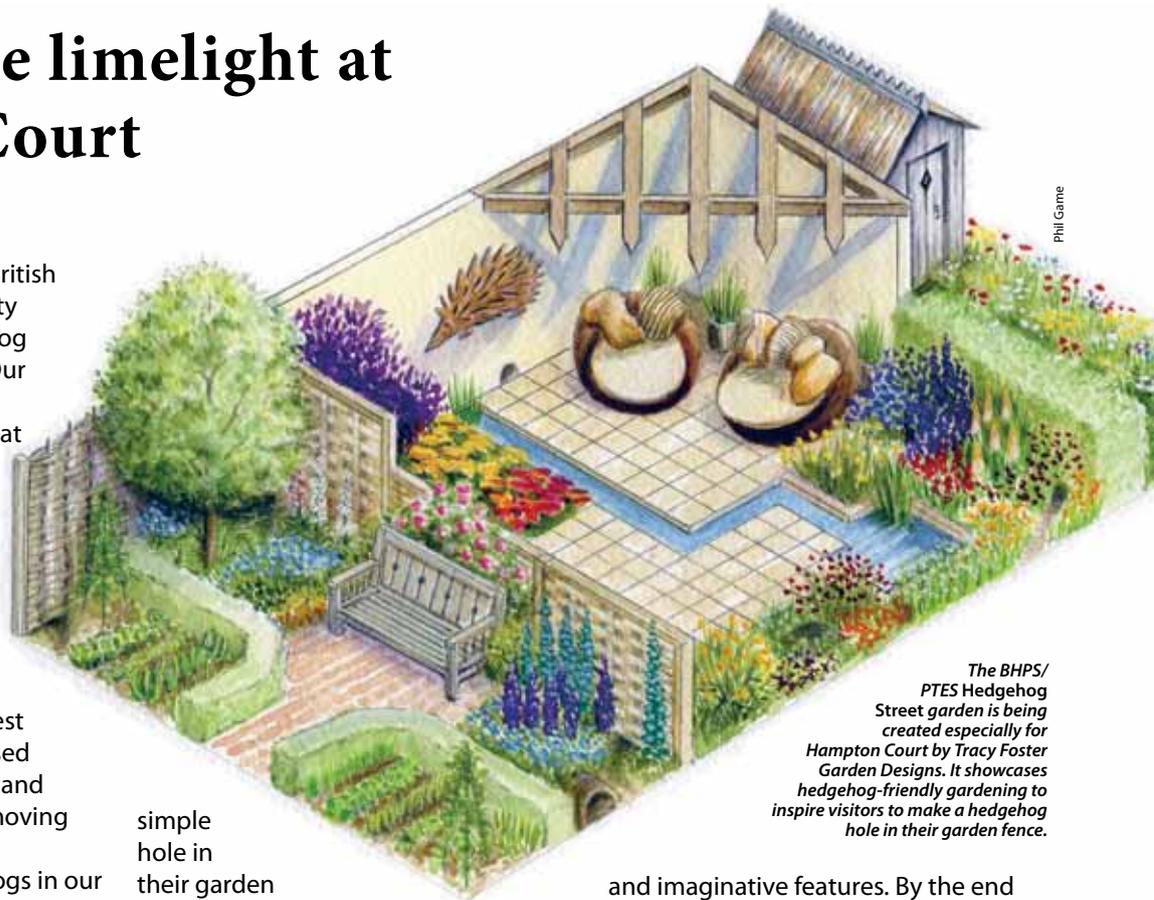
WITH OUR PARTNERS at the British Hedgehog Preservation Society (BHPS), PTES is taking hedgehog campaigning to a new level. Our proposal to create a special *Hedgehog Street* show garden at the prestigious RHS Hampton Court Flower Show has been given the go ahead. It will depict three adjoining gardens, each hedgehog-friendly and interconnected.

Hedgehogs travel about a mile every night through our gardens and parks in their quest to find food and mates. Enclosed gardens hinder their progress and we can make life easier by removing barriers within our control. It's important to nurture hedgehogs in our villages, towns and cities, especially whilst we clarify why they are in such trouble in the wider countryside.

At the Show, which opens on 8th July for six days, we will persuade visitors to make a

simple hole in their garden fences so that local hedgehogs can roam widely across urban and suburban landscapes. Hampton Court Flower Show is visited by thousands of enthusiastic gardeners. Our challenge is to show them that even the most beautiful gardens can support hedgehogs and that holes in fences can be interesting

and imaginative features. By the end of the Show we aim to have recruited 60 000 neighbourhood Hedgehog Champions (we have over 30 000 already) and to have created many more vital hectares of hedgehog habitat. Please watch out for the media coverage we expect to attract and come and visit our *Hedgehog Street* garden if you can.



The BHPS/PTES Hedgehog Street garden is being created especially for Hampton Court by Tracy Foster Garden Designs. It showcases hedgehog-friendly gardening to inspire visitors to make a hedgehog hole in their garden fence.

Phil Gamble

istockphoto.com/GlobaIP



The State of British Mammals – a focus on disease

WILDLIFE DISEASE

THE ROLE of disease

in wildlife conservation and the issue of when to intervene is the subject of the latest in the annual series of *State of Britain's Mammals* reports to be commissioned and published by PTES.

Diseases are part of life for all species, and the challenge from naturally occurring parasites and pathogens never lets up. Disease is present in all wildlife populations and doesn't necessarily either imperil them or create a conservation issue. However sometimes the combination of a novel disease that can attack lots of susceptible victims and other stresses (including pressure from

human activities) can be disastrous. What happened to red squirrels in the UK is a classic example. Grey squirrels, introduced to the UK by man, carry and transmit squirrelpox virus (SQPV). The resulting decline in red squirrel numbers is 17–25 times faster than it would be due to competition with their larger cousin alone. Thus disease has put the survival of this endangered British mammal in the balance.

As well as examining when wildlife disease becomes a conservation priority, the report also looks at

the relationship between diseases in wild and domestic mammals, the impact of bovine TB on cattle, the implications of human-mediated movements of mammal species, diseases transmissible to humans, the monitoring and regulation of wildlife disease and what the future might bring in this challenging area of conservation biology.



The State of Britain's Mammals: a focus on disease by David Macdonald, Tom Moorhouse and Merry Gelling of WildCRU, University of Oxford will be available to download free from www.ptes.org/publications.

New Cornish Mammal Atlas

CORNWALL Mammal Group has recently published a new county atlas, *The Mammals of Cornwall and the Isles of Scilly*. Written by members of the group and edited by David Groves, the book runs to 208 pages packed with information about the 56 different species of mammal regularly found in and around the county, including up-to-date distribution data and 57 colour maps. Each section is illustrated in colour by local artists and photographers. It can be purchased at the special price of £8.50 plus postage from www.cornwallmammalgroup.co.uk.



Seen a polecat?

OUR FRIENDS at the Vincent Wildlife Trust (VWT) recently launched a new national survey to reveal the distribution of polecats in Britain. The project follows on from two previous efforts in the 1990s and early 2000s. VWT will collate up-to-date information and investigate hybridisation between polecats and ferrets. So please send them your details of sightings of polecats, polecat-ferrets and feral ferrets from anywhere in mainland Britain during 2014 and 2015, ideally verified with a photo. There is also a free postage scheme for carcasses, which will be used for rodenticide screening and genetic analysis. For information, please visit www.vwt.org.uk/our-work/projects/national-polecat-survey

Polecat or ferret? It can be difficult to tell the difference, but don't worry – VWT want to know if you've seen either living wild anywhere in mainland Britain. Answer below!



istockphoto.com/GlobaIP

Cull rollout halted... what next?

BOVINE TB PLANS TO roll out the culling of badgers by trained marksmen to control the spread of bovine TB (bTB) have been shelved, following the independent expert panel (IEP) report into the last year's pilot in Somerset and Gloucestershire. The report, commissioned by Defra, confirmed that 1771 badgers were shot, of which 6.4 to 18% took longer than five minutes to die, thus failing stipulated criteria for humaneness. The total kill fell well short of targets, and previous research suggests that the disturbance caused may actually exacerbate the problem of bTB in both cattle and badgers. Figures collated by Care for the Wild put the cost of the cull at £7.29 million. Environment Secretary Owen Paterson now proposes

a programme of badger vaccination to create a buffer zone around areas worst affected by bTB.

Vaccination schemes are already taking place in Pembrokeshire, with promising results – herd infections down by 23% and associated cattle deaths down by 33%. Twelve Wildlife Trusts in England are raising funds to pay for wider vaccination schemes.

The prospect of culling has not entirely disappeared, however. Comments by HRH Princess Royal that gassing might be more effective than shooting have been rejected by welfare groups on grounds of humaneness and by Professor Rosie Woodroffe of the Zoological Society of London, on the basis that, like shooting, gassing is not sufficiently effective.

Mystery on the Otter

BEAVERS IF YOU SAW a sleek form gliding through the quiet waters of Devon's River Otter, you might think you'd spotted one of its eponymous residents. But it might be something more exciting still. Defra and Devon Wildlife Trust (DWT) have confirmed what others must have known for a while – that beavers are living wild in England for the first time in 800 years. How the family of three got there is a mystery. Captive populations live in large enclosures in Cornwall and in Gloucestershire, but no-one has reported having lost any. In 2009, PTES supported a scientific trial reintroduction of beavers to Argyll,

and a further, 'unofficial' population has established on the Tay. There are no plans to remove the Devon beavers, and it is hoped that, like their cousins in Scotland, they will provide further valuable opportunity for monitoring and understanding how this long-missing species might fit back into the ecology of the British countryside.



Tom Buckley

MAMMALS ON ROADS 14

On 1st July, *Mammals on Roads* begins its 14th year, mobilising citizen scientists to record summer road trips and the flattened fauna that they see along the way. The mammals killed on our roads are not how anyone wants to see Britain's wildlife – but by recording roadkill, a unique picture has been built up of how populations in the wider landscape are changing. It is the best way we have of monitoring mammals and your help is vital. Download the *Mammals on Roads* survey app for iPhone or Android from the App Store or Google Play, or contact us for a printed pack. Monitoring is at the heart of conservation and without your help, it simply wouldn't be possible.

Answer: It is a ferret. Polecats have dark brown fur all over the body, extending all the way to the nose and including the paws. Pale cheek patches contrast with a dark mask. Ferrets vary considerably, often having pale markings on the face and throat, pale feet and scattered pale hairs all over the body.

What Lydia did next: world watches great white on the move

SHARK TRACKER A FEMALE great white shark with a satellite tag has become a wildlife celebrity, having travelled 30 500km in the space of a year, and recently crossing the mid-Atlantic ridge, leading to hot speculation that she might eventually end up in European, even British waters. The shark was tagged in March 2013 off Jacksonville in Florida by independent research outfit Ocearch. Lydia's progress can be followed on Twitter using #GoLydiaGo. Chris Fischer, expedition leader and founder of Ocearch has speculated on the reason for Lydia's apparent new course, suggesting, without much evidence, but to the delight of the media, that she might be pregnant and heading for a nursery area. While the extent of Lydia's travels is remarkable,

it is our observation of her that makes the project special. 'The great thing is that the whole world gets to watch... people feel inspired when they're part of something,' says Fischer, adding that the media interest is also a conservation opportunity. 'It just shows that if we're going to look after some of these magnificent apex predators, we're all going to have to work together. No one country can do it.'

Ocearch has also tagged a further 150 large sharks of various species. At least one of these, a female mako called Rizzilient, appears to have met a bad end. Transmissions from her tag jumped suddenly from the mid-Atlantic to a fishing port in Portugal, highlighting the fate of tens of thousands of sharks killed every year worldwide as by-catch or for their fins.

Light pollution and bat behaviour



A video still shows Sowell's short-tailed bat homing in on a feeder in its preferred conditions of total darkness in Costa Rica.

www.batlab.de, Leibniz Institute for Zoo and Wildlife

SHORT-TAILED BAT

LONGSTANDING supporters of PTES may remember work we have funded looking at the effects of artificial lighting on bats. Research at the Universities of Sussex and Bristol showed that species abundance and behaviour are significantly affected by street lighting. Now work in Costa Rica has added to the accumulating body of knowledge on the subject. The team observed the behaviour of Sowell's short-tailed bat, a fruit-eating species whose role in seed dispersal is vital in the regeneration of areas of cleared forest. Worryingly, the bats were shown to avoid foraging in artificially lit areas, with potentially damaging implications for the ecosystem as a whole. Co-author Daniel Lewanzik from the Leibniz Institute for Zoo and Wildlife Research in Berlin said 'The impact of light pollution could be reduced by changes in lighting design and by setting up dark refuges connected by dark corridors for light-sensitive species like bats.'



Robert Snow, Ocearch

A brainwave from Bright Wave

ETHICAL INSURANCE broker Bright Wave Insurance has launched a new initiative to raise money for PTES. The new scheme promises to donate £1 for each insurance quote given by the company during the months of April and May. The £1 for 1 quote offer applies across car, home, travel, pet, business and van insurance. 'The idea is to give something back,' said Dave Gardiner, Sales and Operations Manager.

'Conservation is a real concern for many of our customers, and something very close to my heart too. We want to help a great cause whilst doing what we do best.' For any customers who go ahead and purchase the policy, Bright Wave will also donate 25% of their sale commission to the customer's chosen wildlife charity. So if your policies expire this month, why not give Bright Wave a call?

brightwave
Simply get a quote for your car, home, pet, business or van insurance through Bright Wave and we'll donate £1 to PTES
0121 248 9498
www.brightwaveinsurance.co.uk

New species of river dolphin

ARAGUIAN BOTO ZOOLOGISTS

at the Federal University of the Amazon in Brazil have proposed a new species of river dolphin, or boto, the first for almost 100 years. The last member of this select group to be described was the Yangtze river dolphin, or baiji, in 1918, but sadly that has been considered extinct since 2006. The loss of the baiji served to highlight the many threats facing the remaining river dolphin species, of which three out of four are listed as threatened. With an estimated population of just 600, restricted to the Araguaia River catchment, the new species would immediately qualify as Vulnerable under IUCN criteria.

Genetic and physical evidence based on measurements of the skull and dentition suggests that the Araguaian

boto *Inia araguaiaensis* has been separated from other Amazonian river dolphins for about two million years – ample time for speciation to have occurred. The challenge for the zoologists leading the study will be to gather further evidence, which has to be done using animals that have died of natural causes or by careful observation of individuals living in the wild. It's an exciting challenge and the team hopes that the new boto will become a flagship for conservation of a habitat threatened by agriculture, ranching and the development of hydroelectricity schemes.



Nicole Dutra

The Araguaian boto lives isolated in a tributary of the Amazon, separated from the two other species of South American river dolphin by a series of rapids and non-navigable canals.

Why powerlines deter wildlife

HABITAT DISRUPTION

ECOLOGISTS HAVE known for some time that wild animals avoid the corridors alongside power lines. It was assumed this behaviour reflected a general aversion to habitat disruption, such as the felling of trees when lines were installed. But this didn't account for the behaviour of reindeer, which go miles out of their way to avoid power lines, even in the treeless tundra where no felling is involved. These diversions impact significantly on the migration routes followed by the deer every year.

New findings published in the

journal *Conservation Biology* may have the answer. Power line structures accumulate charge over time, and this is released as intermittent and unpredictable flashes of light called coronas. The emissions are in the UV spectrum, and thus invisible to humans and other primates, but not, it transpires, to reindeer, or any of the other 40 species of wild mammal investigated by Glen Jeffery and Nicholas Tyler. 'It has been assumed that power lines were passive structures, inoffensive for animals,' said Dr Tyler. 'As a result of this work, we now consider them as chains of flashing light, and that's why the animals find them so offensive.'

istockphoto.com/loroto

Joining the dots

This summer it's all about being well connected.



Urban and suburban hedgehogs have taken on a new importance as their cousins struggle in the countryside. Whilst we await news of what afflicts them from our extensive research programme, we have a simple message for town dwellers. Make a hedgehog hole in your garden fence and do it now! Where better to launch this idea than Hampton Court Flower Show, full of enthusiastic garden lovers (p6)?

Meanwhile, dormice are feeling pretty disconnected. In June we are reintroducing dormice to a Nottinghamshire woodland near where we released others last year. Through careful local land management of woodlands and hedgerows, natural leafy corridors of dormouse territory will be created so that the two populations can meet. Simple reconnection that will re-establish dormice in that county.

Connecting with our supporters is vitally important too. *Wildlife World* will look a bit different next time to match the imminent new look for the whole charity. It is time for an up-to-date refresh to attract even more support for our vital work. We hope you like it and stay connected too.

Jill Nelson
Chief Executive, PTES

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 keep them coming!

2014 is World Cup year. We think the Iranian team will look especially great in their official kit – featuring an Asiatic cheetah! The ‘striking’ design is thanks to months of lobbying by our friends at the Iranian Cheetah Society. Want to bet on English Lions vs Iranian Cheetahs in the final?



FRONT PAGE NEWS!

Did you see the Spring edition of *BBC Wildlife* magazine? Our work with the British Hedgehog Preservation Society made the front page, in a major feature by ecologist and hedgehog fan, Hugh Warwick.



Mitzi loves wolves, and we love Mitzi, one of the dashing dogs and cool cats helping rare carnivores as part of our ‘Saving Big Cats & Wild Dogs’ twinning scheme. Check out her special collar tag and see www.savingcatsanddogs.org for details.



 Ray Mears & Woodlore

@Ray_Mears: Help the @hedgehogsociety and take part in this years Hibernation Survey @ptes #hogspotting

 Carolanne K Minter

@CarolanneKatePR: Adopted a Sumatran tiger with @PTES :)

Dear PTES,

My 2013 field season on the island of Canna was fabulous. I was studying heath spotted orchids, whose deceptive flowers trick insects into pollinating them without sharing a nectar reward. On the mainland, the duped insects are usually dance flies, but on the island we recorded mainly yellow flies. I'll be continuing this work in 2014. My baby son Rueben arrived in February so this year the whole family will be enjoying a Hebridean summer!

Niamh Britton, Invertebrate



The saiga conservationists of tomorrow

HIP HIP, HURRAY FOR SAIGA DAY! Saiga Day, organised by the Saiga Conservation Alliance, unites communities across the saiga's range in Kazakhstan, Uzbekistan, Russia and Mongolia. PTES funding helped us promote saiga conservation by staging plays, concerts and sporting challenges and showcasing some incredible saiga artwork. The youngest children enjoyed a big screen saiga cartoon and teenagers pitted their knowledge to find the 'Eco-leader of the 21st Century'. Thank you PTES for your support!

Carlyn Samuel, Imperial College London



Thank you 6th South Islington Brownies for helping dormouse conservation. You really deserve your 'Friend to Animals' badges!

Meet the team....

PTES is run by 14 dedicated members of staff, guided by a board of trustees. Laura and Susan share a common inspiration – like Amy our editor, they studied Zoology with Dr Pat Morris at Royal Holloway, University of London.

Laura Bower Conservation Officer

A large chunk of Laura's childhood was spent watching birds, picking up frogs and 'rescuing' worms. During her degree, a course taught by Pat Morris compounded her desire to work in conservation, and she went on to complete an MSc in Wildlife Management at Reading University, including time in Virginia, USA, working with Kentucky warblers. After three years working at the RSPB, Laura joined PTES in 2005. She mainly manages our two nature reserves but also leads on invertebrate work and helps guide our hedgehog and orchard work.



Susan Sharafi Administration Officer

Susan celebrated 20 years at PTES in January. Her fascination with the natural world was ignited at Royal Holloway, where she developed a special interest in British mammals, especially hedgehogs and hazel dormice. Over the years Susan has been involved in many aspects of our work. 'No day is the same,' she says, 'and working with such a dedicated team is such a joy and privilege. Out of the office Susan enjoys art galleries, exhibitions, historic houses and gardens, and afterwards the tearoom!'



Mixed news from Manas in India. **Pranjal Bezbarua**, who heads our Indian rhino project, wrote with the sad news that the overall situation in the region is increasingly unstable following the kidnapping and murder of two security personnel on the Indian-Bhutanese border. But local people continue to turn away from poaching, and the project has presented communities with 60 piglets as a thank you.

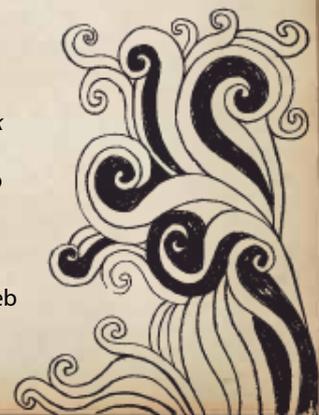


Recent scientific publications from PTES funded projects:

David Morrirt, Paris V. Stefanoudis *et al*; *Plastic in the Thames: a river runs through it* Marine Pollution Bulletin **78** 2014 196–200

Peter H. Dutton *et al*; *Population stock structure of leatherback turtles (Dermochelys coriacea) in the Atlantic revealed using mtDNA and microsatellite markers* Conservation Genetics Feb 2013 DOI 10.1007/s10592-013-0456-0

Lisa M. Collins *et al*.; *Squirrelpox virus: assessing prevalence, transmission and environmental degradation* PlosONE **9** (2) Feb 2014, e89521



PTES Hedgehog Officer Henry Johnson braved the rain in Aberystwyth to present a talk on *Hedgehog Street* at the Welsh Mammal Monitoring Network conference (MaMoNet). Other speakers included Adam Grogan on the overwinter survival of rehabilitated hedgehogs, Rob Strachan on an interactive guide to mammal footprints and Roy Tapping on harvest mice in Wales.



flies are fooled into reacting for no reward.



Britain's youngest field ecologist?



The tranquility of Canina



Favourites from Facebook – a gorgeous female stag beetle and a shy garden hedgehog, both by Fiona Killick.





Keeping Briddlesford beautiful

CONSERVATION OFFICER **LAURA BOWER** EXPLAINS WHAT MAKES OUR BELOVED RESERVE AT BRIDDLESFORD WOODS SO SPECIAL, AND HOW WE ARE ENSURING IT STAYS THAT WAY.

Ian White



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We've owned Briddlesford Woods – our special site on the Isle of Wight – for over 20 years. In that time the wood has changed remarkably under our careful management. Actually the 'woods' comprise 160 hectares of mixed habitat including coppiced woodland, high forest, saltmarsh, grassland and arable fields and parkland. We have planted 15 hectares of new woodland, restored 23 hectares of coppice, created 14 ponds and recorded over 1200 species within the reserve. All the work is directed by a 10 year plan to maximise the benefit for wildlife. The Isle of Wight is known for its nationally important red squirrel population but we are also lucky enough to have several other rare mammals living in the wood. Dormice

are there in good numbers (see p14) and the mature trees are home to 10 species of bat, including the rare Bechstein's. We manage the reserve specifically for these special species, taking great care to balance their differing requirements. This means cutting hedges and trees at a particular time of year, being careful not to damage the rides and paths with machinery and ensuring that there are plenty of feeding opportunities and nesting places for these mammals and a multitude of other species too. Coppicing hazel on a long rotation ensures a good nut crop for red squirrels and dormice.

Over the years, our wildlife surveys have told us a lot, including some 'firsts' for the whole of the island. Between 2002 and 2004 Briddlesford's bats were studied in detail and we discovered an important breeding colony of Bechstein's bats (*Myotis bechsteinii*). This led to the site being designated as a Special Area of Conservation (SAC) in 2005. Two years ago, an invertebrate survey picked up the presence of

the ash black slug (*Limax cinereoniger*), a nocturnal mollusc never recorded before on the Isle of Wight. It is the largest land slug in Britain, if not the world, and known to be strongly associated with ancient woodlands and wood pastures. Only last summer another new species was discovered at Briddlesford, this time a moth. The dark crimson underwing (*Catocala sponsa*) is a UK Priority Species, previously only recorded as a migrant on the island. Ours was the first resident record.



We have big plans for Briddlesford over the next 10 years. We are already converting some of the woodland planted on former heathland to wood pasture. Funding from Natural England's Environmental Stewardship Scheme is helping us to thin out the trees, creating a series of open glades, and to fence the area so that it can be grazed by cattle. Grazing keeps the glades open and encourages a diverse ground flora to develop.

Within the woodland we are trialling a programme of short rotation hazel coppice. This means cutting small areas of hazel more often than usual to generate profitable products such as bean sticks, hurdles and stakes. Butterflies in particular respond to this because they like open sunny areas where their larvae can feed on violets and other food plants.

In order to increase the mixture of plants in the saltmarsh we are carefully managing the water levels and introducing grazing.



istockphoto.com/Rickochet

There are approximately 3 500 red squirrels on the Isle of Wight, and no greys. Ash black slugs can grow to well over 20cm long, and are generally only found in ancient woodlands. The squirrels certainly have better PR, but we're delighted to have both species at Briddlesford.



istockphoto.com/PlazacCameraMan

Volunteers help with many important practical tasks at Briddlesford, including coppicing, clearance, tree planting & nest box maintenance. It's hard work, but lots of fun. RACHEL BATES shared her experience of helping out in her Ecology Escapades blog:

A weekend in the woods:

Friday: We arrive with tummies rumbling from the delicious smell of a car full of cake and other supplies. We unload and spend the evening getting to know the rest of the team over dinner at the Crab Inn.

Saturday: As soon as we start scrambling around the woods, we're in another world. The fresh air, lack of phone signal or internet access gave us freedom to really look at the world around us, and socialise with lovely people with shared interests.

We tackle dormouse box repairs, woodland ride clearance and coppicing to improve habitat for dormice, opening the canopy and improving the age structure of the wood. We fell most trees in the designated area, but leave young hazels and a few mature oak, ash and elm. After a campfire lunch with

ample tea and cake, we tour the woods with Ian the PTES Dormouse Officer, who explains current management

We constantly review our management decisions by monitoring the species we are trying to protect. Dormice, red squirrels and bats are all checked regularly.

Visiting Briddlesford

Although we keep most of the woodland and fields closed to the public in order to minimise disturbance to the wildlife, there are opportunities to visit this special reserve. Two small areas of Briddlesford, Hurst Copse and Briddlesford Parkland, are open to the public all year round. You can walk to these via the bridleway that begins

in Wootton Bridge. The bridleway runs through most of the length of our land so it's possible walk through or alongside much of it and get a feel for its beauty and diversity. If walking is not for you, the Isle of Wight Steam Railway passes through the woodland and trains run throughout the year.

There are also opportunities to join guided walks at Briddlesford, allowing you to visit the areas not normally open to the public and hopefully catch a glimpse of a dormouse or spot butterflies dancing along the sunny rides and glades.

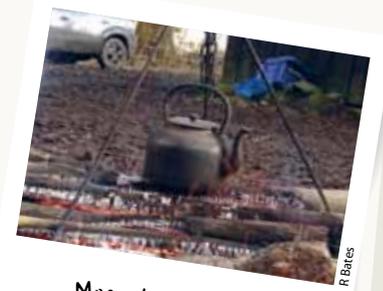
My first sighting of butcher's broom, an ancient woodland indicator!



and features of interest. Back at the hostel, I'm on onion-chopping duty, helping prepare fajitas and nachos for thirty. I feel like I never want to see another onion again! But the meal is delicious, with apple crumble to finish while we mingle and chat.

Sunday: I take an early walk to see the sunrise cast golden light over Hope Bay and the cliffs beyond. Waves crash and dogs run after balls on the beach below, while blackbirds chirp close by.

Back in the woods, we begin layering the young trees spared from yesterday's coppicing. Layering involves nicking the stems and planting them in the ground, encouraging natural regeneration in the manner of strawberry runners. There's time for a leisurely campfire lunch before leaving to catch the 3pm ferry. It's warm enough to sit waiting for the boat with our windows down, although the temperature drops to 3 degrees by the time I arrive home. The winter work at Briddlesford may be done, but it's not spring yet!



More tea anyone?



Dates for your diary:
5th July 2014: Butterfly Walk (Subject to weather)

18th October 2014: Dormice in Briddlesford Woods

Book online at www.ptes.org/events

Laura Bower, Conservation Officer for PTES, oversees the management of Briddlesford woods and the adjoining habitats.



The coppice team get stuck in with saws & loppers.



Dormice count at Briddlesford

25 YEARS OF DORMOUSE RECORDING IS AN ACHIEVEMENT TO BE PROUD OF. PTES DORMOUSE OFFICER IAN WHITE EXPLAINS WHY THE NUMBERS MATTER.

IN 1988, ECOLOGIST PAUL BRIGHT began research that would form the basis of much of our understanding of dormice in Britain. A lot of this work took place at Briddlesford Woods, and the data collected was some of the first to be entered into the new National Dormouse Monitoring Programme (NDMP). A quarter century later, the NDMP is the largest small mammal monitoring programme in the world, and remains key to dormouse conservation in England and Wales.

Dormouse monitoring involves putting up a minimum of 50 nest boxes (similar to bird boxes but with an entrance at the rear rather than the front) in dormouse woodlands and checking them regularly. At Briddlesford, we do four checks a year, recording the number of dormice we find, their sex, weight, age and breeding condition. The records collected in May and June tell us about winter survival and the September and October checks indicate summer breeding success.

Briddlesford is large enough to contain two distinct NDMP sites, with a total of 549 nest boxes. PTES staff visit the woods in February or March to clear out old material from



Diane White

Dormice hibernate in ground level nests over the winter. On cooler days in spring they can often be found torpid in nest boxes and are easier to handle in this state.

the nest boxes and fix or replace any that have been broken or lost. About 15 people do the first dormouse check in May, usually finding between 20 and 30 dormice. By the end of the breeding season, in September and October, we usually find 100–120 animals. We also often see wood mice, bank voles, bats, toads and one of the world's smallest mammals and a favourite of mine, the pygmy shrew.

Dormice are rare, but Briddlesford provides such a good opportunity to see them, we always have plenty of volunteers. We limit the number of people on a box check to a manageable 20 and try to strike a balance between novices, experienced dormouse handlers and folk who know their way around the woods – getting lost is amazingly easy on this 160 hectare estate! It's a shame to turn people away, but we try and give priority to first-timers, those who are training for their dormouse licence or woodland managers from elsewhere seeking to learn about dormice.

At the early autumn visits, we also invite the public to special events where they can see dormice and learn about the woods. Not only is this usually the first time most of our guests have ever seen a dormouse, often it is the first time they really consider the value of a well run woodland. This year we are launching new courses in woodland management and dormouse ecology and we have installed an extra 80 dormouse boxes in a separate part of the wood as a training resource.

So what has all the work at Briddlesford shown us? Dormice are found throughout the woodland but their numbers fluctuate considerably. Only with long-term monitoring is it possible to determine whether the population is stable, but happily this appears to be the case. As the animals are so widespread it is difficult to link dormouse presence to habitat quality alone, but the results are building nicely in support of Paul Bright's original proposition – that hazel coppice and scrub make optimal dormouse breeding habitat.

Briddlesford is a special place for dormice and for humans. Our *Wildlife Encounter* events offer rare opportunities to visit, to see these delightful creatures and so much more. I hope to see you there.



PTES

Fruits of our labour

ORCHARD BIODIVERSITY OFFICER STEVE ORAM REPORTS ON OUR CONTINUING PROJECT TO FIND AND ASSESS PRECIOUS TRADITIONAL ORCHARDS AND THE COMPLETION OF THE WELSH PHASE OF OUR WORK.

ORCHARDS AS NATURAL habitats go, few are as inviting to people and wildlife alike as a traditional orchard. Orchards combine elements of crop, woodland, amenity, and garden. They are places to see woodpeckers and rare beetles, eat sun-drenched fruit straight off the tree, or to just sit and reflect. These ancient crops, managed without modern chemicals, host combinations of animals and plants comparable to those of ancient woodland, including a number of nationally rare, scarce and declining species. This diversity is so important that traditional orchards were given Priority Habitat status in 2007. Traditional orchards have suffered a dramatic national decline in the 20th century – 94% in Wales between 1958 and 1992 – and losses continue due to neglect and development pressure. But it's not all bad news. The last 20 years saw a ministerial *volte-face* on payments for grubbing out orchards and hedgerows and the launch of agri-environment schemes that pay farmers to plant, conserve and manage farms sympathetically. The resurgent popularity of cider and perry is also helpful; for the first time in years, new orchards are being planted and they have become a popular choice for community green spaces.

We have been finding and assessing traditional orchards since 2005. We have mapped them right across England and Wales, are guiding the process in Scotland and planning to start on Northern Ireland soon to complete a comprehensive UK habitat inventory. Using Ordnance Survey maps and aerial images we scrutinize every inch of land for traditionally managed orchards. Ideally every site would be

PTES involvement with orchards stems from our interest in noble chafer beetles (Gnorimus nobilis), a red list BAP species associated with old fruit trees like this grand old pear.

App is for apples...

Smartphone technology is revolutionising biological surveying and reporting. Gone is the need for pencils and soggy bits of paper. Traditional orchards have joined the party with the PTES Orchard Mapper, an app that can be used to update information about the orchards already in the inventory (currently covering England and Wales, with Scotland and Northern Ireland coming soon) or to add new sites. Sites are viewed through Google maps and aerial images and the software can pinpoint locations to single tree accuracy. The app is currently available for Android devices, with the Apple version in production. You can download it for free via



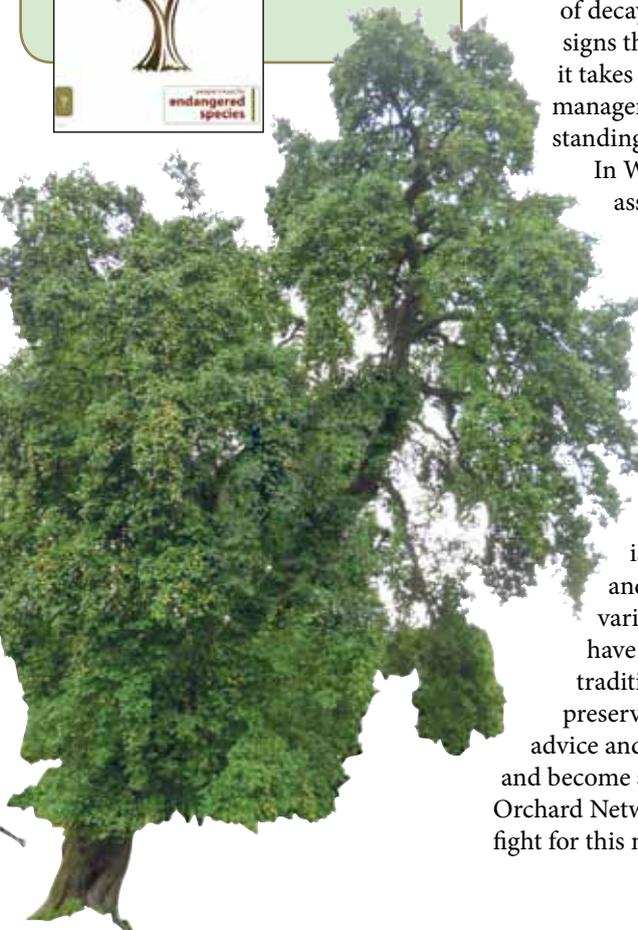
visited to verify our findings but this is an immense task – in Wales alone there are 7 363 sites of interest. So far we have verified 20% with the help of 128 local volunteers and we continue to recruit, survey, and improve the map. Volunteers submit results on paper or electronically, and we have a new mobile phone app to make it even easier.

When a volunteer visits an orchard, its condition is assessed by noting how it is managed and what features are present – for example young trees and dead wood. The former promise longevity, while the latter is vital to saproxylic species, like noble chafer beetles, which need rotten or decaying wood to thrive. Fruit trees develop veteran features, such as decay holes, much younger than other native trees like ash, oak and beech. Internal decay spreads quickly down the trunk to the roots, creating valuable dead wood. Unfortunately, observable signs of decay are easily interpreted as signs that a tree is moribund, and it takes ecologically enlightened management to leave such trees standing.

In Wales, 7% of the orchards assessed so far are in 'excellent' condition, 58% 'good', and 35% 'poor'. This latter third are a priority for us now because these sites will cease to qualify as traditional orchards in 20 or 30 years unless management practices are improved. Our work is also helping to identify and conserve rare heritage varieties of fruit. And we have increased awareness of traditional orchards, helped preserve threatened sites, provided advice and help for orchard owners, and become a hub for the national Orchard Network. We will continue to fight for this most agreeable of habitats.



PTES



TURTLE UPDATE

PTES IS HELPING TO CONSERVE ENDANGERED GREEN AND HAWKSBILL TURTLES, WHICH FACE SIMILAR PROBLEMS IN DIFFERENT AREAS OF THE EASTERN PACIFIC OCEAN AND THE CARIBBEAN.

COSTA RICA

THE GOLFO Dulce on the Pacific coast of Costa Rica is a rare thing – a tropical fjord. It was recently designated as a Marine Responsible Fishing Area, where the gear used for fishing is regulated, environmentally damaging methods are banned and sustainable practices are encouraged. The Gulf is important to two species of threatened sea turtle, Eastern Pacific greens and hawksbills, and we are funding a three-part project to conserve the turtles and this important habitat.

Project WIDECAST leader Didiher Chacon reports that between 2010 and 2013, 62 hawksbill and 253 green turtles were caught and tagged. Interestingly, most of the hawksbills captured were juveniles, while the majority of greens were adult females, suggesting that the two species use the Gulf differently, though probably mainly as a feeding area.

Both species are highly mobile. Two green turtles captured during the project had been previously tagged in the Galapagos Islands, and we are keen to hear where those



Didiher Chacon

tagged by the WIDECAST team go next – possibly the nesting beaches of Panama and Colombia. Didiher plans to continue the monitoring and to use sea turtles as umbrella species to protect the wider ecosystems of the Golfo Dulce.

WIDECAST is also tackling habitat restoration. The team has set up a plant nursery where young mangrove trees are raised and then replanted along sections of the gulf coast. 200 volunteers from Costa Rica and further afield have been involved with this labour intensive task.

A sea turtle rescue centre has been created, where sick or injured animals can be rehabilitated. Several of the animals caught for tagging spent a short stay in the centre, where they were treated for severe parasite infections before going on their way with a clean bill of health.



TURKS & CAICOS

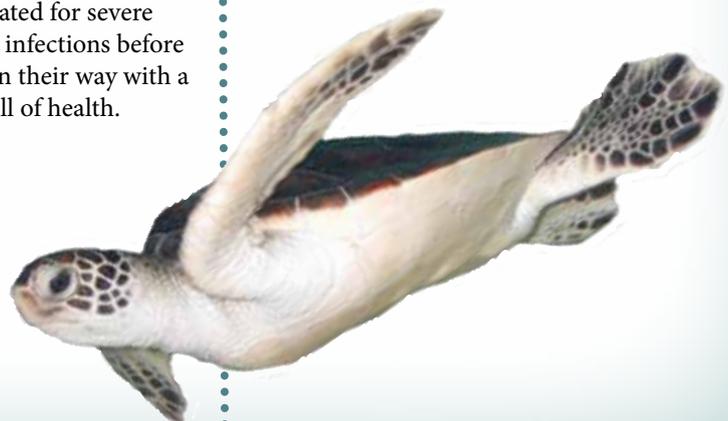
THE TURKS AND CAICOS Islands are home to breeding populations of endangered hawksbill and green turtles. Whilst some larger populations are showing signs of recovery in protected areas of the Caribbean, small nesting populations remain vulnerable. Nesting females and eggs are protected in and around the islands but many are taken illegally and it is still legal to catch the adults at sea.

We are working with the Marine Conservation Society to track turtle movements and see where they are most at risk, so that a convincing case can be made for extending protection into key areas offshore. Satellite transmitters (three of them funded by our supporters) were attached to 11 green turtles on the Caicos Banks, and their movements tracked online over a year. The information gleaned is being put to immediate conservation use. Amendments to the legal framework for turtle protection and a draft fishery management plan were approved by the Minister of Environment, Home Affairs and Agriculture last year, and the legislative changes are with the Attorney General's Office for final adoption.

The tracking data and the changes in the law that came about as a result were presented at the 34th International Sea Turtle Symposium in New Orleans. Meanwhile, the team has been busy securing local public support for turtle conservation. A turtle booklet has been produced and a turtle production devised with the Lempen Puppet Theatre that can be presented as a play by school children. Turtle theatre workshops are planned for all schools on the islands.



Didiher Chacon



istockphoto.com/fremphoto

The strange world of marsupial frogs

MONOPHASIC MARSUPIAL FROGS

AS ELEVENTH HOUR RESCUES GO, THINGS LOOK GRIM FOR THE MONOPHASIC MARSUPIAL FROGS OF ECUADOR. BUT IT'S NOT TIME TO GIVE UP ON THEM YET.

THE WORD 'MARSUPIAL' probably makes most of us think of kangaroos and wallabies. But across Central to South America there are about 60 species of marsupial frogs. They brood their eggs in pouches on their back. In some species the tadpoles that hatch complete their development in ponds, while in others the young emerge from their mother's pouch as fully formed froglets. This strategy of special care through the tadpole stage is called 'monophasic direct development' and is a fascinating mode of reproduction.

Monophasic marsupial frogs in Ecuador are a shocking example of the problems facing many amphibian species in the region. We know they have declined dramatically but there is precious little information as to

how much or why. We are supporting work by amphibian specialist Luis Coloma in a remote area of the Andes. Luis is concentrating on four highly threatened species – the silver, Ranger's, Espada's and Gunther's marsupial frogs – none of which are included in any conservation plan.

Intensive field surveys in different localities have not been encouraging. Only eight individual Ranger's, eight silver and seven Espada's were found – not enough to maintain genetically viable populations. And searches in historical sites for Gunther's frog revealed none at all, leaving the worrying possibility that the species might already be extinct, although the search continues.

The team has made recordings of



Luis Coloma

the frogs they have found calling, to make identification easier in future. They also took swabs to test for the chytrid fungus and ranavirus that have devastated amphibian populations worldwide.

There is hope. One of the female Espada's and one of the silver frogs that Luis and his colleagues did find were carrying pouch young. These individuals are being lovingly nurtured in the hope of successful breeding. The future of their kind depends on their survival and eventual reintroduction to the wild.

NEW

National water vole monitoring scheme

EFFORTS TO IMPROVE MATTERS FOR BRITISH WATER VOLES ARE IN NEED OF CENTRAL COORDINATION AND MONITORING. PTES IS RISING TO THE CHALLENGE.

WATER VOLES

IN THE LATE 1990s we discovered that British water vole numbers had plummeted by around 95% since the 1970s. Degradation of habitat caused by intensified agriculture and water pollution had been compounded by voracious mink predation.

In response, we coordinated a multi-agency project to protect a number of reservoir populations.

Twenty-four special sites were designated to protect the species, each free of mink, with water vole-friendly habitat management, and regular volunteer monitoring. Meanwhile other organisations, such as the Wildlife Trusts and RSPB, were working hard on their reserves too, reintroducing water voles in many areas and monitoring the results.

Despite all this effort, the national position for water voles remains unclear. Differing monitoring methods make the data inconsistent. The information is not centrally collected and cannot be used to infer national or regional trends. There is an urgent need to coordinate the collective effort and to increase the number of sites being monitored.

PTES is setting up a National Water Vole Monitoring Programme, working with the Wildlife Trusts and others to create a standard protocol for monitoring and training for volunteers. Data will be required from at least 50 sites. Records will be collected online annually, building a dataset from which to analyse the national and regional status of UK water voles into the future. The programme should be up and running next year.



Andrew Parkinson



Tunnel vision

PTES INTERN MICHAEL HARTUP HAS A HIGH-TECH SOLUTION FOR MONITORING AMPHIBIAN UNDERPASSES.

Froglife

GREAT CRESTED NEWTS

ROADS AND TRAFFIC are bad news for amphibians, linked not only to population declines and local extinction but also to non-lethal effects such as population fragmentation, habitat loss and pollution. Tunnels with fences that direct animals safely under the road are a promising mitigation measure, but little is known about whether they actually work, partly because of the lack

of robust and inexpensive monitoring techniques. PTES intern Michael Hartup is addressing this problem by developing and testing an automated camera-data logger monitoring system specifically for use in amphibian underpasses.

Following development and initial testing of the device last spring, Michael began working at Froglife with Conservation Coordinator, Silviu Petrovan. A prototype device was installed in a tunnel at Froglife's Hampton Nature Reserve near Peterborough in September. It began clicking away, recording 2 500 images per night, plus data on environmental parameters such as temperature and humidity. The images show an amazingly high rate of usage by amphibians, mostly

great crested newts which, happily, were the intended beneficiaries of the tunnel. We think these are the first ever recorded images showing this species using road mitigation tunnels. Also recorded using the underpasses were several species of mammal including shrews, voles, rats and mice, and vast numbers of invertebrates – snails, ants, earthworms, woodlice, slugs, beetles, spiders, centipedes and millipedes.

Michael has now refined his design and is preparing further trials. He hopes to submit a scientific paper on the results soon, so that this effective new methodology can be shared.



Silviu Petrovan

Hedgehog decline – how bad is it?

SEEKING CLUES TO THE PROBLEMS FACING BRITAIN'S FAVOURITE MAMMAL AS NUMBERS CONTINUE TO FALL

HEDGEHOG SURVEY

WITHIN THE UK hedgehogs have been undergoing a severe decline over the last twenty years. Hedgehogs are found across the UK in a wide range of habitats. We don't know exactly how consistent the decline is or if hedgehogs are doing well in some areas but badly in others. In order to make sure we are directing our efforts in the right places,

PTES and BHPS are supporting a national survey to see what ecological and man-made factors are affecting their decline. A team of researchers from Nottingham Trent University and the University of Reading, including postgraduate student Ben Williams, will recruit up to 400 volunteers to put footprint tracking tunnels out around the countryside, in different landscapes, to see where hedgehogs are found, and where they are absent.



Ben Williams

Ben Williams and a prickly friend

Latest UK mammal grants

British mammals remain an urgent concern for PTES, and we have recently agreed a new round of funding for research projects on priority species, including bats, dormice, pine martens, water voles and hedgehogs.

Dr Stuart Newson, British Trust for Ornithology: *Critical evaluation of a novel approach for the large scale automated acoustic monitoring of bats.*

Professor Kate Barlow, Bat Conservation Trust: *Understanding the ecology, current status and conservation threats for **Nathusius' pipistrelle** in Great Britain – a pilot study.*

Dr Edwin Harris, Manchester Metropolitan University: *Landscape genetics and population viability analysis in monitored **hazel dormouse** populations.*

Dr Johnny Birks, Swift Ecology: *Monitoring **pine martens** in the Fleet Basin.*

Dr Xavier Lambin, University of Aberdeen: *Doing more with less – optimising mink control for conservation of **water voles**.*

Dr Richard Yarnell, Nottingham Trent University: *A national survey to quantify ecological and anthropogenic factors associated with the presence-absence of **hedgehogs** in England & Wales; co-funded by British Hedgehog Preservation Society.*

RED SQUIRRELS

Arran red squirrel project

PTES RECENTLY FUNDED PETER LURZ AND COLLEAGUES WHO ARE WORKING TO ENSURE A FUTURE FOR SCOTLAND'S ONLY ISLAND STRONGHOLD FOR RED SQUIRRELS.

THE ISLAND OF ARRAN supports a large and thriving population of red squirrels. In order to keep things that way in the face of disease and changes to the island's forests, the Arran Red Squirrel Project was established in 2013 by the Royal (Dick) School of Veterinary Studies (RDSVS), Edinburgh, with help from PTES and Forestry Commission Scotland (FCS).

The project uses health surveillance, squirrel expertise and local forest knowledge to assess disease risk, and to develop forest design plans

ensuring a long-term future for this important native.

Thanks to a protocol developed by Anna Meredith of RDSVS, red squirrels can now be safely anaesthetised for health checks and blood sampling. We live-trapped 23 red squirrels on Arran in 2013 and examined a further 16 road casualties collected on the island by volunteers.

To our great relief, we discovered that Arran's red squirrels are generally healthy. Parasites were a problem for some, with four of the live-trapped group heavily infected with lice. We also found tapeworms in the guts of the roadkill squirrels and four animals were infected with parasitic nematodes. However there was no evidence of other disease and, importantly, none of the blood sampled from the 37 animals tested positive for squirrelpox virus (SQPV) antibodies.



In collaboration with FCS staff, we are now examining planned changes to the island's forest area and composition over the next 25–30 years.

We are recommending the establishment of red squirrel refuge areas, particularly in the west and north of the island, while surrounding plantations are felled and replanted. Squirrels from these core areas will be able to colonise 'new' woodland as it becomes available. Other factors being considered are minimising forest fragmentation, using corridors to link blocks of forest, maintaining a dependable food supply and minimising disturbance to breeding animals. Red squirrel numbers will probably drop in the short-term as the island's forests are restructured, but, this work should ensure that numbers will later return to their current high levels and that Arran's red squirrels have a secure future.



istockphoto.com/Globa1P



We do like to be beside the seaside...

PTES INTERN KARA HARDY HAS BEEN GIVING MUCH NEEDED ATTENTION TO ONE OF OUR SMALLEST SPECIES AT RISK.

SEA ASTER MINING BEES

CLIMATE CHANGE is linked to biodiversity loss, and nowhere more so than in low-lying coastal areas. Rising sea levels are already encroaching on saltmarsh habitats across the UK, and the implications for specialist wildlife like the sea aster mining bee are worrying. This endangered insect is restricted to southeastern coasts of England, on land also under intense

pressure for development. The habitat requirements of any species are fundamental to its response to change, so understanding these needs is essential in tailoring conservation.

Work by PTES intern Kara Hardy at Buglife, the Invertebrate Conservation Trust, has confirmed that the sea aster mining bee can exploit both natural and man-made habitats as long as it has access to forage plants such as sea aster and Michaelmas daisy, and



to warm, south-facing nesting sites on sandy, sparsely vegetated soils. Based on her study, Kara has written a set of management recommendations that should boost the future fortunes of this rare British species.

Kara Hardy

A big job for one so small

MONITOS DEL MONTE ARE TINY, BUT THEIR ECOLOGICAL ROLE IS HUGE. THAT'S WHY PTES IS INVESTIGATING THE VIABILITY OF THIS MINI-MARSUPIAL'S FOOD SOURCE.

MONITOS DEL MONTE

THE MONITOS DEL MONTE that live in the temperate rainforests of Chile are more than just attractive fruit-eating mammals. These tiny marsupials, whose Spanish name (singular *monito del monte*) means 'little monkey of the mountains' perform unique biological functions, setting them apart from other species, and demonstrating the principle of ecological connectedness and the importance single species can have to whole communities of others.

Through their passion for fruit, monitos are major seed dispersers for at least 10 native plant species and thus perform a crucial role in forest regeneration. Even more importantly, they are the sole dispersal agent for the endemic mistletoe that is the principle and, at some times of the year, only food source for many other species

including hummingbirds, which in turn are vital pollinators. If monitos del monte are in trouble, so are all the other species that depend on their existence and behaviour.

Gradual incursion by human populations and unsustainable rainforest harvesting are significantly transforming monito del monte habitat. Exactly how this will impact on the bigger biological picture is what Francisco Fonturbel and colleagues have been investigating with PTES support.

The team set about comparing the abundance of monitos in pristine and degraded sites, monitored the number of visits they made to collect mistletoe and other plant fruits, and noted any preference for fruits of a particular size or shape.

It seems that both monitos and the mistletoe are more resilient to habitat



Francisco Fonturbel



disturbance than was feared. So long as the remaining forests and connections between forest areas retain appropriate structural elements, such as trees of the right height offering the necessary cover and protection, the monitos should be able to continue their natural forest regeneration. The findings provide valuable evidence in support of the continued protection of the remaining forest, and real hope for natural future regrowth of new, thriving rainforest in this part of South America.

JILL NELSON

Bonobos – the forgotten apes

DESPITE BEING OUR CLOSEST ANIMAL RELATIVES, BONOBOBOS ARE NEGLECTED SCIENTIFICALLY. PTES IS REDRESSING THE BALANCE



THERE ARE THOUGHT to be just 50 000 bonobos left in the wild, restricted to the Congo Basin of Equatorial Africa. A team from the African Wildlife Foundation is helping these apes by establishing effective monitoring to help allocate scarce resources in this logistically challenging landscape.

Within this vast forest, bonobos are subject to hunting and the devastating effects of habitat loss through illegal logging. Bonobos live in groups of between 30 and 80 individuals, which can roam over an area of up to 60km², feeding predominantly on leaves, seeds, fruits and flowers.

Alain Lushimba heads a team of community scouts and rangers who are monitoring where these bonobo groups move and feed in and around the Lomako and Iyondji Reserves, collecting data in handheld Cyber Tracker units. The units, which are really easy to use, track the apes' activities in real time on satellite maps. The extent, intensity and distribution of the various human activities and threats will be properly recorded and mapped. The team will then work out which are having most effect on the abundance and density of bonobos

so that they can develop effective local conservation strategies. By involving locals in the tracking and monitoring work, the project is effectively a community-led programme encouraging local people to protect their wildlife.

NIDA AL FULAIJ



istockphoto.com/USO; Inset: Alain Lushimba

Iran: a big cat hotspot

IRAN HAS ALREADY LOST TWO NATIVE BIG CATS, THE CASPIAN TIGER AND ASIATIC LION. MOHAMMAD FARHADINIA OF THE IRANIAN CHEETAH SOCIETY IS WORKING TO SAVE TWO MORE, THE ASIATIC CHEETAH AND THE PERSIAN LEOPARD.

CHEETAHS AND LEOPARDS

CHEETAHS ONCE occupied much of western and southern Asia, but the Asiatic subspecies is now one of the world's most critically endangered cats, restricted to a handful of reserves in eastern Iran. Until recently, there was no reliable estimate of the size of Iran's cheetah population. In partnership with Iran's Department of Environment, the United Nations Development Programme and NGOs Conservation of Asiatic Cheetah project and Panthera, the Iranian Cheetah Society (ICS) ran a detailed monitoring project over two years.

The elusive nature and low density of cheetahs make monitoring hit and miss. Camera traps are ideal for the job, but political sanctions mean the necessary equipment is hard to obtain in Iran, so we are indebted to donors like PTES for making the work possible. So far, cameras have been deployed at 10 reserves and we have been able to refine our estimate of the cheetah population. Unfortunately we've had to revise it down, from a previous guesstimate of 70–100 animals, to fewer than 70. These precious animals are now protected by 125 salaried game guards, paid for by the Iranian government.

The guards are trained, have insurance and are equipped with 4WD vehicles and motorbikes.



Each guard currently has to cover around 640km² of landscape, so more forces are needed. Meanwhile, ICS is coordinating further scientific research and running community educational programmes targeting herders who share the desert with this magnificent cat.

The leopard is one of the most widely distributed of all terrestrial carnivores, with a distributional range covering 80 countries and habitats as diverse as rainforest and desert. The Persian subspecies is the largest surviving cat in western and central Asia, yet its mountainous habitat means it is also one of the least known. Iran is the main stronghold, with an estimated 550 to 850 animals. This vital source population supports smaller numbers in the Caucasus and possibly Turkmenistan, but faces threats from poaching and habitat degradation.

Since 2006 ICS has led efforts to understand the ecology of Persian leopards. We began another PTES-funded project in 2013, working with the University of Oxford's Wildlife Conservation Research Unit (WildCRU), with whom we are focusing on multiple reserves in northeastern Iran, conducting research and providing the training needed for effective conservation. We are exploring aspects of leopard ecology such as ranging behaviour, an important consideration when trying to conserve a species within the boundaries of a protected area, and seeking to engage communities in the process.



Gardaneh Chasemi/ICS

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

...MAASAI CARNIVORES

Bernard Kissui of the Tarangire Lion Project has been collecting ecological and demographic information on lions and wild dogs in Tarangire National Park and piloting a human-lion conflict mitigation scheme using community 'lion guardians'.



R Della Salla

...PYGMY HOGS

Durrell Wildlife Conservation Trust and Ecosystems India are working together to protect the world's smallest pig species, the pygmy hog, in the grasslands of India. Finding these small hogs in tall grass is near impossible, so the team are developing special 'hog harnesses' to carry radio tracking devices.



G Narayan

...KNOW YOUR ONIONS

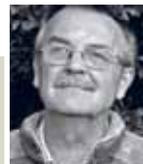
A side effect of the snow leopard project we're funding in Mongolia is the protection of a rare plant. Inspired by the concept of Community Responsible Areas promoted by the Snow Leopard Conservation Foundation, local people have taken ownership of conservation on their patch and used a small grant to protect the Altai wild onion. They hope a moratorium on collecting and a programme of sowing will restore it to areas where it used to grow.

Do it **YOURSELF...**

WILD MEADOW

with naturalist & wildlife photographer Dave Bevan

Dave Bevan combines his passions for gardening and wildlife at his home in Carmarthenshire.



EVEN THE SMALLEST of gardens has room for a wild flower meadow, which adds summer colour, provides a natural source of pollen and nectar, and attracts a wide variety of insects to the patch. This, in turn, encourages some of the larger creatures to stay. A wild flower meadow is a great way to bridge the gap between different habitats in the garden, such as the area between a wildlife pond and a log pile, providing cover and food for creatures such as tiny frogs, recently metamorphosed from tadpoles, to move between feeding and hibernation sites. As a replacement for a conventional lawn it is relatively low-maintenance once you have put in the initial hard work.

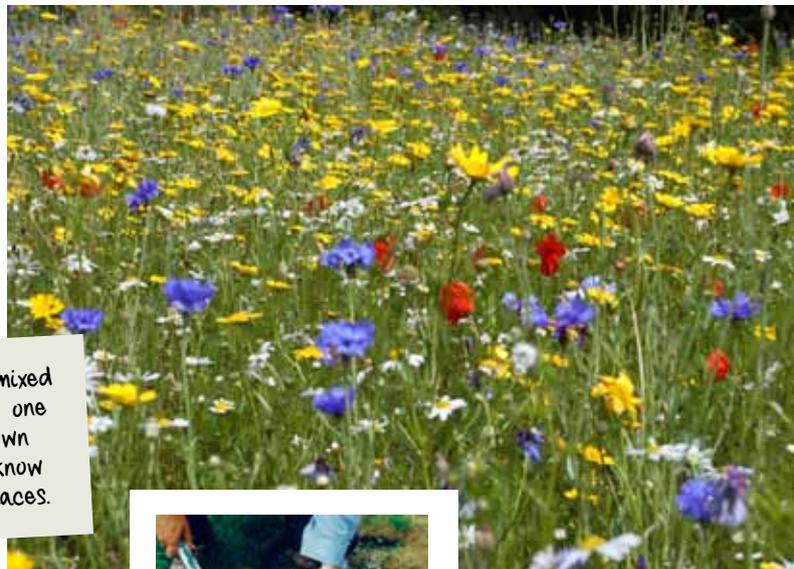
istockphoto.com/drflet



You can buy seed ready mixed to suit to your soil, or go one better by creating your own mix based on plants you know do well in nearby wild places.

Ground work - the hard graft

FIRST, YOU NEED TO decide what kind of meadow you want. The most 'natural' would be a facsimile of a traditional flower meadow, but you might be more interested in maximising nectar or your vision might be pure floral impact (usually the most expensive option). Each will need a slightly different prescription. Either way, the secret of success is in the preparation. The best results require that soil fertility is LOW. This can be achieved by removing the top layer of soil and turf down to about 5cm. Dig the patch over to a spade's depth using a fork, to expose the subsoil and carefully remove any deep rooted plants such as docks or thistles and any invasive plants like nettles (which have their place, but not in your meadow) together with large stones. If you do this in autumn, the weather will break the soil down to a fine crumb texture, or 'tilth', and you'll have a second chance to weed whilst raking over in spring. If you cannot plan that far ahead, then be prepared to do more raking to achieve the tilth required for meadow seeds.



1. Clearing turf and weeds

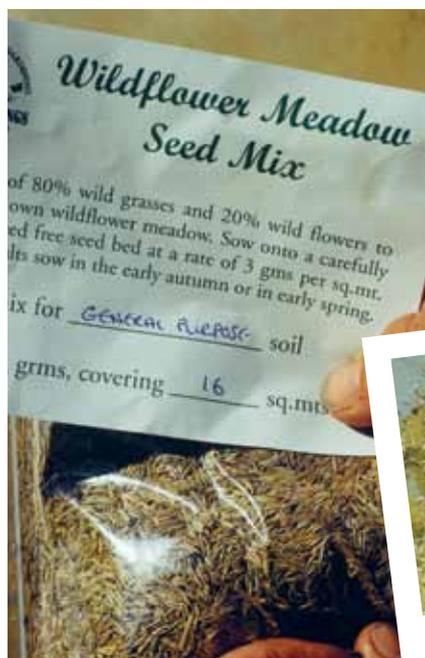


2. Digging over



3. Phew... some nice gentle raking

Digging is hard work, especially for the novice gardener. Ease the strain on your back by taking regular breaks and stretching before and afterwards.



Choose specialist seed suppliers who really know what they are selling. Some commercial 'wild flower' mixes contain inappropriate varieties. Try Habitat Aid, Landlife or Emorsgate.



4. Preparing seed mixture

Seeds

THERE ARE MANY commercially available meadow seed mixes to choose from depending upon your soil type, position in the garden and the habitat you wish to create. If your aim is to support and encourage native wildlife then choose a seed mix that only contains native plant species. For best results sow a mix without grass seed, as grass will appear naturally. If you do choose a grassy one (they are cheaper), try and use a reputable supplier who will select grass species that will not compete with the flowers.



istockphoto.com/Chushkin



5. Broadcast the seed mixture

Sowing

WILD FLOWER MEADOW seeds are very small and should be sown at the rate of about four grams per square metre. For small areas, hand broadcasting is the best method and to ensure an even seed distribution it's a good idea to premix your seed with sand if the soil is dark or with sieved peat substitute (not real peat) if it is light coloured. This way you will be able to see clearly how evenly the seed is distributed. After sowing, press seeds into the soil surface by careful trampling. Some seeds won't germinate if covered.



6. Trample well

DIY...

Keeping it going

Spring

A summer meadow can be mown up to late spring using a mower set to about 10cm. Then leave it until autumn. Re-sow any bare patches with seed collected last year, and selectively weed really pernicious species such as creeping thistle.

Summer

Time to enjoy the results of your labour and watch the wildlife it attracts. Remember to collect some seeds as the seedheads mature. Keep in a dry envelope until next spring.

Autumn

Once the flowers have seeded it's time for a close mow. Rake off all the mowings to avoid adding unwanted nutrients to the soil. You can leave a few tussocks and larger seed heads until spring to provide winter bird food and shelter for overwintering invertebrates.

Winter

A bit of ground disturbance will renew the conditions in which most of your meadow seeds germinate and thrive. You can achieve this with a bit of vigorous raking.

iStockphoto.com/6-a-m



Plenty of TLC

WHILST THE SEEDS are germinating it is important to keep the soil moist by frequent gentle spraying using a hose or watering can with a fine rose. Birds can also be a nuisance, not only eating the seed but also using the fine soil as a dust bath so it makes sense to use a system of sticks and strings to keep them off. As the seedlings develop watch out for the development of unwanted weed species and remove them before they become established. If you've seeded a large area, mowing a few times the first year will help control annual weeds.

The time to welcome birds to the meadow will come, but not while the seeds are germinating. Use strings and reflective streamers to deter them.



7. Protect from the birds.



8. Water regularly

Suitable for most soil-types...

Yellow rattle

This partial parasite earns its place by weakening surrounding grasses, thereby helping other wild flowers compete more effectively.

Ladies bedstraw

Scrambling ground cover with honey-scented froth of nectar-rich flowers.



Red campion

Glorious colour and long season, self-seeds well.

Ox-eye daisy

A classic agricultural weed, attractive to bees and butterflies, and admired by humans!



Knapweed

A magnet for bees and butterflies. Unchecked clumps become large but can be dug out in spring.



Bugle

Lovely source of early season nectar. Clumps will enlarge gradually over time.



Cat's ears

Rosette-forming members of the dandelion family, popular with hoverflies.

Teasel

Flowers draw bees in summer, and seed heads provide goldfinch food in winter, but clumps will expand and need controlling.



iStockphoto.com/Chas53

Wildstory.co.uk

Parting shot



With looks like this, demand from the pet trade is so strong that Javan slow lorises are among the world's top 25 most endangered primates. We are supporting loris expert Anna Nekaris to understand these lovely animals better, educate their captors, and campaign to designate the species as 'critically endangered'. If we can change hearts and minds we can still save them.

Your support is vital.
Thank you.

