BBC

WILD MAURITIUS SAVING THE ISLAND IDYLL'S RAREST SPECIES

# Wildlife

August 2012 £3.80 US $8.25 CAN $10.95
Volume 30 Number 8

ALSO INSIDE
GIANT SALAMANDER
WHERE TO SPOT BATS
DROUGHT SURVIVORS
EXPLORE THE FENS

THEY JUMP HIGHER!
THEY SWIM FURTHER!
THEY RUN FASTER!

## ANIMAL ATHLETES

Why the brown hare would beat Usain Bolt in a sprint

ALSO FEATURES
» SQUIRREL LONG JUMP
» GANNET HIGH DIVE
» STAG BEETLE JUDO

9 770265 365152 08

**BACK TO THE WILD**
How two clouded leopard cubs were

**BEST OF BRITISH**
Incredible new photos of our

**WILDLIFE ART**
*BBC Wildlife* Artist of the Year – the

# Naturetrek

Wildlife holidays you can't afford to miss

## Birdwatching Holidays for Beginners

We are pleased to launch a brand new programme of Naturetrek Birdwatching Tours that are aimed entirely at Beginner Birdwatchers requiring a high level of tuition. This new selection of holidays will focus on tried, tested and popular itineraries, both in the UK and overseas, where comfortable facilities will be offered together with the expertise of those of our top ornithologist tour leaders best suited to provide the level of care, information and guidance necessary to help those wishing to learn about and enjoy the rewarding pastime of birdwatching.

**The Somerset Levels**
Wed 16th – Fri 18th January 2013 Cost: £295

**South Devon in Winter**
Fri 8th – Sun 10th February 2013 Cost: £295

**Northumberland & the Farne Islands**
Thu 30th May – Tue 4th June 2013 Cost: £795

**Islay's Winter Wildfowl Spectacle**
Fri 8th – Thu 14th November 2013 Cost: £995

**The Carmargue in Spring**
Sun 12th – Thu 16th May 2013 Cost: £895

**Lesbos in Spring**
Sat 4th – Sat 11th May 2013 Cost: £1,295

**Mallorca**
Sat 27th April – Sat 4th May 2013 Cost: £1,295

**Spain – The Best of the Coto Doñana**
Wed 17th – Sun 21st April 2013 Cost: £995

**Morocco – Desert Birds & Winter Sun**
Thu 14th – Sat 23rd March 2013 Cost: £1,395

**Nepal – Birds of Mountains & Marshlands**
Sun 20th – Mon 28th January 2013 Cost: £1,695

**Panama – an introduction to the birds of Central America**
Wed 15th – Thu 23rd May Cost: £2,195

Naturetrek

www.naturetrek.co.uk

01962 733051 info@naturetrek.co.uk

Cheriton Mill, Cheriton, Alresford, Hampshire, SO24 0NG

## THIS MONTH'S CONTRIBUTORS

**ANDREW PARKINSON**

**Best of British, p21**
Andrew was thrilled to photograph marsh harriers – even from a cramped scaffold hide. "Watching this beautiful raptor hover over a reedbed helped me forget the discomfort," he says.

**HELEN MEREDITH**

**Giant salamander, p52**
Helen works in amphibian conservation. She says, "Though often overlooked, amphibians are truly remarkable creatures in need of our help. To know them is to love them!"

**SANDESH KADUR**

**Back to the wild, p64**
Sandesh is a photographer and film-maker with a fascination for felines. "The opportunity to work with clouded leopards provided a once-in-a-lifetime experience," he says.

**MANDY SHEPHERD**

**Wildlife art, p74**
Over the past 30 years Mandy has painted a range of military and wildlife subjects. Her lifelong fervour for conservation is reflected in much of her work.

**ON THE COVER THIS MONTH...**

Brown hare in Norfolk

**PHOTOGRAPH BY**
DAVID TIPLING/RSPB IMAGES

**INSETS** Sandesh Kadur; Mark Hamblin/2020VISION; Katy Rewston

Cheryl-Samantha Owen

# Welcome

With a top speed of over 100kph, the cheetah is a world-beater – the planet's fastest land animal. But here in the UK we have a sprint champion of our own: the brown hare clocked at a speed of 77kph, making it the sixth-fastest thing on four legs – pretty impressive, considering its size.

Dashing over the finish line to take silver ahead of our leggy lagomorph hero might be the USA's pronghorn antelope, which can sprint at nearly 100kph and cruise at about 65kph. The battle for the bronze might be contested by Team Africa – lion, wildebeest, Thomson's gazelle and springbok, all of which are believed to be able to reach speeds of 80kph or thereabouts.

However, our little brown hare would leave the fastest human sprinter for dust – 100m world-record holder Usain Bolt can manage a mere 44kph at full tilt. Pah!

Indeed, the hare is far from the only British athlete that would trounce human competition. The peregrine falcon, for example, can reach speeds of over 200kph during a stoop while plunging after prey (albeit wind- and gravity-assisted – so there is still a question mark over the record...).

The stoat could easily steal the gold in gymnastics with the artistry, complexity and sheer exuberance of its wild dance (watch kits in action at www.bbc.co.uk/nature/life/Stoat). And then there's the high jump: at the Orrin Falls in Ross-shire, Scotland, an Atlantic salmon was recorded making a vertical leap of 3.7m. In this issue we cheer on the UK animal athletes that jump higher, throw further and lift more (**p42**).

> "The brown hare can reach a speed of 77kph, making it the sixth-fastest thing on four legs."

Also this month, some of the UK's finest photographers celebrate the best of British wildlife (**p21**); we meet a river monster still lurking in Japan's backwaters – the giant salamander (**p52**); and find out how Mauritius' most special wildlife has been saved from extinction (**p58**). Plus we follow the return of two orphan clouded leopard cubs to the wild (**p64**), and reveal the winners of our art competition (**p74**). Enjoy!

Sophie

**Sophie Stafford,** Editor

## HOW TO GET IN TOUCH

**Subscription enquiries and back issues:** 0844 844 0251
**Editorial enquiries:** 0117 314 7366

**Subscription enquiries and back issues:** wildlife@servicehelpline.co.uk
**Editorial enquiries:** wildlifemagazine@immediate.co.uk

**Subscription enquiries and back issues:** *BBC Wildlife Magazine*, FREEPOST LON16059, Sittingbourne, Kent ME9 8DF
**Editorial enquiries:** *BBC Wildlife Magazine*, Immediate Media Company, 4th Floor, Tower House, Fairfax St, Bristol BS1 3BN

## FOLLOW US

facebook.com/WildlifeMagazine

twitter.com/WildlifeMag

# contents

AUGUST 2012

## WILD British wildlife to enjoy this month



## AGENDA News, conservation & analysis



## W2 Essential information & expert advice



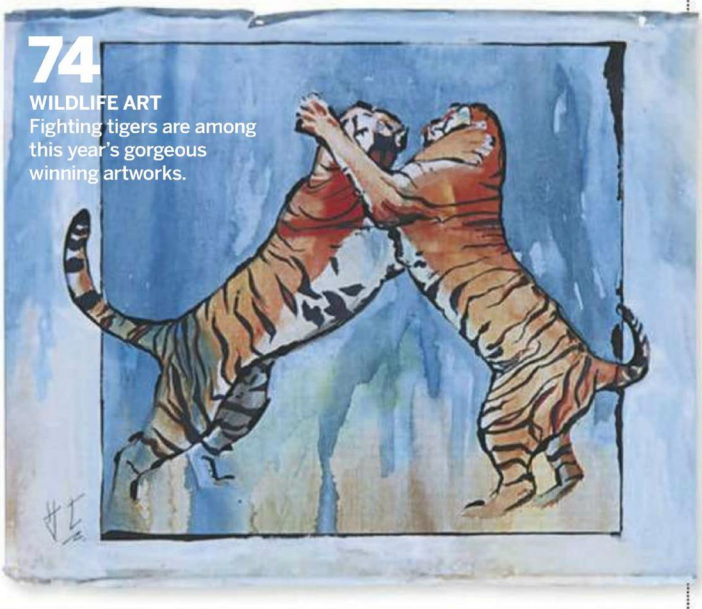
## REGULARS







**64**
**BACK TO THE WILD**
Be enthralled by the story of two orphaned clouded leopard cubs returned to the wild in India's rainforest.



**74**
**WILDLIFE ART**
Fighting tigers are among this year's gorgeous winning artworks.

**21**
**BEST OF BRITISH**
Goldfinches, otters and pine martens star in our portfolio celebrating the UK's favourite wildlife.

Clockwise from top left: Edwin Kats; Sandesh Kadur; Julie Cross; Peter Cairns/2020VISION; P Guttman/Corbis

# FEATURES

# wild august

**species & habitats** | your local patch | things to do

GREY SEAL

## Cool customer

Calm and unhurried, a bull grey seal takes time out from hunting to gawp at the photographer as if offering a greeting, in the crystal-clear waters of the Lundy Marine Conservation Zone. This area, off the coast of north Devon, is rich in sandeels that swim in silvery shoals, but wise seals don't waste energy pursuing them; instead, they seek out the eels hiding in the sand and scour the seabed, much as a cow grazes a meadow, snatching the fish as they break cover. Though seals can dive deep, they often conserve energy by lying in wait for species such as flounders, whiting and haddock. No doubt being as round and mottled as the Lundy boulders gives these sleek predators an advantage.

▶ *National Marine Week runs from 28 July to 12 August. For more details of events around the UK, visit www.wildlifetrusts.org/node/2980*



by **Brett Westwood**
BBC radio presenter and naturalist

Alex Mustard/naturepl.com

by **Brett Westwood**
BBC radio presenter and naturalist

THREE TO SPOT

## MARINE GIANTS

Alex Mustard/2020VISION/naturepl.com

▲ As the sea warms in summer, big sharks arrive off our western coasts, triggering predictably excited newspaper headlines. These are BASKING SHARKS following soupy plankton blooms, which they strain with their huge, bristly gill arches. Check www.baskingsharks.org for a map of recent sightings.

Laurie Campbell

▲ August is prime time for whale-watching in Britain. Look out for the small, sickle-shaped dorsal fins of MINKE WHALES, which occur along northern and western coasts, especially off the Inner and Outer Hebrides. If you're lucky you may see them lunge-feeding for sandeels.

▲ LEATHERBACK TURTLES can be spotted in the Irish Sea this month. The barrel-like leviathans are gigantothermic (they make their own body heat), enabling them to migrate north to British waters in search of jellyfish prey. Send records to www.msc.org

Scubazoo/Alamy

The corn bunting's song, a signature sound of British countryside, is often compared to a jangling bunch of keys. This male is perched on scentless mayweed growing among a wheat crop.

Corn bunting: Steve Round; Wicken Fen: Chris Gomersall

CORN BUNTING

# Little brown jobs

Most birds stop singing by August, but corn buntings continue to pour out their jazzy, free-wheeling ditties that cut through the late-summer heat haze. These rather plain birds are classic 'little brown jobs', to borrow the popular (somewhat disparaging) birdwatchers' phrase, but nonetheless have a charm all their own.

Corn buntings are creatures of open countryside hefted to farmland, hence their traditional names of 'clodhoppers' or 'fat birds of the barley'. Seen well, swaying on crops or perched atop hedgerow bushes or roadside wires, they are plump, streaky birds, with a notched upper mandible.

Male corn buntings sing often and late because they are still defending territories now. They may have sired broods with several females – one male was recorded attracting 18 females to his territory. Some males have also been known to share a mate.

The female makes her nest in cereal crops, long grass and overgrown field margins. About half of all clutches are laid after 21 June, which means that the nests are vulnerable to early harvesting or silage-making. The chicks are fed on invertebrates, so overuse of pesticides reduces the amount of food available, while also increasing the energy used by parents when foraging.

It's thought that these factors, together with a scarcity of weedy fields in winter, led to the 89 per cent decline in corn-bunting populations between 1970 and 2003. They're now among the most threatened of all our farmland birds – so if you have clodhoppers in your neighbourhood, make sure to revel in that last song of summer.

▶ *Listen to Brett's five-part audio guide to Britain's farmland birds, originally recorded for BBC Radio 4, at www.bbc.co.uk/programmes/b0137xqs*

HABITATS OF THE BRITISH ISLES

# Fens

Fens ain't what they used to be. The very word sounds ancient and mysterious, recalling sedgy wastes and mires filled with the cries of water birds and glimpses of will-o'-the-wisps. But we have drained the word of its meaning, just as we've drained the fens themselves. Nowadays, a visit to the East Anglian fenlands can leave you asking: "Where exactly *are* they?"

But jewels remain: pampered relics of the old fens. In August, they are purple with marsh thistles and reed plumes, and alive with darting dragonflies. Marsh harriers send moorhen chicks clucking across duckweedy ditches.

Our fens are about to grow again, thanks to the Great Fen project (www.greatfen.org.uk). It's an ambitious attempt to remake a lost landscape.


## FIVE TOP SPOTS

Visit early for peak bird activity, and in late morning on a warm day for insects. All of the sites listed here are good for marsh plants and dragonflies.

1. HOLME FEN, CAMBS
Raised mire and heath with a mere and birchwood; the lowest point in the UK. The Great Fen project aims to link this area to Woodwalton Fen (*below*).

2. WOODWALTON FEN, CAMBS
Classic peat fen with reedbeds, ditches and scrub.

3. WICKEN FEN, CAMBS
Sedge fens, seasonal grazing, scrub and open water.

4. CHIPPENHAM FEN, CAMBS
One of our finest fens, spring-fed with saw-sedge meadows and wet grassland over peat.

5. STRUMPSHAW FEN RSPB, NORFOLK
Extensive fen in Yare Valley with many scarce plants.

Dawn mist rises over one of Wicken Fen's sedge-lined dykes, home to myriad colourful dragonflies and reed and sedge warblers. The reserve's famous water pump is in the background.

by **Brett Westwood**
BBC radio presenter and naturalist

SPOTTER'S GUIDE

# Wall wildlife

A wall is a miniature cliff to a plant or animal, and offers a haven to many rock-loving species. Some of these were introduced to Britain and now thrive here; others are native species that use our walls as substitutes for natural cliffs and rocky outcrops.

Walls – particularly old ones – offer a range of microclimates. Stone or brick soaks up August sun, tempting warmth-lovers, while cool, dry crevices provide shelter from downpours. The geology and location of a wall also influence its wildlife. A lime-rich drystone wall in the Yorkshire Dales, for example, supports different species from a sheltered brick structure.

We have illustrated a dozen wall specialists to look for this month. In most walls there will be snails and spiders lurking in cracks. By contrast, harvestmen and moths hide in plain sight, reliant on their cryptic patterns.

The plants we've chosen have quirky reproductive strategies. Ivy-leaved toadflax plants its own seeds in the dark; stonecrop regenerates from its discarded shoots; and yellow corydalis persuades ants to bury its seeds.

## ▶ HOW TO GET INVOLVED

- **Compare walls** to see how their wildlife varies. Check shaded and unshaded locations, and walls in limestone and sandstone areas.
- **Use a tuning fork** to vibrate the webs of wall spiders – some respond heart-stoppingly quickly!
- **Scan with a torch** at night to spot woodlice, beetles, spiders and snails foraging over your walls.

**KEY**
- ● Common and widespread
- ● Local: easy to see in some spots
- ● Scarce: searching needed

### Grey cushion moss ●

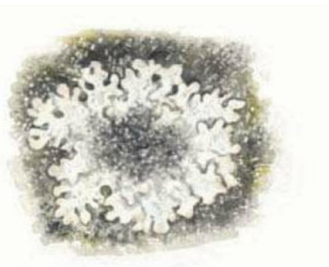
*GRIMMIA PULVINATA*

Translucent leaf tips give a greyish, woolly appearance when dry. On wall tops and along mortar lines.

### Anomalous bristle-moss ●

*ORTHOTRICHUM ANOMALUM*

Brown spore capsules are held on stalks above green leaves. On neutral or limey walls, but not acid ones.



### Salted shield lichen ●

*PARMELIA SAXATILIS*

Blue-grey fronds in loose rosettes. One of many leafy lichens found on upland walls, especially acid stone.

### Ivy-leaved toadflax ●

*CYMBALARIA MURALIS*

Tiny flowers and fleshy foliage on trailing stems. After flowering, stalks grow into dark cracks to bury seeds.

### Yellow corydalis ●

*PSEUDOFUMARIA LUTEA*

Feathery leaves and sprays of yellow tubular flowers. A protein globule on each seed bribes ants to distribute.

### Reflexed stonecrop ●

*SEDUM RUPESTRE*

Fleshy leaves and flattish heads of yellow flowers. Can survive in the driest locations on hardly any soil.

### Brown-lipped snail ●

*CEPAEA NEMORALIS*

Variable patterning, but usually yellowish and brown. Always has a dark edge to shell's inner opening.

### Lace weaver spider ●

*AMAUROBIUS SIMILIS*

Body: up to 10mm (female); glossy brown, velvety abdomen. Lacy web surrounds its crevice hideaway.

### Tube-web spider ●

*SEGESTRIA FLORENTINA*

Body: up to 22mm (female); black, with bronzy jaws. Trip-lines radiate from its crevice web. Local in south.

### Marbled green ●

*CRYPHIA MURALIS*

Wingspan: 27–34mm. Small moth, camouflaged in greys and greens to blend in with lichens, its larval food.

### Red underwing ●

*CATOCALA NUPTA*

Wingspan: 65–75mm. Large, well-camouflaged moth; when disturbed flashes red-and-black underwings.

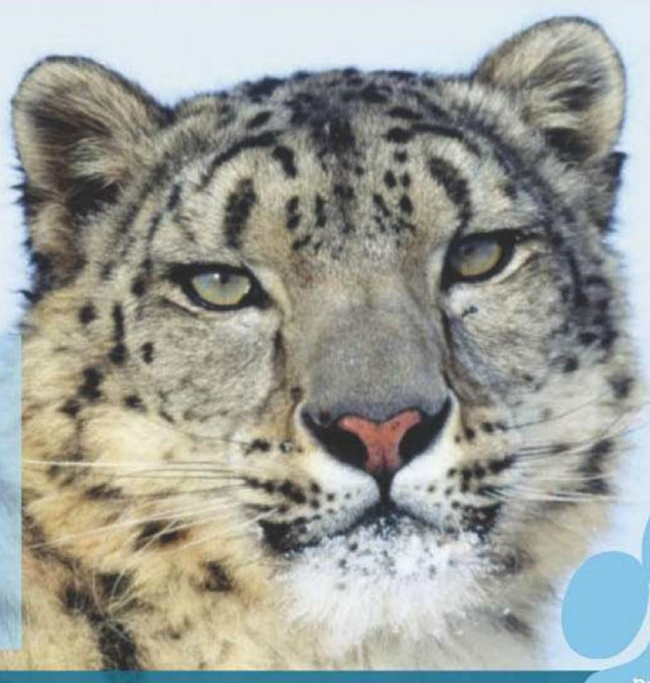
### Common carpet ●

*EPIRRHOE ALTERNATA*

Wingspan: 20–25mm. Small moth with cryptic markings; wings have a dark central band with pale borders.

Illustrations by Felicity Rose Cole (not to scale)

WWF ADOPTION



© KLEIN & HUBERT / WWF

# ADOPT HIM TODAY. OR LOSE HIM FOREVER.

## Will you help the snow leopard claw its way back from the brink?

***Snow leopards have survived in the Himalayas for thousands of years. But right now, there are as few as 300 left in Nepal. The harsh reality is that they're being slaughtered by poachers for their bones and precious fur – and they urgently need your help if they are to live on.***

By adopting a snow leopard today, you'll help protect this endangered big cat for future generations.

**Your present. Their future.**
For as little as £3 a month, you or your loved one will receive an adoption pack, an adorable cuddly toy and regular updates from people on the ground working tirelessly to help save the beautiful snow leopard.

What's more, you'll have the satisfaction of knowing you're helping us to train and equip courageous anti-poaching rangers. And you'll discover what it takes – and how it feels – to help save a species.

The purrrfect gift!


a gorgeous snow leopard toy

+


an adoption pack

+


regular updates from the field

= *from just* **£3 a month**

**Adopt a snow leopard today by filling in the form below, visiting protectasnowleopard.com or calling 0845 200 2391**

## Yes, I would like to adopt a snow leopard today

Please indicate how much you would like to give each month

I would like to give ☐ £3 ☐ £5 ☐ £7 ☐ £10

My choice £ ☐ each month (min. £3)

**Purchaser details**

Title:_____ Initial:_____ Surname:_____

Address:_____

Postcode:_____

Tel no:_____ Date of birth:_____

Email:*_____

*Please supply if you would like to receive emails from WWF (you can unsubscribe at any time)

**Gift recipient details** (if applicable)

☐ Tick this box if your adoption is a gift, then complete the details of the recipient below

Title:_____ Initial:_____ Surname:_____

Address:_____

Postcode:_____

Gift recipient's date of birth:_____

Would you like us to send the adoption pack directly to the recipient? ☐ Yes ☐ No

WWF-UK would really like to keep in touch but please tick this box if you'd rather we didn't ☐

**DIRECT DEBIT – WWF-UK**

Instruction to your Bank or Building Society to pay Direct Debits.

Service User Number 9 9 1 4 7 3

1. Name and full postal address of your Bank or Building Society Branch

To the manager of:_____ Bank or Building Society

Address:_____

Postcode:_____

2. Name(s) of account holder(s)

3. Branch sort code ☐☐-☐☐-☐☐

4. Bank or Building Society account number ☐☐☐☐☐☐☐☐

5. WWF-UK Reference Number (Office use only)

6. Instructions to your Bank or Building Society

Please pay WWF- UK Direct Debits from the account detailed on the instruction subject to the safeguards assured by the Direct Debit guarantee. I understand that this instruction may remain with WWF- UK and, if so, details will be passed electronically to my Bank/Building Society. Banks and Building Societies may not accept Direct Debit Instruction for some types of account.

Signature(s):

Your money will support our work to help save the snow leopard, as well as other vital conservation projects and environmental work around the world.

**Please return in an envelope to: Adopt a Snow Leopard, WWF-UK, FREEPOST KE4714, Panda House, Godalming, Surrey, GU7 1BR**

by **Derek Niemann**
nature diarist and author

STARLING

# Earning their spots

Don't be fooled by the squabbling mass of black, brown and somewhere-in-between birds on your lawn or local playing fields this month. They're all the same species: starlings. Like human teenagers, the juveniles develop at different rates – the transformation of late spring's dull-brown young into white-spotted, blue-black adults can stretch out from July to November.

Watch a flock for a few minutes and you'll see a strict code of behaviour. As the birds strut around, each preserves its own personal space. If one comes too close, its neighbour sidesteps or jabs with its bill to maintain what scientists call 'individual distance'.

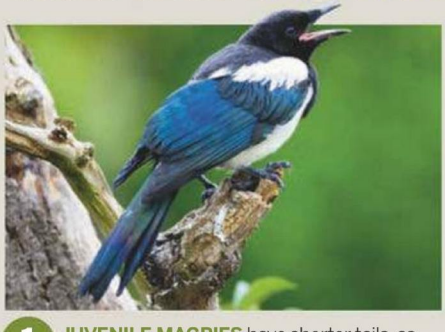
**FIND OUT MORE**

■ Watch Bill Oddie and Chris Packham discuss starlings at www.bbc.co.uk/nature/life/European_Starling

A boisterous, still-brown juvenile starling harasses one of its hard-worked parents for food.

## Gardenwatch

Four species to look for on your home turf this month.



1 **JUVENILE MAGPIES** have shorter tails, as well as dull (not glossy) black heads and off-white plumage. In August, their parents drive them away, so they must find their own territories.

2 Numbers of the **SILVER Y MOTH**, a day-flyer named for the markings on its mottled wings, reach a peak in late summer. This is when migrants arrive from the continent, boosting UK populations.

3 If the caterpillars of the **LARGE WHITE** had a motto, it would be: "You are what you eat." The black, yellow and green larvae are distasteful to predators because of oils in their brassica-based diet.

4 Clusters of **BEAN APHIDS** may make you recoil in horror, but take a closer look. These 2mm-long insects are actually bugs that suck plant juices with stabbing mouthparts like sharp straws.

Starlings, caterpillars & silver y moth: Laurie Campbell; magpie: Andrew Darrington/Alamy; bean aphids: Nigel Cattlin/FLPA; verbena: Dave Bevan

## plant of the month

**VERBENA BONARIENSIS**
**Butterfly and moth feast**

A strong contender for the best nectar provider of late summer, this beauty originates in South America's tropical grasslands: *bonariensis* means 'of Buenos Aires'. The plant's thin, square-sided stem has great strength, for it can raise its head of flowers to stand above our own heads. And what flowers!

Each plant bears a tightly packed bundle of pinkish-purple blooms irresistible to butterflies and migratory hummingbird hawkmoths. *Verbena* is easy to grow in full sun in well-drained soil and is a prolific self-seeder.

edited by **Ben Hoare**
features editor, wild@immediate.co.uk

You can help ensure that bumblebees (here a white-tailed bumblebee) continue to flourish in our gardens.

Nick Upton/2020VISION/naturepl.com

HELP BUMBLEBEES

# Bee kind in your garden

Our love affair with gardening could be the saviour of Britain's bumblebees. Up to 10 species – almost half the UK total – frequently visit gardens. In fact, the spread of intensive agriculture means that many of these delightful, tubby insects are now easier to find in urban areas than in the open countryside. Britain has lost 97 per cent of its flower-rich grassland (a key habitat for pollinators) since the 1930s, says Bumblebee Conservation.

Now the charity has launched Bee Kind, a new project to raise awareness of bee-friendly gardening, which isn't just about providing lots of flowers. Its website offers advice, tailored to your patch, on choosing plants to provide nectar and pollen throughout the insects' long breeding season (March to autumn). You should also create sheltered 'edge habitats' suitable as nest sites – for example, by allowing grass to grow long around the base of a tree or beside a hedge.

As an added incentive, why not enter the Bee Kind competition – a search for the UK's best gardens for bumblebees? There are prizes in several categories for different garden sizes, and you can even enter window boxes.

### HOW TO TAKE PART

- To enter your garden in the Bee Kind competition visit www.bumblebeeconservation.org by 20 July.
- For information about bumblebee life-cycles and an ID guide to 22 British species, go to www.bumblebeeconservation.org/about-bees

## SURVEY SNAKES

Jamie Hall

**NOW IS A GOOD** time to search for grass snakes. The babies hatch from August to October, and adults can be seen hunting in quiet corners of wetlands, wasteland and large gardens. They are drawn to ponds and canals – 'water snakes' would be a better name – but are getting scarcer. Send records to Amphibian and Reptile Groups of the UK.

▶ *Submit sightings at www.arguk.org/recording*

## WHAT TO DO IN ONE...

Chlaus Loetscher/Alamy

### hour

**SURVEY MAMMALS ON ROADS**

This summer the People's Trust for Endangered Species is again running its popular survey in which we are asked to count wild mammals (living or dead) along roads. The data provides clues about changing populations of species such as hedgehogs.

▶ *For details of how to take part, visit www.ptes.org/mor*

### evening

**CELEBRATE EUROPEAN BAT WEEKEND 2012**

Bat-watches and talks take place across the UK over the weekend of 25–26 August. If you've never experienced the thrill of tuning into the high-frequency calls of these mammals with a bat detector, now's your chance.

▶ *For details of events near you, visit www.bats.org.uk or call 0845 130 0228.*

Michael Callan/FLPA

### day

**VISIT BIRDFAIR 2012**

The unmissable jamboree for all nature lovers (not just birders) is held at Rutland Water Nature Reserve on 17–19 August. Amid all the fun, make sure to scan the sky for ospreys – and come to see us at the *BBC Wildlife* stand!

▶ *For more details and ticket prices, go to www.birdfair.org.uk*

Pipistrelles emerging from their roost at Lacock Abbey make a wonderful spectacle – each will eat up to 3,000 insects in a single night.

## WHAT TO DO IN ONE... *weekend*

# In the night garden

Mix fantasy with reality at Lacock Abbey: watch **PIPISTRELLE BATS** emerge from their roost through the mouths of gargoyles.

### AT A GLANCE

- **What?** A constant stream of pipistrelle bats leaving their maternity roost to hunt insects.
- **Where?** Lacock Abbey, near Chippenham in Wiltshire.
- **When?** May to October, though bat walks only run in May, July and August.
- **Also look for** Daubenton's bats down by the river; noctules flying overhead can be picked up on a bat detector. Good chance of seeing tawny owls, too (*left*).

Down by the river, Tony directed his torch onto the still waters below us. It was like shining a light into a mass of plankton, so numerous were the insects spawned by this stretch of the Avon in Wiltshire. And there, too, was the equivalent of a marine filter-feeder: a Daubenton's bat, a manta ray in miniature, skimming over the surface and hoovering up the booty in slow, effortless arcs.

Such was the mass of invertebrates that I felt like a child again, remembering a time when insect life – indeed, *most* life – had appeared limitless and inviolate.

But I hadn't come to Lacock Abbey, a former convent and now a National Trust property that was used as a set for the *Harry Potter* films, to gawp at a pea-soup of gnats and midges. I was here to see bats, one by one by one.

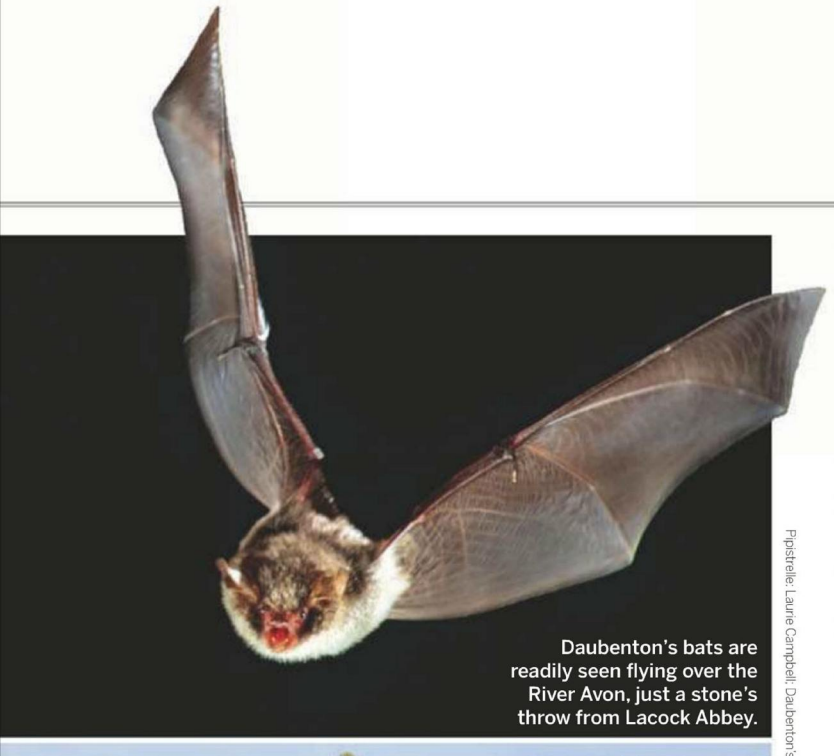
The stage for this spectacle was Lacock's octagonal Tudor tower and the players were pipistrelles (sopranos, or '55s', since you ask). The pips care for their young in the roof of the tower, and they have their exits and their entrances through the mouths of the gargoyles located on each corner of the octagon. It's an idea so delicious, it really has to be said again: the bats emerge from the jaws of stone-carved lions – and in numbers, what numbers!

Between May and October, local bat expert Tony Brazier counts them out twice a month. This is one of the largest pipistrelle maternity roosts in the country, with 1,017 bats being the most recorded in one night.

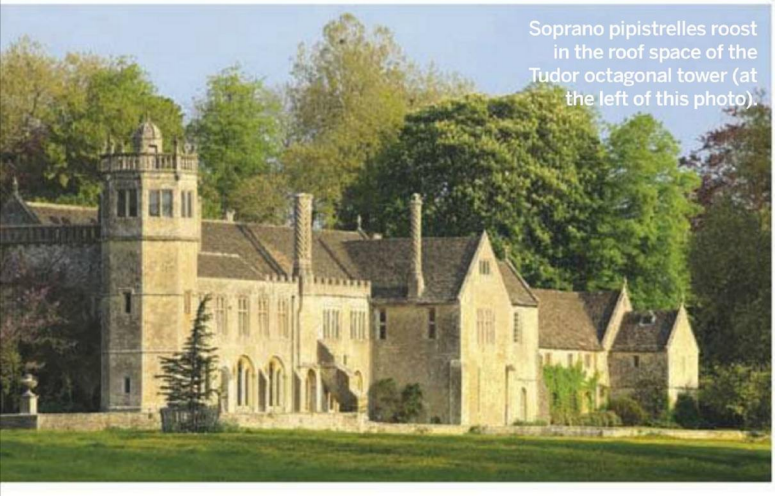
Arriving after 7pm on a warm and breathless August evening, we strolled through the abbey's quintessentially English parkland. Tony switched on his bat detector, and it instantly picked up a babble of low chirrups. "Social chit-chat," he said. "The pips are waking up."

Meanwhile, assistants Dave and Carole were settling into their deck chairs with flasks of tea by their side, as if they were attending an open-air performance of *As You Like It*. It was all very civilised.

by **James Fair**
environment editor



Daubenton's bats are readily seen flying over the River Avon, just a stone's throw from Lacock Abbey.



Soprano pipistrelles roost in the roof space of the Tudor octagonal tower (at the left of this photo).

Pipistrelle: Laurie Campbell; Daubenton's: De Meester Johan/Alamy; abbey: Chris Warren/4Corners; tawny owl: Steve Round

So fleeting were the first bats to emerge from the gargoyles' mouths that I missed them, only aware that Tony was clocking up numbers on his counter. As with many things – tennis, *Space Invaders*, spotting leopards – I was a bit slow getting my eye in. But so relentlessly did the bats keep coming that it didn't take me long.

By 9pm, with the light fading, the bats were emerging every 15 seconds or faster. It was like watching the ephemeral bloom of a black flower, appearing from nowhere and existing for less than half a second before fluttering into the night as if blown by the wind.

> *Hundreds of bats emerge from the jaws of stone-carved lions.*

There was no sound, just the rhythmic apparitions of dark shadows forming.

Later, when Tony had 'called it' for the night – a low count of 706 – he took me to an area of woodland where the pips hunted. Listening to the detector, he explained that the echolocation noises accelerate as a pip homes in on an insect, with the final sound of a double 'hit' representing the bat's last chirrup and the grasping of the prey – the moment of ecstasy and agony, triumph and disaster.

Still, it was hard to feel any sympathy for the gnats – there were plenty of them to go round, as I knew all too well.

NOW YOU DO IT

# PIPISTRELLE BATS

## SEEING THE SPECTACLE

**LACOCK ABBEY, WILTSHIRE** 01249 730459; www.nationaltrust.org.uk/lacock

▶ **Tony Brazier** will be leading family bat walks at Lacock Abbey on 17 July (8.30pm) and 21 August (7.30pm). Tickets cost £8 for adults, £4 for children.

▶ You can visit Lacock Abbey during the day, but cannot watch the bat spectacle unless you join one of Tony's walks.

▶ Find your **nearest bat walk** at www.bats.org.uk/events

## GETTING THERE

▶ The village of **Lacock** is just off the A350 between Chippenham and Melksham.

▶ The nearest **train** stations are Melksham and Chippenham, both just over 5km away.

▶ Catch an X34 or 234 **bus** from Chippenham or Melksham.

▶ **National Cycle Network** Route 4 runs very close to Lacock. 0845 113 0065; www.sustrans.org.uk

## WHERE TO STAY

**BUDGET Damson Cottage B&B**, just across the River Avon from Lacock, has singles at £40 and doubles at £70. 01249 730274; http://damsoncottage.2day.ws

**MID-RANGE The Old Rectory** (*right*) in Lacock has rooms starting at £50 for single occupancy, going up to £120 for a quad *en suite*. 01249 730335; www.oldrectorylacock.co.uk

**LUXURY Beechfield House**, south of Lacock, has rooms from £145. 01225 703700; www.beechfieldhouse.co.uk

## ALSO IN THE AREA

**COTSWOLD WATER PARK** is 30km north of Chippenham and worth visiting for breeding waders such as **little ringed plovers** and oystercatchers, as well as hobbies and barn owls.

**FYFIELD DOWN NNR**, 30km to the east, is famous for its 'sarsen stone' boulders, and good for many rare and declining **farmland birds** such as corn buntings and tree sparrows. Look for barn owls as dusk approaches.

**CHERHILL DOWN**, 15km to the east, is famous for its hill figure of a white horse. Look for wildflowers and birds such as **yellowhammers** (*above*).

Mike Wilkes/naturepl.com

## WHERE TO GO

**1 LACOCK ABBEY, WILTSHIRE**

**2 FALLS OF CLYDE WILDLIFE RESERVE, NEW LANARK** Bat walk on 9 August run by Scottish Wildlife Trust. 01555 665262; fallsofclyde@swt.org.uk

**3 NATURE DISCOVERY CENTRE, THATCHAM, BERKS** Bat walks on 17 and 31 August. 01635 874381; naturecentre@westberks.gov.uk

**4 DUNSTER CASTLE, SOMERSET** Bat walks on 2, 9 and 16 August. 01643 821314; dunstercastle@nationaltrust.org.uk

Great pictures today.

A world of possibilities tomorrow.

The EOS 600D is your first step on the path to a bigger, better and more exciting world of photography. You'll experience incredible image quality every step of the way and with over 60 interchangeable lenses, whatever your view of the world there's a lens for you.


2011 AWARDS TIPA BEST DSLR ENTRY LEVEL

Best Buy Which? Digital SLRs May 2011

**EOS 600D**

**Your EOS adventure starts here.**

Canon

OFFICIAL SPONSOR

UEFA EURO2012 POLAND-UKRAINE

The UEFA EURO 2012™ official logo is protected by trademarks,

umming Bird © Brutus Östling. Canon Ambassador

# RICHARD MABEY
# A BRUSH WITH NATURE

Spectacular Cretan flowerscapes reward those who follow in the footsteps of Edward Lear.

It had been one of those Elysian days on the Omalos Plateau in Crete. Five of us had wandered open-mouthed through endless drifts of wild tulips, and crown anemones in every shade from blue to scarlet. Back in the coastal village of Almyrida, we decided to have a celebratory dinner – for the tulips, but also for Edward Lear, born 200 years ago this May.

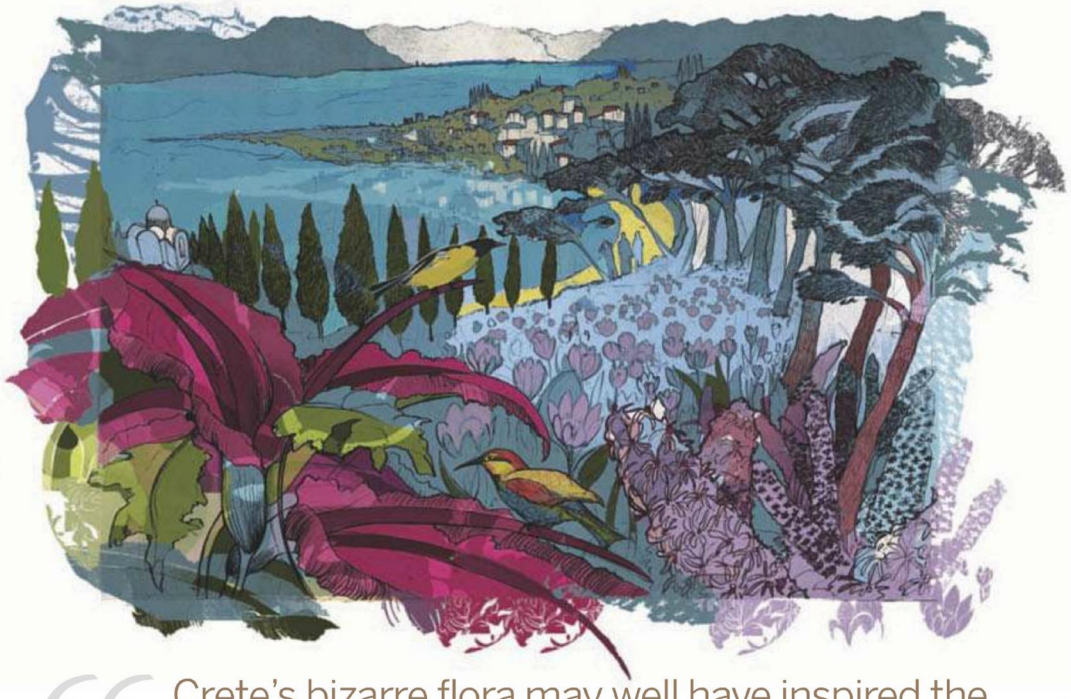
Lear is, of course, best known for his nonsense verse. But he was also a gifted watercolourist and a passable naturalist. In the spring of 1864 he journeyed through Crete, and wrote and illustrated his oddball *Cretan Journal*. So, over much the same kind of food that he ate – artichoke stew, *dolmades* (stuffed vine leaves), *horta* (wild greens) and Crete's infamous (Lear called it "astonishing") brown wine – we reminisced about his adventures.

His diaries are eccentric, sharp-eyed, curmudgeonly and often hilarious. He whines about the unpainterly monotony of the scrubby landscape, the miserable condition of the houses and the ubiquitous fleas and bedbugs. He often slips into a kind of textese, and complains about having to walk on "werry hard rox".

But Lear had fun, too. At Agioi Deka, he did "three new things I have never done before... drink wine out of a candlestick, sup on snails, walk for two hours on the tops of houses". He was serenaded by nightingales, and in one day identified orioles, bee-eaters and hoopoes.

But Lear was most comfortable with plants. He knew the local evergreen Valonia oak, with its preposterously large and shaggy acorns, and dittany, an endemic herb used as a tea. When he came across the monstrous, offal-stinking dragon arum, he described it as "brutal-filthy but picturesque".

I imagine that Crete's bizarre flora may well have helped to inspire the fantastical cartoons in Lear's *Nonsense Botany* (1888). This is famous for his pendulous invention *Manypeeplia upsidownia*, while *Sophtsluggia glutinosa* looks uncannily like some awful mutation of the indigenous arums.



> "Crete's bizarre flora may well have inspired the fantastical cartoons in Lear's *Nonsense Botany*."

The day after our impromptu memorial meal, we went to look for some of Crete's extraordinary plants. The island, which split from the Greek mainland five million years ago, has more than 200 endemic species – 10 per cent of its total flora.

They include a woody bedstraw with whippy green stems, so that the whole plant resembles a cat-o'-nine-tails; an exquisite dwarf catmint, which grows only near the top of a single peak in the White Mountains; and a campion with the splendid name of *Silene antri-jovis*, named after the location from which it was first described, inside the cave of Zeus.

But endemism reaches its epiphany in Crete's hundred or so gorges, where the vegetation has been isolated for the two or three million years since these great clefts were created. It's a vertiginous business keeping your feet on the rocky down-paths while squinting up at plants clinging to bare rock faces hundreds of metres above, but an awesome lesson in plant adaptation. There are drapes of creamy white coronilla, voluptuous yellow shrubby flax and frothy blue flower-spikes of Cretan wall lettuce (actually a bellflower).

Some of these 'chasmophytes' are confined to just one or two gorges. I wish Lear had seen them. He would have had fun inventing names for these *Hermita crampongrippias*.

**RICHARD MABEY** is one of Britain's foremost nature writers. He has written for *BBC Wildlife* since 1984, and appears regularly on BBC radio.

Illustration by Shelly Perkins/shellyperkins.co.uk

# Naturetrek

Wildlife holidays you can't afford to miss

## NATURETREK & SWAROVSKI OPTIK ... your perfect team for a Snow Leopard Quest!

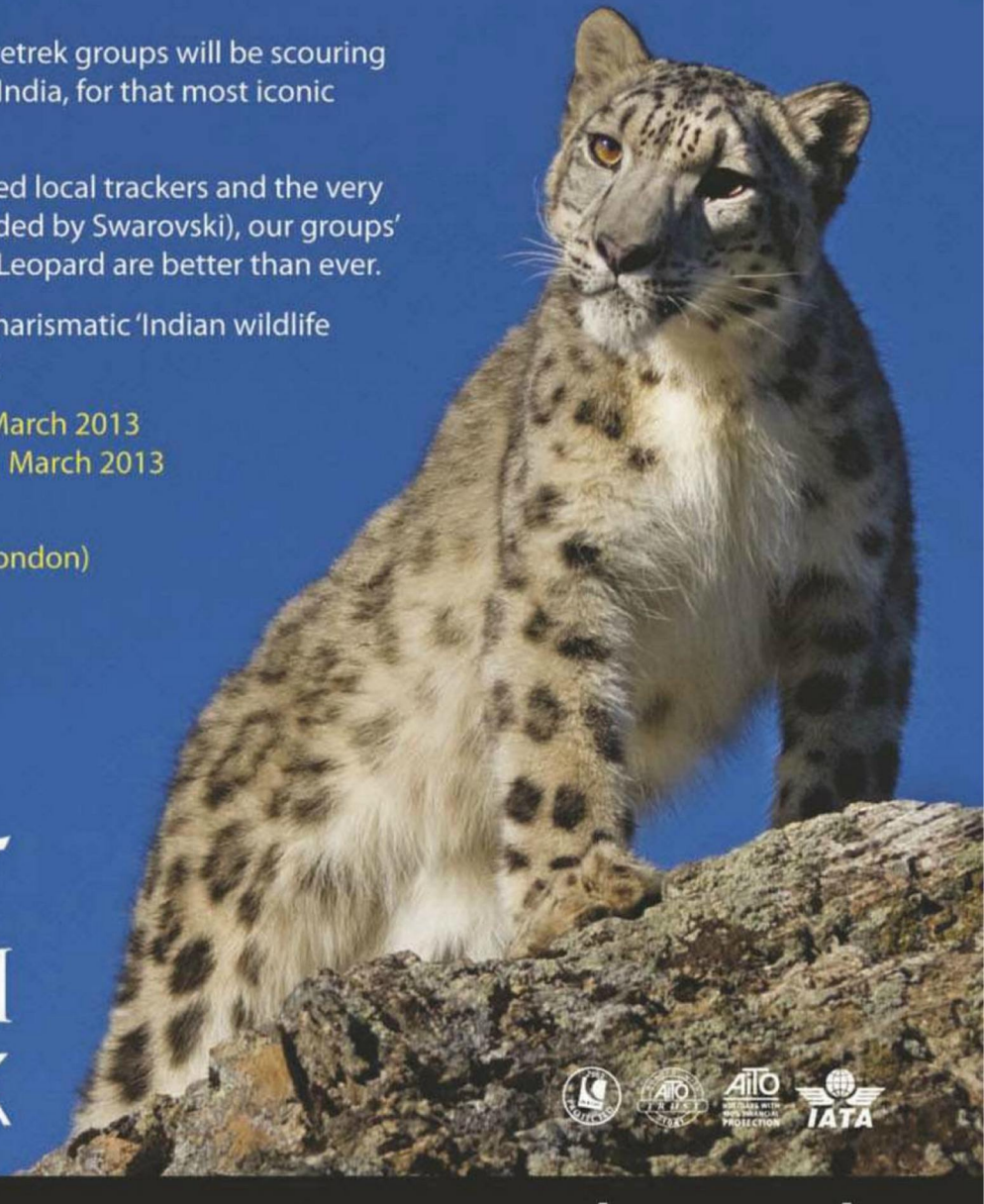
Once again, this coming winter, Naturetrek groups will be scouring the hillsides of Ladakh, in north-west India, for that most iconic mammal of all - the Snow Leopard.

This winter, using the most experienced local trackers and the very best telescopes and binoculars (provided by Swarovski), our groups' chances of sighting the elusive Snow Leopard are better than ever.

Join Nick Acheson, our popular and charismatic 'Indian wildlife expert', on one of the following tours:

Friday 22nd February - Thursday 7th March 2013
Wednesday 6th March - Tuesday 19th March 2013

Cost: £2595
(all inclusive, inc. return flights from London)



SWAROVSKI OPTIK

Naturetrek

www.naturetrek.co.uk

01962 733051 info@naturetrek.co.uk

Cheriton Mill, Cheriton, Alresford, Hampshire, SO24 0NG

# BILL ODDIE
# WILD AT HEART

Buzzards are booming in Britain – we should celebrate the species' success, not threaten it.

Several years ago, a friend of mine spent a weekend in Scotland. When he got back, he was excited about a bird he'd spotted, though he wasn't confident about the species.

"Could we have seen a golden eagle?" he wondered.

"Where exactly were you?" I asked.

"In the Cairngorms."

"Well, there *are* golden eagles there. What was it doing?"

"It flew across the road."

"Are you sure it wasn't a buzzard?"

"It was *really* big!"

Birdwatchers always say that if you see an eagle, but you're not sure, then it's a buzzard – in Scotland they call them 'tourists' eagles'. But when you spot an eagle, you *know* it's an eagle. My friend was deflated. His wife said, "Never mind, dear." His daughter added, "I told you so!"

Since then, my friend has seen lots of buzzards, and he didn't even have to go back to Scotland. He lives just north of London, where he now spots them most weeks. He no longer mistakes them for eagles, though he does get them confused with red kites, whose numbers are also increasing.

Not so long ago both of these species were in trouble in Britain. In the late 1950s, there were only half a dozen pairs of kites, all deep in the Welsh valleys. Buzzards were not quite so scarce, but they were very much birds of hills, mountains and moorlands – so much so that we all assumed they needed such specialised habitat to survive.

Then, many years ago, I went to Holland – the epitome of flatness, with nary a hillock in sight. Here were thousands of geese and lots of buzzards – perched on posts, dawdling along dykes and, most incongruously, shuffling around in the grass feeding on earthworms. It was clear that the birds needn't be confined to moors and mountains. So, if they were happy in Holland, why not in England?

> "It says a lot about buzzards' lack of skill that much of their 'live' food is already ill, injured or dead."

And now – thanks to less prejudice, and the reduced use of poisons and pesticides – 'tourists' eagles' are proliferating. Another reason for their success is that they are not fussy eaters. Which is just as well, because they are hardly impressive hunters.

They can't perform the deadly dives of a peregrine nor the lightning interceptions of a sparrowhawk. It says a lot about their lack of skill that much of their 'live' food (rabbits, pigeons, etc) is already ill, injured or dead. But buzzards *do* risk their own lives by swooping on roadkill, along with other scavengers.


Illustration: Eric Smith/ericsmithillustrator.co.uk

But often when a species is booming it becomes a victim of its own success. Magpies and sparrowhawks have been accused of killing songbirds, parakeets stand accused of stealing nestholes, and now buzzards are accused of taking pheasants!

I could not believe it when the Government announced that it was planning a trial project that would sanction the destruction of buzzards' empty nests to displace breeding birds, either by blasting them with a shotgun or poking them with a stick. What's more, buzzards would also be "removed" (how?) and taken into captivity (where?).

So I was not at all surprised when an enormous protest was marshalled by organisations such as the RSPB, The Wildlife Trusts and the League Against Cruel Sports.

But I *was* surprised when, only a couple of days later, Defra said that the trial had been withdrawn. Is this the fastest U-turn the Government has made so far?

So where does that leave things? The buzzards seem safe, for now at least. Meanwhile, millions of pheasants are captive-bred every year, only to be blasted out of the sky in the name of 'sport'. Many of the birds are so heavy that they can hardly fly, so are splattered by cars and lorries on country roads, ending up as buzzard food anyway.

I will leave the last word to my friend: "If they really want to save pheasants, they should ban traffic!"

Former Goodie **BILL ODDIE, OBE** has presented natural-history programmes (both serious and silly) for the BBC for well over 10 years.

# Visionary
the clear choice

## Wetland
SERIES


**One of our most popular models...**

Rubber armoured and fully waterproof, Wetland binoculars are quite at home in the tough outdoors. High grade roof prisms and coated lenses give great clarity and colour. Available in a range magnifications and objective lens sizes to suit all aspects of wildlife viewing.

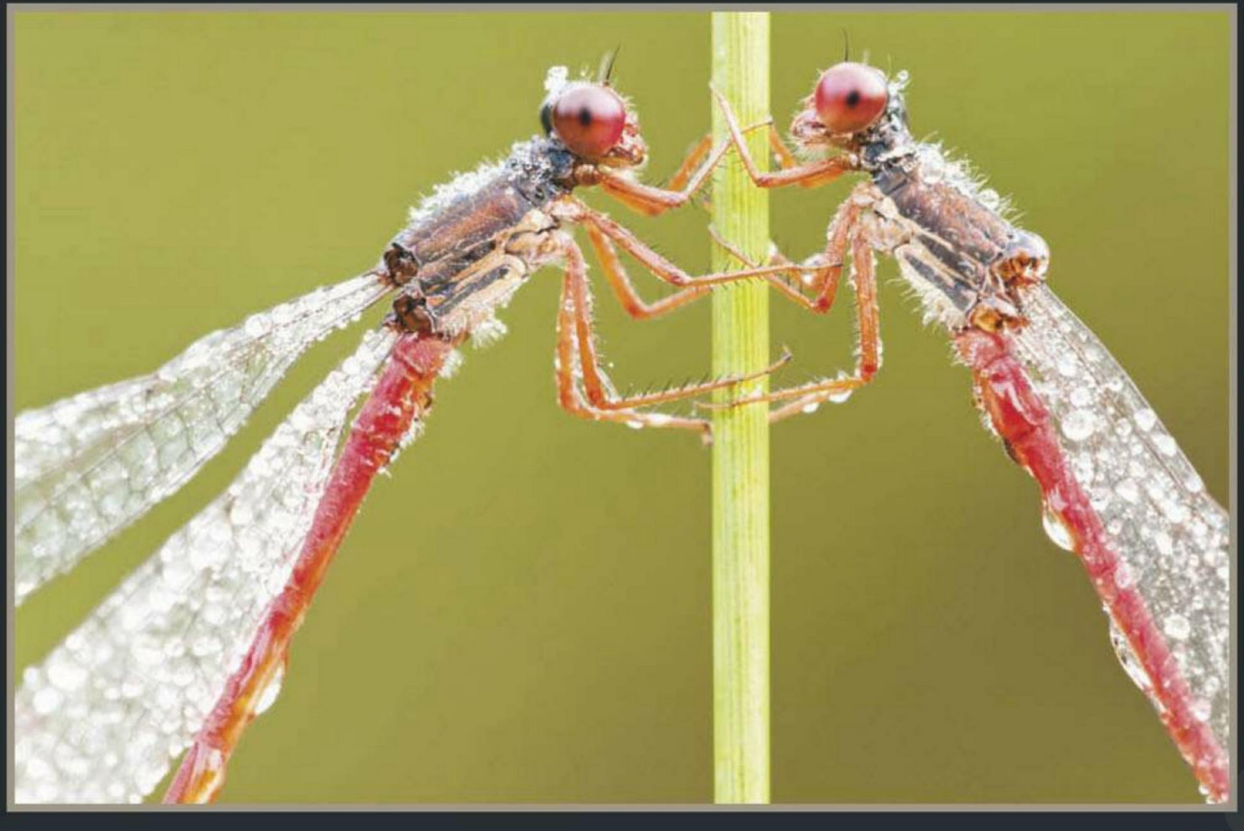
| Wetland compacts | Wetland midrange | Wetland full size |
|---|---|---|
| 8x25 \| 10x25 | 8x32 \| 10x32 \| 12x32 | 8x42 \| 10x42 \| 12x42 |

OPTICAL HARDWARE

Visionary binoculars and telescopes are manufactured and distributed by Optical Hardware Ltd and are available from your local stockist. For more information, and to find your nearest Visionary stockist visit **www.opticalhardware.co.uk/stockists**

# PORTFOLIO

## BEST OF BRITISH *by 2020VISION*



One of the most ambitious creative conservation projects ever staged in the UK, 2020VISION combined the talents of 20 of Britain's top nature photographers. The concept was not simply to compile a portfolio of spectacular images but also, by focusing on 20 very different locations over a 20-month period, to tell the varied and absorbing stories of the country's diverse ecosystems, examining how they benefit every one of us. This portfolio showcases some of our most beautiful, charismatic and curious species and landscapes, and makes a compelling case for a wilder UK.

### THE 2020VISION TEAM

The principal team brought together 20 individuals with a range of skills and areas of expertise, united by their commitment to conservation. In total, they spent over 700 days in the field. *www.2020v.org*

**ABOVE** Small red damselflies at RSPB Arne, Dorset. Aquatic insects such as damselflies are indicators of healthy wetlands. *Ross Hoddinott*

## MARSH HARRIER HOVERING OVER REEDBEDS

I have rarely been as uncomfortable as I was when I took this image, at Sculthorpe Moor Nature Reserve, Norfolk. I arrived at about 2.30am, dragging my gear with me in total darkness through head-high, soaking-wet reeds before arriving at my scaffold hide, where I hunkered down silently to wait for the birds to begin their daily routine. But my patience was rewarded when this glorious raptor appeared suspended, shimmering above the reeds.

This shot serves as a tribute to the work of the people who created Sculthorpe, regenerating the reedbeds and contributing to the continued resurgence in marsh harrier numbers. These spectacular birds are making a comeback thanks to initiatives that include the Great Fen project in Cambridgeshire and reedbed restoration work across the East Anglian fens. *Andrew Parkinson*

## GOLDFINCHES SQUABBLING OVER TEASEL SEEDS

Goldfinches are birds that really resonate with most of us: we love to watch their back-garden antics. The challenge was to find a new way of capturing the 'jizz' of this familiar species. Attracting them was easy – I simply piled the niger seeds that they find so irresistible into my birdfeeder, and watched as they queued up on a strategically placed teasel head, waiting for the inevitable skirmishes to break out. But how to get that special image? Modern cameras, though good, are not quick enough to track small birds in flight, so I pre-focused on the teasel and fired off a series of shots each time a squabble ensued, taking hundreds of frames before I captured this one successful image. *Mark Hamblin*

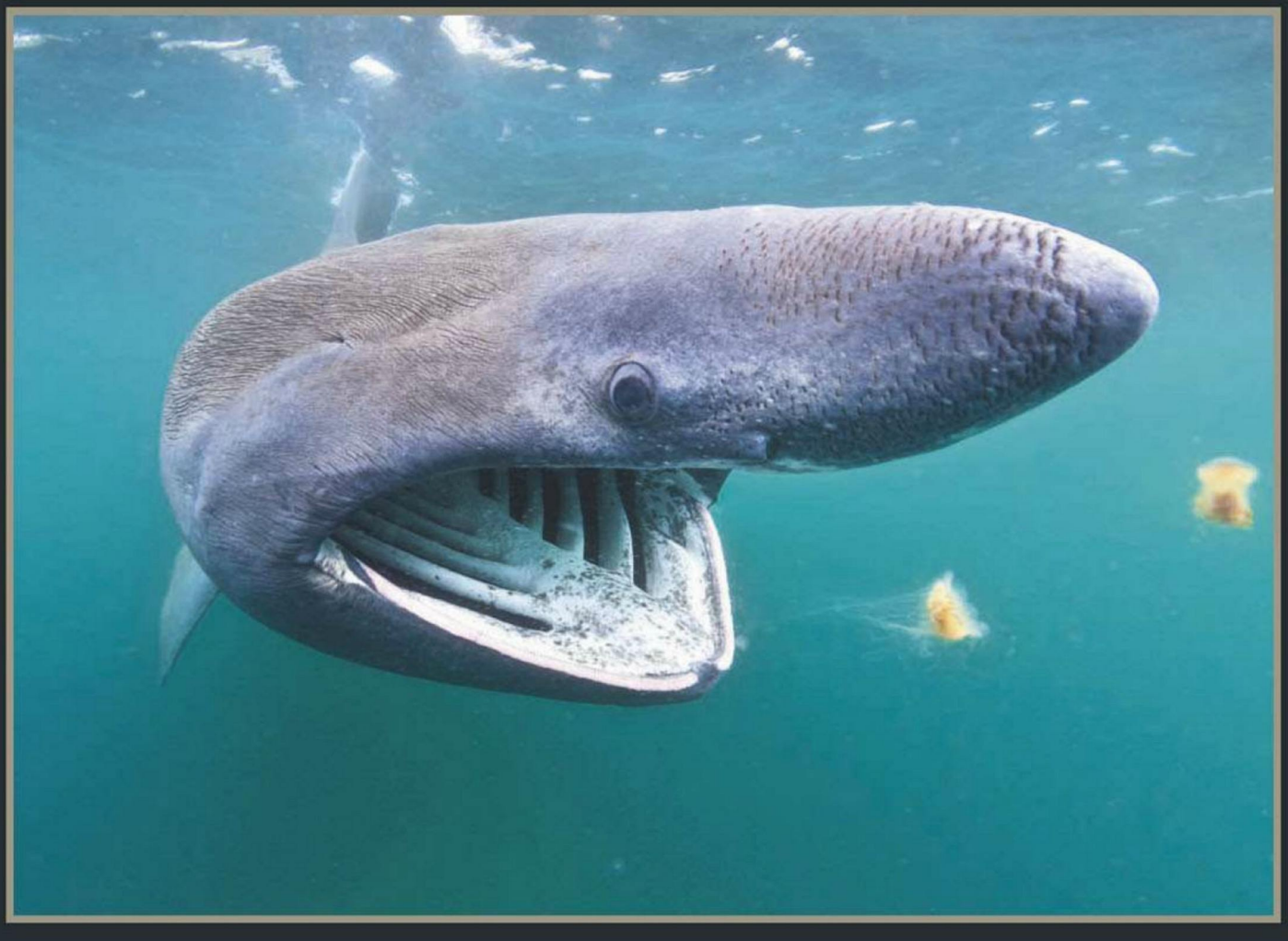
## OTTER IN A DORSET WEIR ▲

Otter photography involves a lot of waiting and watching; these are shy, normally nocturnal creatures – hard to spot, let alone photograph. On beginning my assignment, I quickly realised that success would depend on learning the otters' daily routine, becoming able to predict their movements – and a healthy bit of luck! I spent over 50 days tracking them at various sites, but the reward for my perseverance was this unusual shot of an otter at the foot of a weir, head emerging from a swirling scarf of bubbles.

The return of otters to our waters is a potent symbol of the restoration of rivers and wetlands. Last year it was confirmed that otters have returned to every English county. *Andy Rouse*

## HONEYBEE LANDING ON SCENTLESS MAYWEED ▸▸

Key pollinators of wildflowers and crops, honeybees are a cornerstone for life in the UK. Using a wide-angle lens to give an insect's-eye view, I was delighted to capture this action shot of a bee on landing approach, pollen sacs already bulging. This scentless mayweed was blooming at the edge of a crop of oilseed rape in Perthshire, emphasising the importance of 'wild' field margins for species in agricultural landscapes. *Fergus Gill*



## YOUNG PINE MARTEN, BLACK ISLE ◂

This young marten, perhaps four months old, was part of an exuberant family that played in front of my hide in the Black Isle, Scotland, once even bouncing off the canvas. Occasionally the mother would decide that this boisterous behaviour was getting out of hand, making alarm calls that sent her kits scurrying up the nearest tree.

Pine martens are symbolic of our changing approach to conservation. Driven to the brink of extinction through persecution and habitat loss, their recovery over recent years is thanks in part to the establishment of forest networks – corridors along which animals can move freely. *Terry Whittaker*

## BASKING SHARK, INNER HEBRIDES ▲

The second-largest fish in the sea visit the UK each summer. But, big as they are, I know from experience that these behemoths are not always easy to find. However, long days of waiting and searching all prove worthwhile when several tonnes of shark power passed just a couple of metres away – on this occasion, off the Isle of Coll in Scotland. The British Isles boast some of the best places in the world to spot these huge plankton-feeders. Genetic studies suggest that the global population might be tiny, so our basking sharks are undoubtedly of global importance. *Alex Mustard*

## YELLOW WAGTAIL FEEDING ON DUNG FLIES

Some say that the idea of marrying profit with biodiversity is just wishful thinking – but that's exactly what's been achieved at Hope Farm. Since the RSPB successfully took over the estate in 1999, many of the breeding bird species, including yellowhammers and skylarks, have tripled in numbers. A steaming pile of ordure in a Hertfordshire farmyard, along with its attendant cloud of dung flies, wouldn't be everybody's idea of a dream wildlife photography assignment, and the residual pong in my car wasn't popular with my family! But the image I captured one bright day last spring is a vivid reminder of the importance of a healthy insect population for farmland birds like yellow wagtails. *Chris Gomersall*

## HAMPSHIRE BLUEBELL WOOD

There are few more uplifting sights than a bluebell wood in spring. With this picture, my aim was to convey a sense of the plants stretching skyward to gather as much sunlight as possible before the woodland canopy closes in overhead.

The UK harbours almost half of the world's total population of the common bluebell. But this scene, so redolent of the British spring, could be under threat: an aggressive hybrid, cross-bred with a Spanish interloper, has spread rapidly in urban areas and is now encroaching on woodland dells. *Guy Edwardes*

## FIND OUT MORE

2020VISION's book is out on 1 August. Readers can order it for £19.99 (RRP £25) on p85, quoting code W0812/10. The 2020VISION exhibition roadshow opens in Edinburgh in July. Find out more at www.2020v.org

## ON OUR WEBSITE

Admire more 2020VISION photo galleries and read blogs from each assignment at **www.discoverwildlife.com**

# Every month *BBC Wildlife Magazine* brings you...


## Stunning photography
Breathtaking images from the finest nature photographers

## Inspirational stories
Expert insights into the world's most fascinating animals and their behaviour

## British wildlife
Everything you need to get closer and understand more

# Wildlife ORDER FORM

WLP363

## PAYMENT OPTIONS

☑ YES, I would like to subscribe to/renew *BBC Wildlife Magazine* for just £34 every 13 issues by Direct Debit and get **4 free issues*** (please complete the form below)

**Instructions to your Bank or Building Society to pay by Direct Debit** DIRECT Debit

To: the Manager (Bank/Building Society)

Address

Postcode

Name(s) of account holder(s)

**Bank/Building Society account number** **Branch sort code**

Reference number (internal use only)

Originator's identification number: 7 1 0 6 4 4

Instructions to your Bank or Building Society. Please pay Immediate Media Co Bristol Ltd Direct Debits from the account detailed in this instruction subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with Immediate Media Co Bristol Ltd and, if so, details will be passed electronically to my Bank/Building Society.

Signature Date / /

Banks and Building Societies may not accept Direct Debit mandates from some types of account

## YOUR DETAILS (essential)

Title: Initial: Surname:

Address:

Postcode: Country:

Home tel number: Mobile tel number**:

Email address**:

*4 free issues offer is available for UK Direct Debit orders only. The saving is calculated in the price. Your subscription will start with the next available issue.

## GIFT RECIPIENT DETAILS

Title: Initial: Surname:

Address:

Postcode: Country:

Home tel number: Mobile tel number**:

## OTHER PAYMENTS: For a year's subscription (13 issues)

☐ UK – 13 issues by credit/debit card or cheque for just £38 – **3 free issues***
☐ Europe – 13 issues by credit/debit card or cheque for just **£43.35**
☐ Rest of World – 13 issues by credit/debit card or cheque for just **£45**

☐ VISA ☐ MASTERCARD ☐ MAESTRO

CARD NUMBER:

Valid from: Expiry date: Issue no: (Maestro)

SIGNATURE: DATE:

☐ I enclose a cheque/postal order payable to Immediate Media Co Bristol Ltd for £

VISA MasterCard DIRECT Debit MAESTRO **OFFER ENDS 30 JULY 2012**

**Post your completed form to:** *BBC Wildlife Magazine*, FREEPOST LON16059, Sittingbourne, Kent ME9 8DF

**Fax your completed form to:** 0870 444 2526

**Overseas subscribers post form to:** *BBC Wildlife Magazine*, PO Box 279, Sittingbourne, Kent ME9 8DF, UK

Immediate Media Company Limited (publisher of *BBC Wildlife Magazine*) would love to keep you informed by post or telephone of special offers and promotions from the Immediate Media Company Group. Please tick if you'd prefer not to receive these ☐
**Please enter this information so that *BBC Wildlife Magazine* may keep you informed of newsletters, special offers and other promotions by email or text message. You may unsubscribe from these at any time.
Please tick here if you'd like to receive details of special offers from BBC Worldwide via email ☐

# 4 FREE ISSUES*

## When you subscribe to *BBC Wildlife Magazine*


## YOUR SPECIAL OFFER INCLUDES...

- **4 free issues** – that's 13 issues for the price of 9*
- Just **£34 every 13 issues** by Direct Debit, saving a third over the year
- **Free UK delivery** to your door
- **Never miss an issue** of your favourite natural-history magazine

**CALL US ON**
**0844 844 0260†**
Please quote WLP363

**SUBSCRIBE ONLINE AT**
**www.buysubscriptions.com/wildlife**
Please quote WLP363

†Calls to this number from a BT landline will cost no more than 5p per minute. Calls from mobiles and other providers may vary. Lines are open Monday to Friday 8am to 8pm and Saturday 9am to 1pm.

# agenda

conservation | investigation | discoveries

edited by **James Fair**
environment editor
*agenda@immediate.co.uk*

▶ THE BIG PICTURE

## CAT SCAN

A jaguar cub strolling through a Colombian oil-palm plantation is snapped by a camera-trap – one of several photos taken as part of a research project to monitor the impact of this expanding industry on South America's biggest big cat. It suggests that, at least in some cases, jaguars are willing to move through these vast monocultures. "Until now, we had no photographic proof that jaguars enter oil-palm developments," said Dr Esteban Payán of the research group Panthera. Payán wants to stop jaguars becoming isolated from each other by agricultural expansion, and the key to this is wildlife corridors that allow them to move around freely. But even if jaguars do enter oil-palm plantations, whether they can find prey in them is another issue. **James Fair**

A Darrington/Alamy

PAGE 38

**CONSERVATION**

TURTLE DOVES

Is this our last chance to prevent the turtle dove from going extinct in Britain?

Ben Darvill/bumblebeeconservation.org

PAGE 39

**REINTRODUCTION**

BUMBLEBEE'S RETURN

The short-haired bumblebee can be seen in the UK for the first time in 24 years.

**"How many people do you need to protect Pennant's red colobus?"**

DR CHRIS GREENWOOD, Fauna & Flora International (FFI) director of communications, p40

▶ CLIMATE CHANGE

# UK warming to newcomers

**Rising sea temperatures are having a dramatic effect on marine species' distribution.**

Marine predators such as Atlantic bluefin tuna and thresher sharks, species usually associated with warm-sea areas such as the Mediterranean and the Gulf of Mexico, are increasingly turning up off the coast of the UK.

The migration is being driven by rising sea temperatures, according to a report from the Marine Climate Change Impacts Partnership (MCCIP) – and, as well as bringing in new faces, it's driving away old favourites.

For example, MCCIP scientists found that trawlers fishing for cold-water species such as cod are venturing 320km further north than they did 20 years ago.

Other species such as lemon sole and saithe are adopting a different tactic: swimming at greater depths – on average, 5.5m deeper than a decade ago.

Meanwhile, the outlook for UK mussel fisheries is even gloomier, with studies suggesting that a 1°C increase in sea temperatures will cause stocks to fall by 50 per cent.

One of the report's authors, aquaculture specialist Dr Robin Shields, said that the implications of the "spawning and early development of bivalve molluscs" were worrying. It may become necessary to rear young in hatcheries before releasing them into the wild, he added.

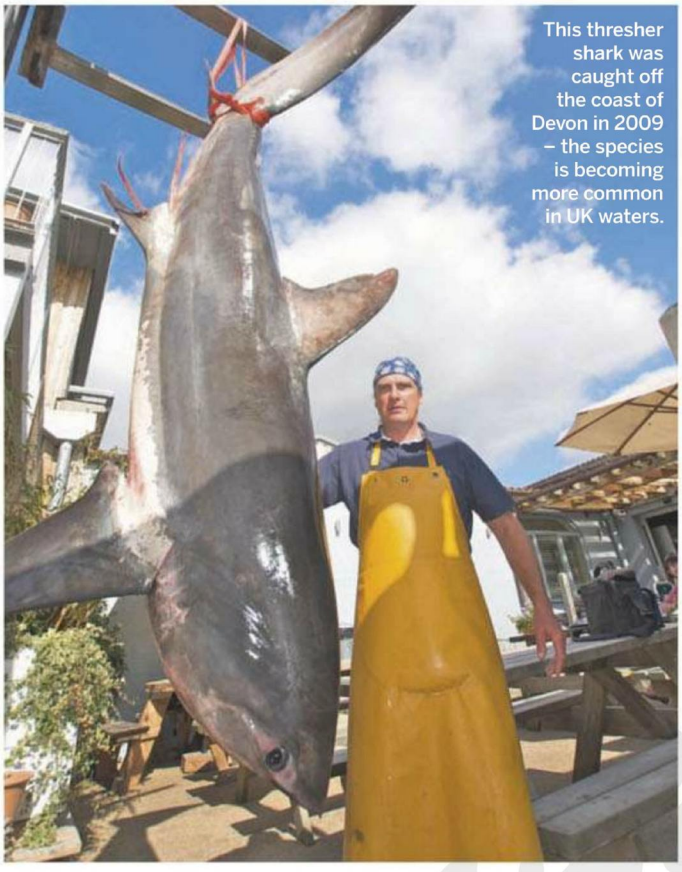
But the recruitment of new species to British waters is also having a positive impact.

Anchovies are now fished as far north as the Pentland Firth, the stretch of water separating Orkney from the mainland, while there are more North Sea trawlers fishing for squid than traditional whitefish species such as cod.

The commercial take of species such as red mullet, John Dory and sea bass is increasing, and scallops may grow faster.

Bernadette Clarke, of the Marine Conservation Society, said that the emergence of new fish stocks could be good news for both fishermen and consumers, but they still needed to be handled carefully.

"Our choices still need to reflect what is available or in season, and we should still avoid eating fish below their size of maturity," Clarke said. **Tim Deere-Jones**



This thresher shark was caught off the coast of Devon in 2009 – the species is becoming more common in UK waters.

Jaguar: panthera.org; shark: Dan Burton/naturepl.com

▶ IN AND OUT

**Look out for these new arrivals in British waters:**

- **Thresher sharks** Nomadic, open-water species; verified sightings off South Devon and the Isle of Man in 2011.
- **Atlantic bluefin tuna** Hunted to commercial extinction by the late 1950s, but now recovering thanks to rising sea temperatures and reduced fishing effort.

**And what we're losing:**

- **Cod** Juvenile cod feed on cold-water surface plankton, which is being lost, so stocks are falling.

Turtle doves feed on seeds from wildflowers that grow amid agricultural crops – here dried sunflower heads.

George Reszeter/ardea.com

▶ CONSERVATION

# Last call for the turtle dove

**Farmers called up to help restore the turtle dove to Britain's countryside.**

The RSPB has launched a last-ditch attempt to save the turtle dove, the bird species considered most likely to become extinct in the UK over the next decade.

The latest research from the British Breeding Bird Survey has revealed that, in the past 40 years, turtle dove numbers in the UK have crashed by 91 per cent.

The species has disappeared from much of its former range in England and Wales. It is thought that there are now just 44,000 pairs of turtle doves breeding in their remaining strongholds of East Anglia and South-East England.

The exact causes of this decline are not understood. However, Nik Shelton of the RSPB said, "The bird's diet consists mostly of small seeds from wild plants that grow among crops, and changes in farming practices mean that these plants are now scarce."

Other factors contributing to their decline include shooting in the Mediterranean, which occurs as the birds make their annual migration, and trichomoniasis or canker, a disease that is common in pigeons and doves.

The project has an initial target of working with 500 farmers who will establish plots of seed-rich plants as food for turtle doves.

Ellie Savoury and her husband John own a 240ha mixed-arable farm in Norfolk, and were among the first farmers to join up. "Turtle doves have always bred here," she said. "We hadn't realised how endangered they were."

Though the turtle dove is just one of many farmland birds whose numbers have crashed in recent decades, the RSPB does believe that modern farming is compatible with wildlife. "With the right science, funding and willingness, there's no reason why we can't do both: put food on the table *and* create space for nature," said Shelton. **Simon Birch**

**▶ BACKGROUND**

- Recent research has shown that the populations of 36 species of farmland birds have dropped by almost 300 million in the past 30 years across Europe as a result of EU farming policies.
- Conservationists are urging the EU to give more money to support wildlife-friendly farming to reverse this dramatic decline.

## AGENDA *interview*

### DR TARA MARTIN *on* SPECIES EXTINCTION

**The Christmas Island pipistrelle bat has recently been declared extinct. Is there really no hope?**
Sadly, no.

**What caused the species' extinction?**
Various factors, including the invasion of Christmas Island by exotic species, habitat loss from mining, and – possibly – disease.

**Could it have been avoided?**
If a decision to start a captive-breeding programme had been made earlier, we would have had a viable captive population. Once the threats had been managed, the bats could have been reintroduced to the island.

**What will happen now?**
The bats consumed their own body weight in insects, such as mosquitoes, every night. Only time will reveal how the loss of these pest controllers will affect the island's ecology.

**Hasn't Australia reduced its extinction rate in recent years?**
Since Europeans settled in Australia, nearly half of the world's mammalian extinctions have occurred in Australia – 19 at the last count. But, over the past 50 years, we have narrowly avoided many extinctions by using captive-breeding and protecting mammals in predator-free enclosures and on offshore islands. **James Fair**

*Dr Tara Martin is a senior research scientist for CSIRO, Australia's national science agency.*

## NEWS IN NUMBERS

**130km**
The distance a female cheetah has been recorded travelling between two wildlife reserves in Iran.

**2,000**
The number of Ramsar sites – or wetlands of international importance – in the world. Tram Chim National Park in Vietnam was the 2,000th to receive this designation.

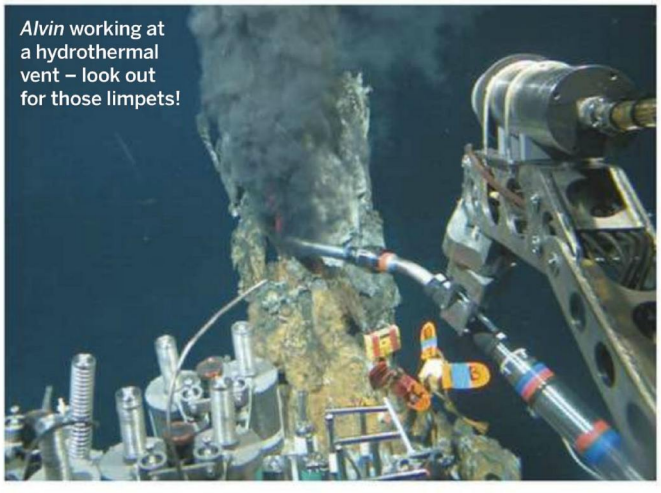
John Cancalosi/NHPA

**30**
The number of years since the beginning of conservation efforts to save the Californian condor from extinction. The last count found 226 living in the wild.

## DISCOVERY *of the month*

# Deepening concern over submarine practices

**Humans can spread species around the globe, even where we have never set foot.**



*Alvin* working at a hydrothermal vent – look out for those limpets!

Tom Kleindinst/Woods Hole Oceanographic Institution

Scientists working with the research submarine *Alvin* have discovered that they have been unwittingly transporting creatures between isolated hydrothermal vents 3km below the surface of the Pacific.

"A hydrothermal vent is the least likely place for a non-native species to be successfully introduced," said Janet Voight of Chicago's Field Museum of Natural History. "But it is possible if people who work with subsea vehicles or other gear are not extremely careful. I always thought I was careful, but I am embarrassed to admit that, on this cruise, we made a mistake."

> *"I don't believe anyone realised how hardy these animals are."*

Leading a research cruise off the west coast of the USA, Voight launched *Alvin* twice to collect samples from two hydrothermal vent systems 625km apart. While sorting the second sample, scientists noticed 38 limpets of a species known only from the first site. Genetic and chemical analyses confirmed that this was, indeed, where they had come from.

The molluscs had apparently lodged in the suction sampling apparatus of the sub. This means that they had survived the massive changes in pressure and temperature as it surfaced, dived and surfaced again. "I don't believe anyone realised just how hardy these animals are," Voight said.

She does not think that any limpets were actually released at the second site. And if they were, it is unlikely that they would have become established because of the wildly varying conditions between vent systems.

Voight is more concerned about the potential for spreading bacteria, fungi and other parasites between sites. Closely related limpets are known to host a virulent parasitic crustacean, for example.

"If this parasite were unleashed on a naïve population, it could run rampant," Voight told *BBC Wildlife*. **Stuart Blackman**

SOURCE *Conservation Biology* LINK http://onlinelibrary.wiley.com/doi/10.1111/j.1523-1739.2012.01864.x/abstract

▶ REINTRODUCTION

# Bumblebee back in clover

**This may look like just another bumblebee, but it is actually a very special individual – one of only 51 short-haired bumblebees brought over from Sweden and released at the RSPB's Dungeness reserve at the end of May. This once-native species was last seen in Britain in 1988. In preparation for the bees' return, local farmers have been growing nectar-rich wildflowers which, it's hoped, will enable the newcomers to thrive. Assuming the new colony becomes established, it will increase the number of extant bumblebee species in the UK to 25. James Fair**

Back in Blighty: the short-haired bumblebee.

Ben Darvill/bumblebeeconservation.org

# NEWS IN BRIEF

Craig Turner/ZSL

### PYGMY POPULATION

The first-ever census of pygmy three-toed sloths suggests that there could be fewer than 100 of these Critically Endangered mammals left in the world. Conservationists from ZSL, who visited the sloth's only home, Escudo Island off the coast of Panama, will release their full results later this year.

William Robichaud

### SAOLA WARNING

The saola, the antelope-like bovine discovered in Vietnam only 20 years ago, could be "sliding towards extinction", scientists from WWF have warned. Though not targeted, saola are caught in snares set for other animals such as deer. The last 'sighting' of a saola in the wild was a set of camera-trap photos taken in 1999.

### RATS ON ULVA

A rat was caught on the 'rat-free' island of Ulva, off the south coast of New Zealand's South Island, at the end of May, according to the Department of Conservation. Ulva is a key wildlife destination because rare indigenous birds such as wekas, tomtits and yellowheads survive there in the absence of non-native species.

# Is it time for new icons of conservation?

## Academics argue that conservation groups should use neglected 'Cinderella' species in fundraising. James Fair reports.

The Tonkin snub-nosed monkey is a highly distinctive primate, with large blue rings around its eyes and pink lips that make it look as if it's overdosed on Botox. It's also very rare, with a population of fewer than 200 and a tiny range confined to northern Vietnam.

So when Dr Chris Greenwood, director of communications for Fauna & Flora International (FFI), was asked if he could base a fundraising campaign around this virtually unknown species, he could see the logic.

But the answer was still no. "I would love to run an appeal, but I would probably be wasting FFI's money," he told *BBC Wildlife*.

According to a paper published in *Conservation Letters*, however, he should think again. Its authors claim that charities rely too heavily on a handful of flagship species such as tigers to raise money, and that this has a negative impact on the way that conservation is funded, targeting a limited number of species and habitats.

Based on evidence that people respond best to large mammals with forward-facing eyes, Dr Bob Smith from the Durrell Institute of Conservation and Ecology at the University of Kent and his co-authors found plenty of species with these characteristics that were ignored by NGOs.

## THE FUNDRAISER'S VIEW

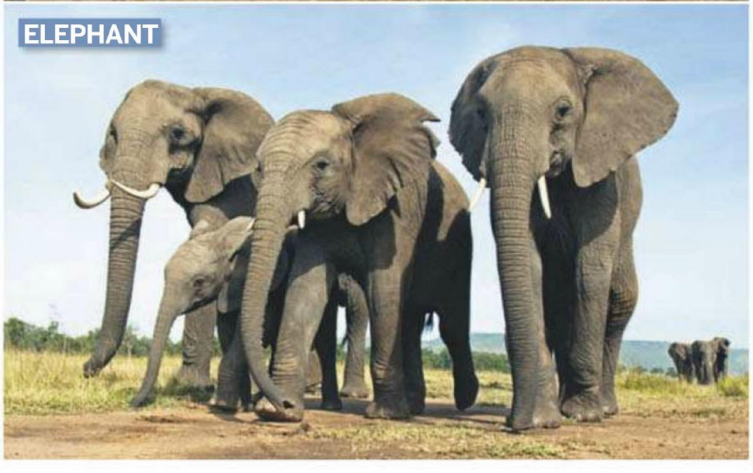
**Tobin Aldrich**
*Director of fundraising, WWF-UK*

**My initial reaction to using 'Cinderella species' to raise funds is, 'I don't think so.' The fact is that our supporters do prefer some species to others. We have a lot of data as to what people respond to, and what they don't, and the solution isn't to do more work involving relatively unpopular species, because it doesn't pay off.**

**There is a rigid hierarchy in terms of the species that our public supporters adopt. Big cats are top, then other carnivores followed by primates. Other mammals bring in diminishing returns.**

**This does affect the work we do. But take our adoption scheme for tigers. Only half of the money goes on projects devoted to them, and the rest goes to other campaigns, perhaps to do with climate change. We explain this at the outset, and our donors seem happy about it.**

## FLAGSHIP SPECIES


They produced a list of five 'Cinderella species': Critically Endangered animals that are routinely overlooked, but which could sensibly front campaigns – and the protection of which might also help ecosystems that don't usually benefit. They are the African wild ass, Pennant's red colobus, the pygmy raccoon, the Mindoro dwarf buffalo and the Talaud bear cuscus. So should these be championed as well as – or even instead of – the usual suspects?

> *"To conserve one tiger, we have to conserve a lot of forest."*

### GETTING HOOKED

While agreeing that this was "a reasonable thing to discuss", Greenwood believes that the academics had missed crucial points: first, recognisability. "They don't consider whether people have heard of an animal or not – which is important," he said.

Look again at that list of 'Cinderella species': they are almost completely unknown to the wider public. Indeed, there is no known photo of a wild Talaud bear cuscus, a marsupial confined to one island in a tiny Indonesian archipelago just north of Sulawesi.

Second, and more importantly, Greenwood feels that much-loved species help to hook people into the whole conservation ethos. "If someone gives money for Cross River gorillas, they are saying that they are concerned about conservation," he said. "If so, then they may be willing to fund conservation more generally."

There are other benefits of protecting flagship species, too. Such efforts usually involve protecting habitat, which helps other species. And most flagship species are carnivores with large

Tiger: Andy Rouse/naturepl.com; elephants: Anup Shah/naturepl.com; raccoons: Roy Toft/National Geographic/Getty; Daniel Heuclin/NHPA

## 'CINDERELLA SPECIES'

PYGMY RACCOON

MINDORO DWARF BUFFALO

ranges – as WWF-UK's director of fundraising Tobin Aldrich observed, "To conserve one tiger, we have to conserve a lot of forest."

But Smith pointed out that many "flagship species are poor biodiversity surrogates", because they tend to be habitat generalists. "For elephants, you might protect miombo woodland, which harbours relatively little biodiversity," he said.

Smith accepts, however, that the way conservation groups raise funds *can* work: "If people like tigers and join a group [because of them], and then find out more about an issue such as palm oil, that's a good thing."

The answer, said Greenwood, is not to discard flagship species, but to be cleverer about raising money for the rest: "How many people do you need to protect Pennant's red colobus? Can you find them through social media? You'd have to spend very little money doing so. That's the future of conservation fundraising and that's what we're looking at."

In other words, it's about identifying species that can be protected at low cost, and using innovative, targeted campaigns.

### ▶ BACKGROUND

- The five species that appear most on the covers of US wildlife-conservation magazines are wolves, brown bears, polar bears, cougars and tigers, according to a paper published in *Biodiversity Conservation* in 2008.
- The only herbivores to make that paper's top 10 are elephants; the only birds were bald eagles.
- The paper's authors found that the mammals most commonly used on covers tended to be of conservation concern, while the birds put on covers were not.
- Those researchers refused to be drawn on whether flagship species do help the conservation of other wildlife. "There is no consensus on this," they said.

# MARK CARWARDINE

On the wild thoughts that won't let him sleep. This month:

## Spreading the tourist load

How long will it be before wildlife tourism has to be so tightly managed that it loses all sense of true wilderness and freedom?

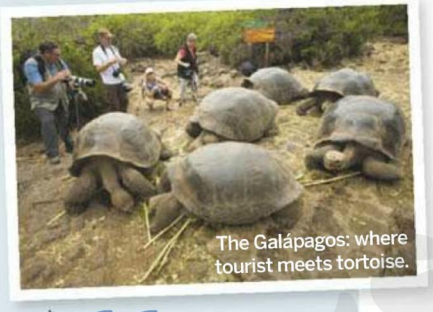
I've just returned from the Galápagos and, as ever, it was terrific. Within seconds of landing almost anywhere, I was face to face with some of the most fearless and curious wildlife on the planet.

But I was among no fewer than 170,000 tourists to visit the islands in the past year, and they're beginning to feel a little crowded. There were several other boats at almost every anchorage and, in certain places at certain times, the well-worn paths were as busy as high-street pavements.

The consequence of such an onslaught is that wildlife tourism is more tightly controlled in the Galápagos than anywhere else in the world. You're only allowed to visit tiny pockets of the national park; you can only disembark (from small boats) at designated landing spots; you must only walk on clearly marked trails in strictly disciplined small groups; and you must be accompanied by certified local guides. But given the number of visitors, that's exactly how it should be.

The Galápagos Islands may be an extreme example, but they're not alone in having to regulate wildlife tourism with military efficiency. Indeed, I believe that many other hotspots would benefit from even stricter regulations – ships carrying more than 100 passengers should be banned from Antarctica, for instance.

One of the problems is that an inordinate amount of pressure falls on a relatively small number of high-profile places. While we can't blame Darwin for putting the Galápagos on the map, we can point an accusatory finger at those culpable for excessive tourist numbers elsewhere in the world.



The Galápagos: where tourist meets tortoise.

> *"The Galápagos are not alone in having to regulate tourism with military efficiency."*

For example, it would help enormously if the BBC realised that the Maasai Mara isn't the only safari destination in Africa. At least then the pressure on that little corner of Kenya wouldn't be quite so intense.

*Mark Carwardine is a zoologist, photographer, writer, conservationist and BBC TV presenter.*

Tim Laman/naturepl.com

# EVENT **100 METRES**
# COMPETITOR **BROWN HARE**

*The hare's blistering acceleration and super strides leave us in the dust.*

**Size** 52–59cm; 3–4kg
**Where** Pasture and arable fields
**When** All year

If 100m sprint star Usain Bolt had raced a brown hare when he set his world record time of 9.58 seconds in 2009, he would have trailed home over four seconds behind his four-legged opponent.

Bolt manages a top speed of only 44kph, compared with the lagomorph's 77kph. The secret of its speed lies in a flexible backbone that acts as a spring, plus powerful hindlegs. Together they operate as a system of long levers linked by tendons that store elastic energy ultra-efficiently.

Stride length is also crucial. At full stretch, Usain Bolt's footfalls are 2.7–2.9m apart – about 1.4–1.5 times his height. A hare betters this ratio: it can leap 3m, yet its body length is just 52–59cm. (It can also jump 5.5m vertically.)

But, while the brown hare is the fastest land mammal in Britain – and it is often said to be the sixth-fastest in the world, its downfall in a 100m race would be lane discipline. Its pelvic anatomy has evolved for rapid jinks to shake off pursuing predators, so it would probably be disqualified for lane infringements.

Hares were introduced to Britain during the Iron Age – but they've been racing across our fields and downland long enough to count as UK champions!

*Could Britain's brawniest, best-*

Laurie Campbell

# Animal athletes

adapted animals win gold at the Olympics? PHIL GATES investigates.

Every four years some of the fittest and most highly trained members of our species compete to become Olympic champions, in events that test their bodies to their biological limit. But suppose we staged a similar tournament for other animals, selected for the advantages conferred by their evolutionary adaptations. What would the UK's team of top animal athletes look like? And how would they fare against their human counterparts?

Contrasting the strength of a wood ant with that of a medal-winning human weightlifter is, of course, not scientifically valid. Laws of geometry dictate that the volume – and, therefore, mass – of an animal increases much faster than the power of its muscles; an ant the size of *Homo sapiens* couldn't lift its own legs. Nevertheless, the comparison is a fun way to celebrate Britain's amazing animal athletes.

To qualify for a place in the *BBC Wildlife* 'A Team', a species has to be native and resident for at least half of the year. In the end our selectors were wowed, above all, by invertebrates: five of our nine squad members are spineless wonders. So, without further ado, let's meet the squad.

**THE EXPERT**

**PHIL GATES**



is a keen naturalist and a lecturer in biological science. "Watching wildlife puts our own sporting endeavours in perspective," he says.

# EVENT **JUDO** COMPETITOR **STAG BEETLE**

*Our burliest, most belligerent insect has one purpose in its adult life – to fight.*

**Size** Up to 7.5cm and 3.2g (male)
**Where** Wooded areas in south
**When** May to August

To reach the top step on the Olympic winners' podium in the judo event, a contestant needs to have fought with poise, balance and technique, rather than brute force. The same qualities come to the fore when male stag beetles are locked in combat, battling for mating rights.

The beetles grapple with their jagged mandibles, which develop out of all proportion to the rest of their bodies. By gripping the ground with their sharply clawed feet and exerting levering forces at the right moment, they seek to dump their rivals upside-down on their shiny, bronzed backs.

As with human judo stars, arriving at contests in peak condition is crucial. Male stag beetles that hatch from pupae early, in May or June, possess larger jaws than those that emerge later, in July. But the beetles rapidly lose body mass during their brief adult existence – just a few weeks – especially in warm weather.

To prepare their stag beetle fighters for summer Olympic bouts, coaches would need to select early hatchers and keep them in a cool training camp.

Male stag beetles lock 'horns' as each fighter seeks to throw the other off a log. Sometimes, in a frenzy, several other males will join the fray.

**ANIMAL vs ATHLETE**
Adult stag beetles always fight on an empty stomach – unlike human judo players, they've no need for sustenance.

Jeroen Stel/rspb-images.com

# EVENT **POLE VAULT** COMPETITOR **SPRINGTAIL**

*An extra limb transforms this ancient hexapod into a living projectile.*

**Size** 3–5mm (*Orchesella villosa*)
**Where** Soil, leaf litter, compost heaps
**When** All year, especially autumn

Observation and problem-solving have enabled us to learn how to use long poles to lever ourselves into the air. But about 500 million years ago, natural selection

**1 TENSION BUILDS**
A springtail (here the British species *Orchesella villosa*) prepares to leap. Muscular tension builds in the furca, folded under its abdomen and secured by the retinaculum.

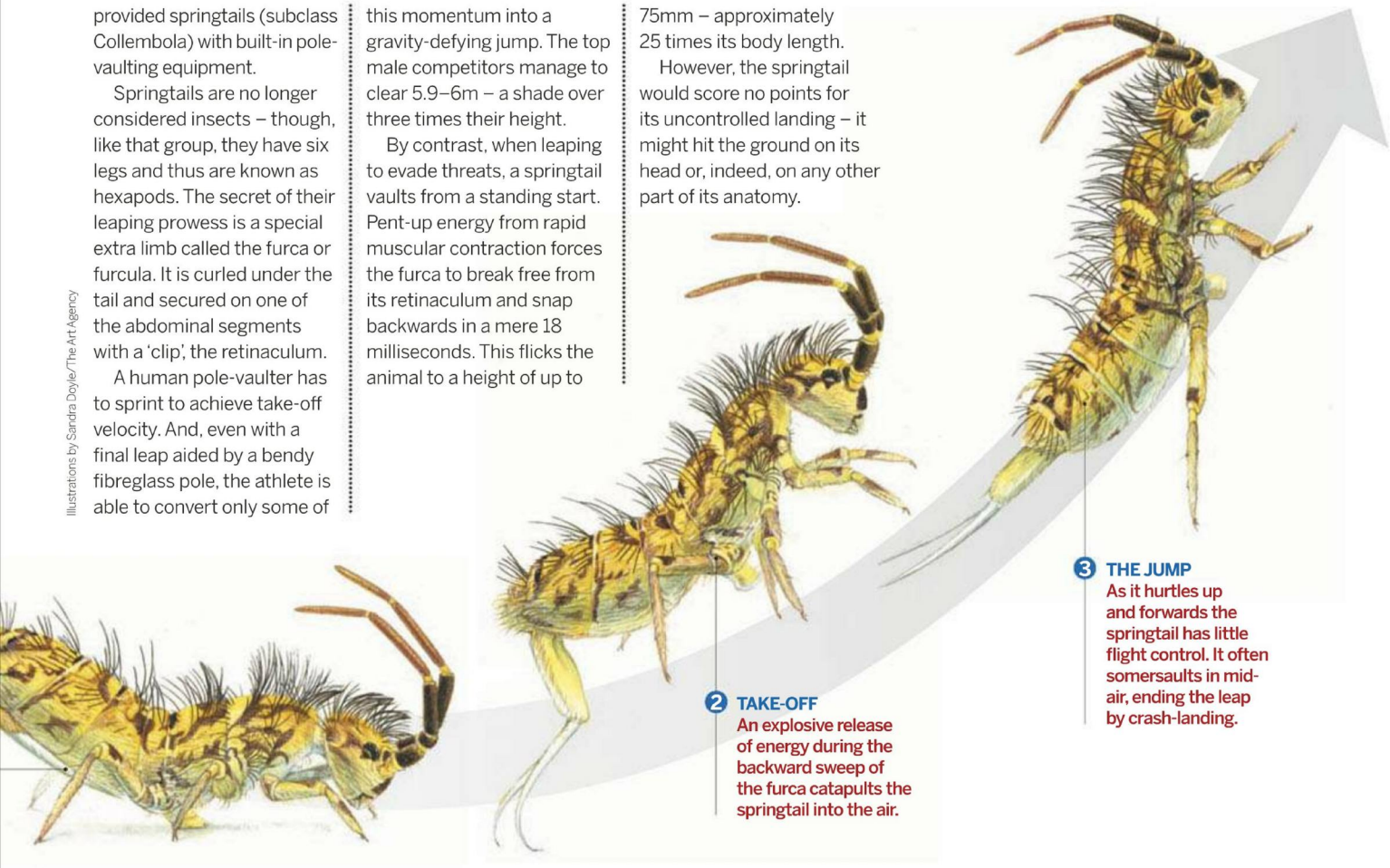
provided springtails (subclass Collembola) with built-in pole-vaulting equipment.

Springtails are no longer considered insects – though, like that group, they have six legs and thus are known as hexapods. The secret of their leaping prowess is a special extra limb called the furca or furcula. It is curled under the tail and secured on one of the abdominal segments with a 'clip', the retinaculum.

A human pole-vaulter has to sprint to achieve take-off velocity. And, even with a final leap aided by a bendy fibreglass pole, the athlete is able to convert only some of this momentum into a gravity-defying jump. The top male competitors manage to clear 5.9–6m – a shade over three times their height.

By contrast, when leaping to evade threats, a springtail vaults from a standing start. Pent-up energy from rapid muscular contraction forces the furca to break free from its retinaculum and snap backwards in a mere 18 milliseconds. This flicks the animal to a height of up to 75mm – approximately 25 times its body length.

However, the springtail would score no points for its uncontrolled landing – it might hit the ground on its head or, indeed, on any other part of its anatomy.



**2 TAKE-OFF**
An explosive release of energy during the backward sweep of the furca catapults the springtail into the air.

**3 THE JUMP**
As it hurtles up and forwards the springtail has little flight control. It often somersaults in mid-air, ending the leap by crash-landing.

Illustrations by Sandra Doyle/The Art Agency

## EVENT **SYNCHRONISED SWIMMING** COMPETITOR **COMMON CUTTLEFISH**

*This smart, jet-propelled mollusc excels at underwater ballet.*

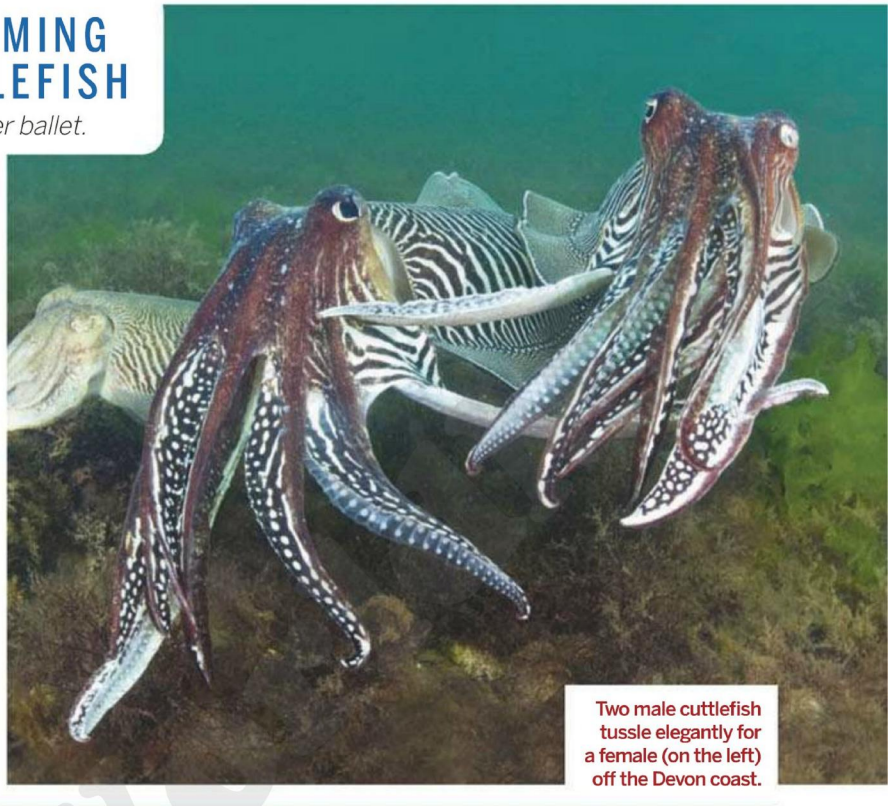
**Size** Up to 45cm and 4kg
**Where** Coasts in south and west
**When** Spring and summer

Synchronised swimmers give the impression of effortless grace in the pool, but humans evolved for loping across the African savannah, rather than precise manoeuvring in water. Compared with cuttlefish, we're out of our depth.

When British coasts warm up in spring, male cuttlefish compete for females in beautifully choreographed contests, each trying to win and keep a mate for himself. The winner then swims in close formation with his partner, mirroring her every move. He darts back and forth and occasionally hovers motionless to caress her eight arms and twin tentacles.

The molluscs' propulsive power comes from a frill-like fin skirting their bodies; fine control of its undulating wave enables pinpoint positioning. For fast movements the cuttlefish use jet propulsion, by squirting water from a muscular mantle cavity.

But how do these dancers achieve seemingly telepathic synchrony? Their large nerve fibres transmit instructions to their muscles at lightning speed and control patterns on coloured patches of skin that send visual signals between the pair, observed with complex eyes that are almost as good as our ours.



Two male cuttlefish tussle elegantly for a female (on the left) off the Devon coast.

Alexander Mustard/2020VISION/naturepl.com

Gannets: Charlie Hamilton James; fungus: Visuals Unlimited/Corbis; Silvia Reiche/FN/Minden/Corbis

# EVENT **HIGH DIVING** COMPETITOR **GANNET**

*The gannet is fast, sleek and has a head for heights.*

**Size** 87–100cm; 2.4–3.6kg
**Where** Most British coasts
**When** Inshore March to October

Millions of years of evolution have equipped gannets with attributes and prowess that would leave the UK's leading high divers such as Tom Daley green with envy.

For starters, gannets are mouth-breathers, with nostrils inside their bills: there's no danger of water being forced into their lungs when they hit the sea. They also have built-in air bags – inflatable sacs under the skin of their face and chest – that cushion the impact.

That's not all: gannets are slightly cross-eyed – both eyes stare forwards along the bill. This binocular vision allows them to judge their proximity to the water surface with extraordinary accuracy. Finally, the birds' profile is naturally smooth and streamlined – unlike human athletes, they have no need of razors!

It adds up to a spectacular performance. Gannets happily dive from up to 40m above the waves – four times as high as the top board in an Olympic swimming pool.

But there are two aspects of gannets' diving that might displease judges. Their shape is such that, having hit the sea, they decelerate slowly and so often take time to resurface. And getting airborne again is a clumsy affair that involves much splashing over the water.

**ANIMAL vs ATHLETE**
Human high divers plunge to a depth of just 3–4m, but gannets can reach 10m in pursuit of fish such as mackerel and sandeels.

Shetland's gannets show off their plunge-diving skills, watched by several less agile, brown-plumaged great skuas – kleptoparasites hoping to steal a fish supper.

# Fungal and floral flinging

Some of our fungi and plants can be surprisingly athletic, too.

You might think that finding non-animal athletes good enough to compete in *BBC Wildlife*'s alternative Olympic Games would be a non-starter. In fact, these organisms are quite capable of delivering an explosive performance in field events involving hefting or hurling.

The spore dispersal technique of *Pilobolus* goes with a bang.

## *PILOBOLUS* THE SHOT-PUTTING FUNGUS

This tiny but very beautiful fungus resembles a tall, transparent glass vase with a dark, polished bead balanced on top. It flourishes on cowpats and uses pent-up hydraulic force to hurl its cylindrical 'head' – actually a single spore – into the surrounding grass. The spore is accidentally eaten by cattle and ends up germinating in another cowpat.

*Pilobolus* is under 1cm tall, yet in still conditions can toss its spore 150 times its own height. That's a bit like a top human athlete lobbing the shot 12 times farther than the world record of 23m.

## *MEADOW CRANESBILL* THE DISCUS-THROWING WILDFLOWER

Olympic discus-throwers would be similarly humbled by the seed-flinging proficiency of the meadow cranesbill. Each of its five seeds sits in a cup at the end of a spring, which is attached to a beak-like extension of the flower. As tension builds up and the cup breaks free, the spring curls back violently and hurls each seed into the distance.

Meadow cranesbill is a floral discus-thrower of traditionally managed waysides and grasslands.

**ANIMAL vs ATHLETE**
Teal are flightless during their post-breeding moult so, unlike humans, their high-jumping skills are curtailed in late summer.

# EVENT **HIGH JUMP**
# COMPETITOR **EUROPEAN TEAL**

*Bulging pectorals and vertical take-off make this duck a top-flight athlete.*

**Size** 34–38cm; 200–450g
**Where** Wetlands and estuaries
**When** All year

If the high jump was judged purely on take-off panache, the European teal would out-score most other animals. Froghoppers and fleas leap higher in proportion to their body size, but these diminutive ducks jump with style.

Though most British birds run, leap or glide to create lift over their wing aerofoil before becoming airborne, teal adopt the most energetic solution imaginable: almost vertical take-off, powered by rapid wing beats. This accounts for their collective name: a 'spring' of teal. The ducks appear to be catapulted into the air.

Conventional human high jumping relies on leg muscles, both to build up speed along the runway and then, with a final leap, to convert as much of that momentum as possible into vertical travel. Instead, teal defy gravity with their powerful pectoral muscles, which connect their wings to the keel bone in their sternum.

Teal are surface-dabbling ducks; like the rest of this group, they lift off with a push of both feet. Diving ducks such as pochards have to run over water while flapping hard.

Teal often frequent small, reed-fringed pools, where spotting predators is tricky. Vertical lift-offs help them to escape surprise attacks.

# EVENT **WEIGHTLIFTING** COMPETITOR **RED WOOD ANT**

*Light yet rigid skeletons make ants a force to be reckoned with.*

**Size** 6mm (worker)
**Where** Woods, mainly in south
**When** April to September

Watch worker ants travelling back to their nest and you'll often see them lugging dead caterpillars and other insects much heavier than themselves. Depending on the species, ants routinely carry objects 10–50 times their own body mass.

Top human weightlifters are comparatively puny – even Olympic gold medallists would struggle to heave 1.8 times their own weight above their heads. To compete with an ant, a person would need to 'clean and jerk' about four tonnes.

Admittedly, 'scaled-up' performance comparisons between small animals and people are spurious, for the reasons already described. But ants' lifting abilities are testament to the benefit of having external exoskeletons, instead of suspending internal organs on a bony framework and enclosing them in skin.

As in all insects, an ant's exoskeleton is made of a hard, horny substance called chitin. This tough casing distributes stresses throughout the entire structure. The downside is that exoskeletons have to be moulted and then regrown, which effectively limits the size to which insects can grow.

Racing-car shells rely on the same engineering principles – extreme lightness matched with structural rigidity under stress. So if engineers were to design a weightlifting robot, they wouldn't mimic humans – they'd copy ant exoskeletons.

**A red wood ant carries a wasp. This species also deploys its haulage skills to fetch pine needles and twigs to build an enormous nest mound.**

# EVENT **SINGLE SCULLS** COMPETITOR **BACKSWIMMER**

*Flexible oars power this predatory bug through the water at high speed.*

**Size** 14–17mm
**Where** Fresh water, especially ponds
**When** Most active in summer

Rowing is all about the fusion of strength, balance and timing, along with the mechanical advantage gained by using oars as levers to heave athletes and their boat through the water. Mechanical advantage is a measure of the efficiency of levers, and in this sport it is limited by the fact that oars are basically just long, rigid poles that end in broad, flattened blades.

Backswimmers, also known as water boatmen, use rather more sophisticated rowing equipment. Like their Olympian equivalents, these insects of ponds and still fresh waters face backwards while moving. But their 'oars' are a pair of extended, flattened hindlegs divided into hinged sections, which end in broad fringes of collapsible hairs rather than rigid blades. These paddle-like limbs partially fold in on the backward stroke, but regain their rigidity to drag the insects through the water on the return power stroke.

The most numerous British backswimmer is *Notonecta glauca*, but there's a varied international field of species. Research shows that the fastest possess legs of a similar length to their bodies.

Teal: Tom & Pat Leeson/leesonphoto.com; ant: Juniors Bildarchiv/Alamy; Stephen Dalton/naturepl.com

**Backswimmers row rapidly under the water surface to catch their prey. They seize it in their small front legs and dispatch it with toxic saliva.**

At full stretch, a red squirrel comfortably clears 4m gaps between trees – or farther, if on a downward trajectory.

# EVENT **LONG JUMP**
# COMPETITOR **RED SQUIRREL**

*Willowy and acrobatic, this handsome rodent is a stylish treetop athlete.*

**Size** 18–24cm (head and body)
**Where** Woods, especially conifer
**When** All year

The long jump would be far more exciting if it was held 15–20m above the ground, with the contestants leaping between narrow, flexible platforms that swayed in the wind. It would be an event tailor-made for squirrels.

The world's evolving woodland mammals soon found that the fastest way to move through trees – and the best strategy for avoiding ground predators – was to climb and leap from bough to bough. Britain's red squirrels are masters at this discipline.

Treetop jumping requires an acute ability to judge distance, strong leg muscles, a refined sense of balance and sharp claws that grip on landing. The other essential attribute for a champion squirrel long jumper is its bushy, 14–20cm tail, which helps it to steer in flight and improves its touchdowns.

American grey squirrels weigh twice as much as our reds, so it's not surprising that they're also less nimble. Sadly, agility is no defence for the native species, which is outcompeted in almost every other respect.

## *Introducing our other athletes...*

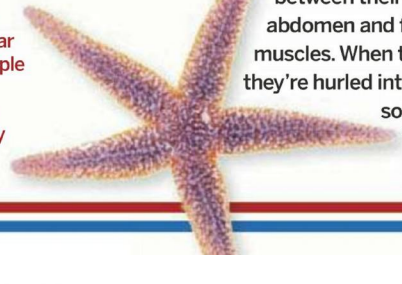
Our other stars include grappling starfish and super-strong swans.

### *EUROPEAN EEL LONG-DISTANCE SWIM*

Adult eels swim over 5,000km from our shores to the Sargasso Sea. It's a once-only event, though – these fish are highly efficient swimmers so don't need to feed during their marathon, and die once they have spawned.

### *COMMON STARFISH WRESTLING*

These five-armed echinoderms engage in tugs-of-war with clams, gripping the paired shells of their bivalve mollusc prey and ripping them in two. The clams' adductor muscles (which hold their shells closed) eventually tire. But the starfish can interlock calcareous plates embedded in their flesh to relieve their muscle strain – so they always win in the end.



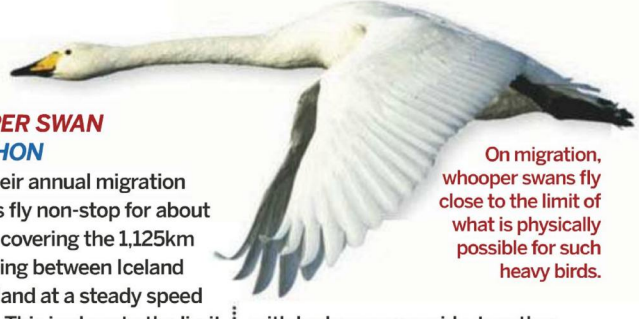
Starfish use their muscular arms to grapple with prey. If they lose an arm, it simply grows back.

### *CLICK BEETLE GYMNASTICS*

These common beetles of parks, gardens and other grassy areas are supreme gymnasts. If disturbed, they lock a peg between their thorax and abdomen and flex their muscles. When the peg slips they're hurled into a series of somersaults. The landing is less graceful.

### *WHOOPER SWAN MARATHON*

During their annual migration whoopers fly non-stop for about 13 hours, covering the 1,125km sea crossing between Iceland and Scotland at a steady speed of 88kph. This is close to the limit for such big birds, weighing up to 11kg. Though hatched in Iceland, the swans spend winter (October to March) in Britain, so qualify for our national wildlife team.



On migration, whooper swans fly close to the limit of what is physically possible for such heavy birds.

### *BOMBARDIER BEETLE PISTOL SHOOTING*

Plenty of animals could compete in pistol shooting, but only one could bring its own gun – the bombardier beetle. The insect has a special chamber in its tail where it mixes hydroquinone with hydrogen peroxide, together with water and a catalyst. This causes a violent, heat-generating reaction that fires boiling liquid at its target (usually a would-be predator) with an audible 'pop'.

**ON OUR WEBSITE**

See more of the world's top animal athletes: www.discoverwildlife.com

**BBC SPORT**

Coverage of the Olympic Games airs from 27 July to 12 August. See www.bbc.co.uk/sport for the full schedule.

Squirrel: Ingo Arndt/naturepl.com; swan: Alan Williams/naturepl.com; starfish: MYN/Carsten Krieger/naturepl.com

# Enjoy Birdfair

RSPB

The wildlife TRUSTS Leicestershire & Rutland

## The international wildlife event of the year!

**17–19 August 2012**

**Rutland Water**

- ★ Hundreds of exhibitors and stands
- ★ Famous wildlife personalities
- ★ Lectures and events
- ★ Fun and games for all the family
- ★ Wonderful birdwatching
- ★ Just pay to enter, then all entertainments are free

Adults £12.50 • children FREE
Special Sunday price for RSPB and Wildlife Trust members: £10

**New! Buy your e-tickets on-line** for fast-track entry

## *A great day out for everyone who loves the countryside!*

As Global Sponsor of the BirdLife International Flyways Programme, Birdfair 2012 is raising funds to support conservation action in the East Asian/Australasian Flyway.

BirdLife INTERNATIONAL

The British Birdwatching Fair (Birdfair) is jointly organised by the Royal Society for the Protection of Birds and the Leicestershire & Rutland Wildlife Trust.

Joint main sponsors

Associate sponsors

in focus The Binocular and Telescope Specialists

PARKCameras.com KEEPING YOU IN THE PICTURE

Naturetrek

NORTHERN TERRITORY australiasoutback.com

WildSounds www.wildsounds.com

Birdwatch

Nikon

Viking

BBC Wildlife MAGAZINE

ZEISS

Bushnell

SWAROVSKI OPTIK

TOURISM MALAYSIA

The Binocular Specialists STEINER GERMANY

Leica

Kowa

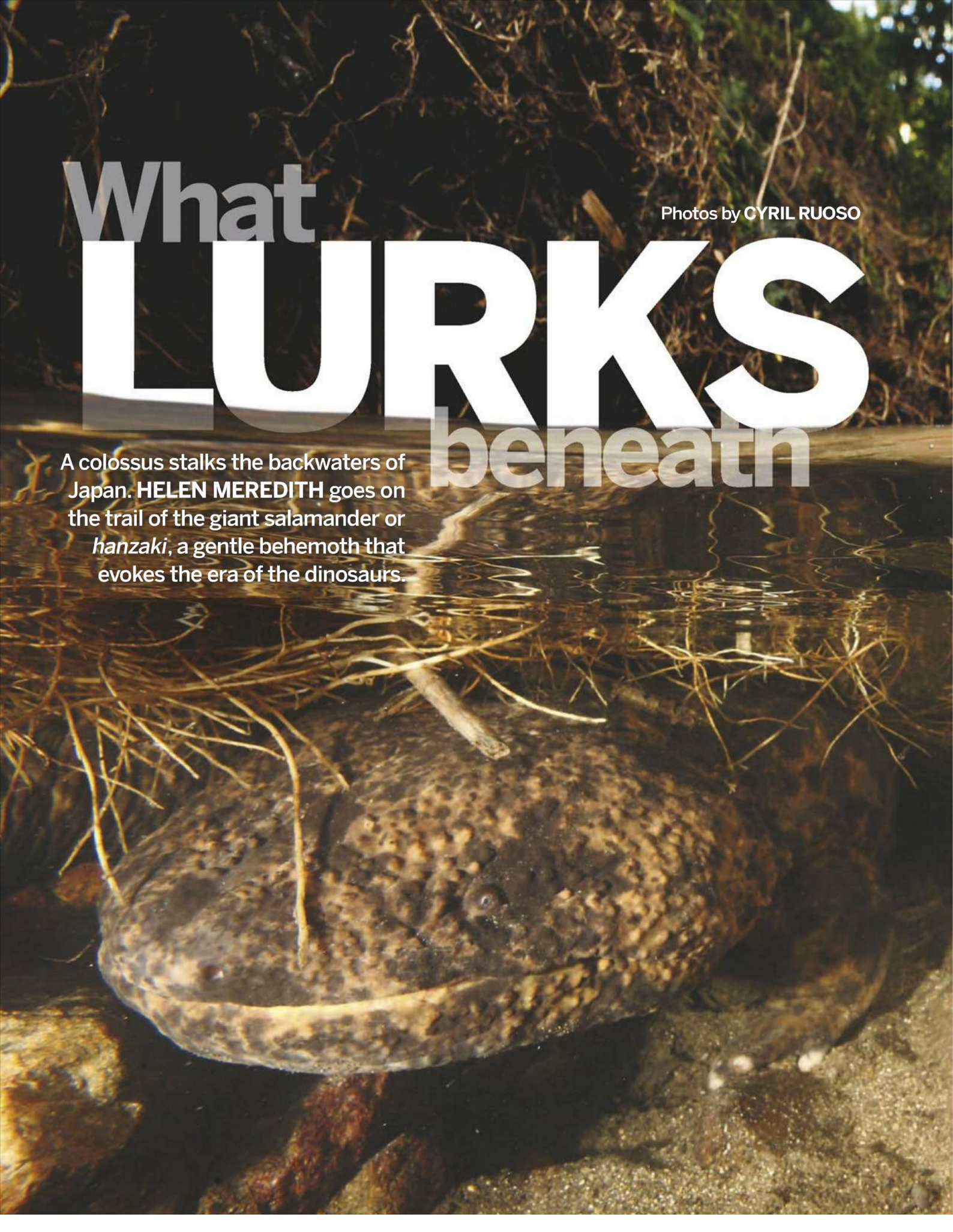
For more information, please visit **www.birdfair.org.uk**

Photo by Martin Davies 380-1004-12-13

# What LURKS beneath

Photos by **CYRIL RUOSO**

A colossus stalks the backwaters of Japan. **HELEN MEREDITH** goes on the trail of the giant salamander or *hanzaki*, a gentle behemoth that evokes the era of the dinosaurs.



The *hanzaki*, or Japanese giant salamander, uses super-sensitive nodes in its skin to detect subtle changes in water pressure made by prey as it passes. By contrast, it has tiny eyes and can't see far.

To the uninitiated, the Hanzaki Festival, held every year on 8 August in the hot-spring resort of Yubara Onsen in western Japan, seems distinctly odd. What appears to be an enormous slug is hauled along the town's main road on a carnival float, while revellers dance in beautiful kimonos. On closer inspection, you notice that the fibreglass mega-slug has a wide 'smile' and stubby limbs. This is no common-or-garden gastropod but a larger-than-life model of *hanzaki*, the Japanese giant salamander.

A festival for a salamander? Surely not. But this is far from an ordinary salamander. *Hanzaki* grows up to 1.5m long from warty nose to chunky, newt-like tail, and is the world's second-biggest amphibian (it's beaten to the top slot by a closely related species from China that reaches a staggering 1.8m in length). The strangely blissful, beaming expression on this stream-dweller's huge face is a clue to its predatory prowess: if a fish or crab wanders too close, the cavernous mouth snaps open, sucking in both water and prey.

In fact, the festival at Yubara Onsen celebrates an even larger beast. According to legend, a 10m-long monster, the original *hanzaki*, once inhabited the Asahi River and used to swallow villagers and livestock whole. It was killed by a local hero, but his brave act unleashed a terrible presence that pounded on villagers' doors and howled. The spirit of the slain *hanzaki* was cursing them.

To satisfy the demon, the villagers built a shrine to *hanzaki* and celebrated its life thereafter. The modern incarnation of the Hanzaki Festival is now in its 51st year, its popularity as huge as the creature it commemorates. ▶

Giant salamanders prefer fast-flowing, oxygen-rich streams. They grow up to 1.5m long, about one-third of which is muscular tail.

## THE EXPERT

**HELEN MEREDITH**

fell in love with giant salamanders while running ZSL's EDGE amphibian conservation project (www.edgeofexistence.org). She is now a conservationist at the Durrell Institute of Conservation and Ecology and ZSL.

Eschewing its reputation as a vengeful water monster, the real *hanzaki* is a far cry from the Godzilla-like beast of myth, with no designs on destroying Tokyo. Rather, it's a gentle giant, one of the few survivors of an ancient lineage of amphibians. It is virtually indistinguishable from the remains of its ancestors that lived during the time of the dinosaurs, and which have been immortalised in rock for tens of millions of years. If any living species qualifies for the label of 'living fossil', this is it.

The early discoverers of giant salamander fossils were bemused by what they found. One such extinct giant, which lived up to 12 million years ago, was uncovered in Austria in the early 18th century. In 1726 a Swiss physician, Johann Jakob Scheuchzer, named that find *Homo diluvii testis* or "witness to the Great Flood", believing it to be the squashed remains of a human drowned in the biblical deluge.

August's Hanzaki Festival honours Japan's warty wonder and its fearsome legendary ancestor.

Over 100 years were to pass before anyone modified Scheuchzer's theory, whereupon his specimen was given the scientific name *Andrias scheuchzeri*. *Andrias* means 'image of man' and is the genus name still used for the Japanese and Chinese giant salamanders.

There are about 600 species of salamander around the world, almost all of which could fit neatly into the palm of your hand, but the two giant salamanders could fit *your* hand neatly inside their mouths. The pair have only one close living relative – the unfortunately named hellbender of North America, also known as the snot otter, devil dog and 'old lasagne sides'. But, though impressive, even the biggest snot otter is less than half the size of its massive Asian cousins.

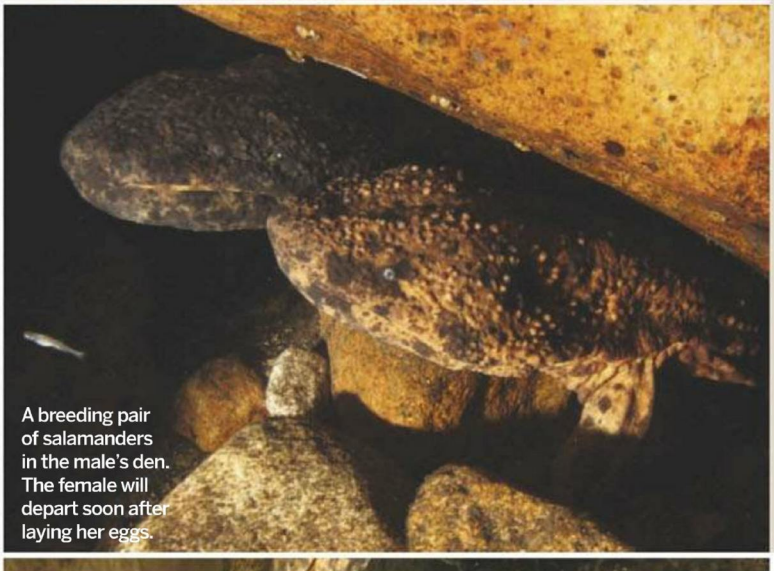
## WEIRD YET WONDERFUL

My work to conserve threatened, evolutionarily distinct amphibians led to me becoming smitten by the Japanese giant salamander, but I admit its appearance can be... well, ever so slightly alienating.

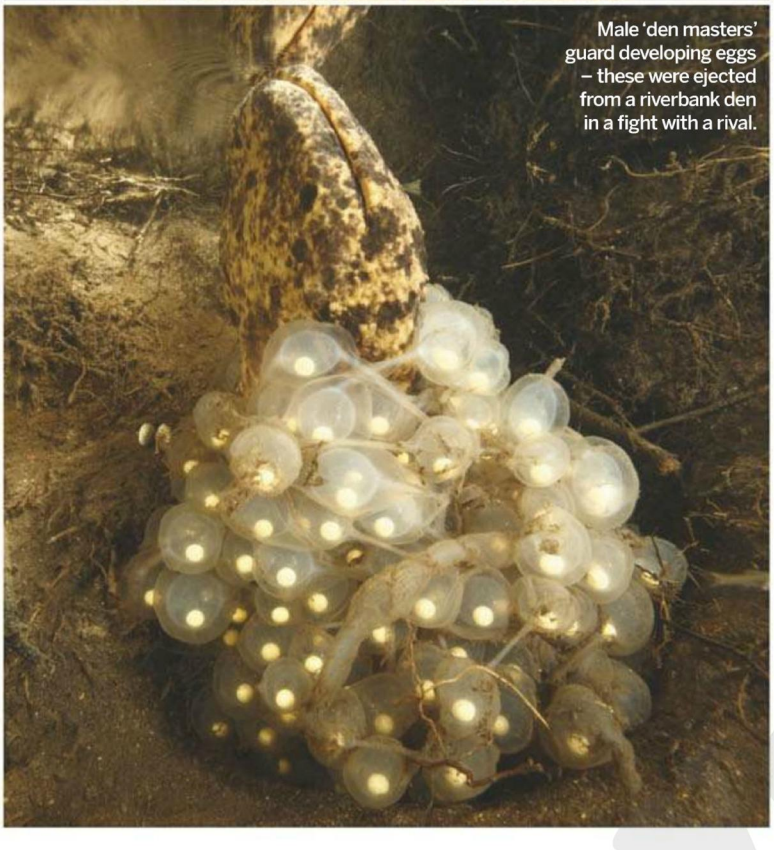
Take its minuscule eyes. One could be forgiven for being unable to locate them at all. Then there is the gaping maw, which stretches right across its lumpy head. Its skin is smothered with a generous slick of slime and is nipped into great wave-like folds along its massive flanks. The pleats aid the uptake of oxygen from water: though the adult salamander has functioning lungs, it mainly breathes through its permanently moist, porous skin.

For Japanese giant salamander expert Dr Sumio Okada of Tottori University, its strangeness is key to the appeal of

Bigmouth: a giant salamander shows off its huge gape, with which it engulfs anything in range.



A breeding pair of salamanders in the male's den. The female will depart soon after laying her eggs.



Male 'den masters' guard developing eggs – these were ejected from a riverbank den in a fight with a rival.

# WAWAYU THE WORLD'S LARGEST AMPHIBIAN

The closest living relative of Japan's *hanzaki* is the Chinese giant salamander. This gargantuan creature, which can weigh up to 30kg, is known as *wawayu* ('baby fish') in China due to the crying sound it makes when removed from water.

At least one-third of the world's amphibian species are threatened and *wawayu*, the largest member of the class Amphibia, is a sobering example of their plight. Ongoing threats range from habitat destruction to pollution, climate change, over-harvesting and disease. The species is now Critically Endangered and faces a highly uncertain future.

The food trade is by far the biggest threat, with *wawayu* fetching £45 per kilogram in Chinese restaurants. Its flesh is also used in traditional medicine.

Though this demand can drive illegal hunting, it does ensure that salamander farming is big business – which may offer a glimmer of hope for the *wawayu*. Its significance in Chinese culture could also help promote conservation efforts in the wild.

Chinese giant salamanders take up to 60 years to reach full size.

Visuals Unlimited/Ken Lucas/Getty

his research subject. "I love its mysterious ecology, quiet life and funny looks," he tells me with obvious fondness. Okada has been studying the species since 1996, focusing on its population in the Chūgoku Mountains of western Honshū island. His enthusiasm is infectious – so much so that he has inspired local communities in his study area to become *hanzaki* guardians. Last year, for example, the residents of Nichinan Town established a conservation group that sells t-shirts to raise money to buy radio-tags and artificial nestboxes for the salamanders.

Since I first contacted Okada and his colleagues four years ago, I have acquired a houseful of *hanzaki*-themed merchandise – everything from silk banners and purses to flannel shirts, books, and charms to hang from your mobile phone. These trinkets and mementos are doing a fine job of raising awareness of this phenomenal amphibian in its native country. Sadly, it needs all the help that it can get.

## OLD-TIMERS AND DEN MASTERS

Dr Kazushi Kuwabara of Asa Zoo, another leading authority on *hanzaki*, fears that its numbers have halved over the past 40 years. To understand why, we need to explore the salamander's fascinating life history.

The *hanzaki* is long-lived – some individuals alive today may have hatched a century ago – and it takes at least 10 years to reach adulthood. Despite its size, it generally avoids being seen, spending the day hidden in burrows ▶

*Hanzaki* scale rock faces with ease, but the smooth artificial dams bounding paddy fields and weirs along streams cause problems for males looking for mating sites and partners.

excavated in stream banks or beneath decaying vegetation. It's an ambush predator that springs into life at the first sensory hint of passing prey, catching victims – anything from aquatic insects to small mammals – with a powerful sweep of its mighty jaws.

During the breeding season, which peaks in August and September, mature males defend underwater dens and allow only females to enter. 'Den masters' may be visited by several females in turn, which each lay a clutch of up to 500 eggs and then leave, their job done. The devoted fathers maintain a close vigil over the eggs night and day, until the tadpoles hatch about two months later.

Woe betide lesser males that attempt to muscle in on den masters' territories. Though the male salamanders are fairly reserved creatures most of the time, they will fight to the death when guarding fertilised eggs: it's not unusual for the stronger of two rivals to seize his opponent's head in his jaws and try to swallow him headfirst.

Finding a good burrow – and successfully holding onto it – is how a male *hanzaki* makes his mark. So stretches of stream or river with soft, pliant earth banks suitable for digging, ideally with lots of overhanging vegetation and large rocks for cover, are highly sought-after. But these quiet, undeveloped backwaters are becoming harder to find.

## JAPAN'S BANK CRISIS

Road-building projects, drainage schemes and waterway 'improvements' have turned rural Japan's streams, ditches and rivers into little more than concrete-clad water chutes. Once-wild watercourses have been replaced by the sheer, impenetrable walls of irrigation systems and flood defences.

"This modernisation is a serious threat to *hanzaki*," says Okada. "The species' habitat has been fragmented and many traditional den sites have been lost." Okada and his team are working hard to reduce the impact of the changes by constructing salamander walkways around dams and up weirs, and installing nestboxes along banks.

These measures have become 21st-century society's way of placating *hanzaki*, but they aren't a panacea for the giant salamander's problems. Though the den masters may like

**ITS SKIN IS SMOTHERED WITH A GENEROUS SLICK OF SLIME AND IS NIPPED INTO WAVE-LIKE FOLDS ALONG ITS MASSIVE FLANKS.**

Dr Sumio Okada and a member of his research team track radio-tagged giant salamanders.

A researcher from the University of Kyoto takes biopsies from salamanders' tails in the Kamo River to check for hybridisation.

FACT FILE

## JAPANESE GIANT SALAMANDER

*Andrias japonicus*

**▶ LENGTH**
Adult: 30–150cm.

**▶ WEIGHT**
Adult: typically 1.5–25kg; occasionally up to 35kg.

**▶ ID TIPS**
Huge salamander with wide jaws and tiny eyes. Skin is brownish with darker spots, and has folds and tubercles.

**▶ DIET**
Mostly freshwater crabs, fish and small amphibians; also aquatic insects and small mammals.

**▶ LIFE-CYCLE**
Male fertilises eggs of one or more females (up to 500 eggs each), guards brood for 40–60 days until hatching.

**▶ HABITAT**
Cool, clear, rocky streams, especially in forested areas.

**▶ STATUS**
Near Threatened; threats include habitat destruction, pollution, and hybridisation with introduced Chinese giant salamanders.

WHERE IN THE WORLD


their new bespoke burrows, the canalisation programme reduces prey availability and seems to interfere with the development of the young. Okada tells me that during his surveys he usually catches more young adults and larvae where banks are natural and the stream- or riverbed has plenty of rocks under which they can hide. His team is now radio-tracking tagged individuals to discover more about how the amphibians use their habitat.

### ALIENS AND PLASTIC

Happily for *hanzaki*, hunting these gentle giants has been illegal since the 1950s, when the species was declared a 'natural living monument' by the Japanese government. But, over 30 years ago, a new threat emerged: Chinese giant salamanders began turning up in the waterways around Kyoto Prefecture. The alien amphibians – which may have been imported for meat, only to escape from restaurants or farms – have been seeking exotic couplings with their smaller Japanese relatives ever since.

It is thought that male Chinese giant salamanders are more aggressive and thus better able to fight for females – so much so that today around half of the salamanders caught in some areas are hybrids. In time, hybridisation could even make *hanzaki* disappear altogether from these river catchments as a separate, distinct species.

As if that were not enough, there is one further threat to Japanese giant salamanders: pollution. Okada shows me disturbing photographs of the stomach contents of adult *hanzaki* that have unwisely strayed into urban areas. I was shocked to see indigestible rubbish such as plastic bags, cellophane food wrappers and disposable chopsticks.

Feeling downbeat after hearing Okada's concerns for the species, I found myself asking what the future holds for the amphibian star of Yubara Onsen's annual summer festival. Okada himself is clearly troubled by the current state of affairs: "Some local *hanzaki* populations may become extinct, while larger ones get more fragmented," he predicts. But I'm relieved that, nevertheless, he still feels that all is not lost.

Most waterways in the species' range now have artificial dens and salamander 'slipways', and growing numbers of surviving natural streams are earmarked for protection as nurseries for the young. "*Hanzaki* is a survivor," Okada concludes. "It has a pretty sturdy constitution."

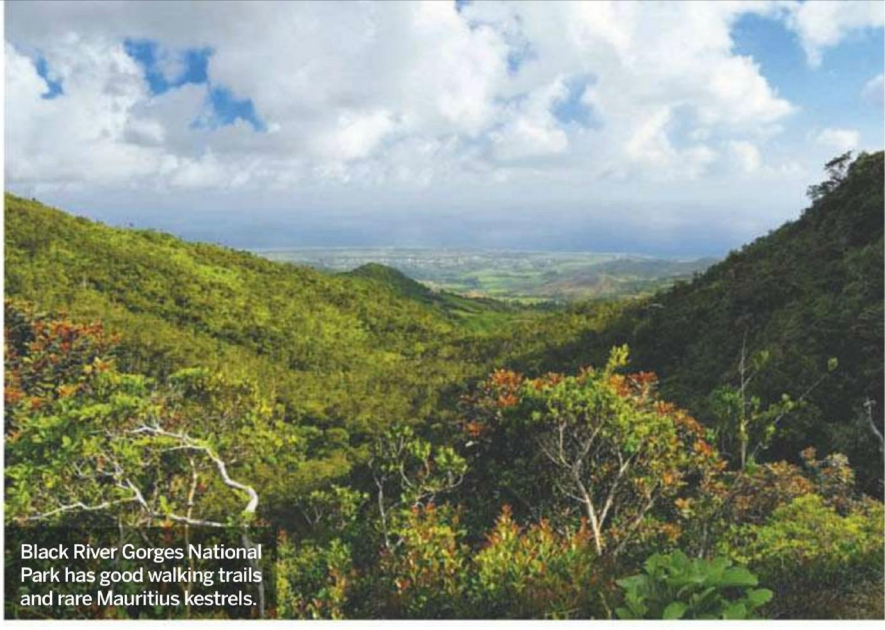
For an animal whose lineage has Jurassic roots, you can only imagine the challenges that *hanzaki* must have already overcome through the millennia. Let's hope that this fighting spirit wins out again and that its longevity can inspire more much-needed conservation efforts for weird-looking but wonderful creatures under threat the world over.

### FIND OUT MORE

Discover more about giant salamanders and see two short films of live *hanzaki* at http://news.bbc.co.uk/1/hi/8497330.stm

Though not native to Mauritius, giant tortoises introduced from Aldabra Atoll in the Seychelles are playing a vital conservation role by eating invasive vegetation and dispersing native seeds in their dung.

Tortoise: Gerard Soury/OSF/Getty; falls: J Heinimann/Alamy



Black River Gorges National Park has good walking trails and rare Mauritius kestrels.

# PARADISE REGAINED

**They were too late to save the dodo – but, since the 1970s, conservationists have been working to prevent other endemic species in Mauritius from suffering the same fate. Mark Stratton visited this Indian Ocean idyll to find out how.**

Preoccupied with photographing a green-and-red ornate day gecko, I'd failed to notice that 'Big Daddy' had sneaked up behind me. He was large (some 175kg), irritable and had green slobber oozing from his jaws – but he was also ponderous enough to be sidestepped. 'Big Daddy' is an Aldabra giant tortoise; introduced onto Île aux Aigrettes in 2004, today he's a heavyweight conservation hero.

Though Mauritius is best known as a honeymoon hotspot, it's also an emerging destination for wildlife enthusiasts. Visitors can explore rugged mountains and coral islands to spot rare endemics that have been wrestled from the brink of extinction by some of the most intensive, species-based conservation ever attempted – with help from those huge tortoises. My own journey would celebrate three locations where these wildlife rescues have been successful.

## THE WASTE LAND

Mauritius has been leaking biodiversity ever since Dutch sailors polished off the dodo around 1680. Other endemics, such as the broad-billed parrot, followed as sugar-cane plantations and deforestation whittled away the island's tropical forests, while introduced species outcompeted native fauna and flora. By the early 1970s, endemics were teetering on the brink. Then the Durrell Wildlife Conservation Trust, and later the Mauritian Wildlife Foundation (MWF), began *ex situ* captive-breeding and intensive wildlife-management programmes to steady the rocking ship.


**THE AUTHOR**

**MARK STRATTON**

is a travel writer based on Dartmoor. He is never happier than when venturing far off the beaten track in search of rare wildlife.

Once depleted to fewer than a dozen birds in the wild, the echo parakeet population now numbers more than 300, though it is still considered Endangered.

So I found it ironic, given the destruction wrought by introduced species, to encounter this very prominent shelled interloper undertaking valuable work as he trundles around Aigrettes. Mauritius' two endemic giant tortoise species had been eaten into extinction by the 1840s, but in 2004 the MWF introduced 18 individuals of a related species from Aldabra Atoll in the Seychelles. It was hoped that they would occupy the same niche in the ecosystem as Aigrettes' original tortoises, helping to restore the island to something like its pre-colonisation condition. Today, this 26ha coralline dot has become a Noah's Ark of saved species.

Dr Vikash Tatayah, MWF's conservation manager, explained the tortoises' role as we watched the century-old giant extend his wrinkled neck from a high-domed carapace to devour non-native ground acacia.

"They're conservation labourers," he told me. "They eat invasive flora, and disperse endemic seeds in their dung." Indeed, we fossicked in some tortoise poo and found several seeds of black ebony. This native timber tree was the victim of over-harvesting, but is now regenerating thanks to these fertiliser packs and the fact that the competing vegetation is slowly being consumed.

However, deliberately importing alien species can be controversial. "Some ecologists argue that classical conservation should involve removing alien species and allowing native species to thrive, or reintroducing them if they are extinct locally," Tatayah said. "But 'analogue' species introductions run counter to this point of view – and here, introducing an exotic species has helped to restore a native habitat."

Only the male Mauritius fody has the distinctive bright-red head and neck (and only when it's the breeding season).

**TWO MALES OF THE ENDEMIC OLIVE WHITE-EYE WERE SQUABBLING OVER A FEMALE. WELL, BOYS WILL BE BOYS.**

In this instance it's so far, so good. With the native forest regenerating and rats removed, some of Mauritius' rarest endemic birds have now been let loose on Aigrettes.

Indeed, on stepping ashore I encountered one of nine endemic birds: a male Mauritius fody, a handsome fellow with iridescent crimson head plumage. Only a decade ago, numbers had fallen to 98 pairs, so the MWF relocated a population from a fast-disappearing forest on the mainland. Numbers have since nearly doubled, and some have even been returned to the mainland. I was also glad to see two males of another rare endemic, the olive white-eye, noisily squabbling over a female. Well, boys will be boys.

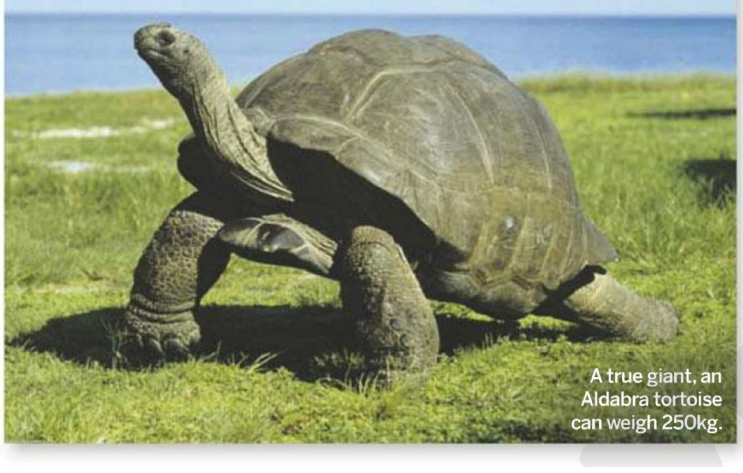
## THE TAMING OF THE SHREWS

Before departing Aigrettes, there was another endemic to see – Telfair's skink. In the 1970s, with numbers collapsing because of predation by alien species, a few skinks were taken by Gerald Durrell to be captive-bred at Jersey Zoo. Now introduced to Aigrettes as part of the British-sponsored conversation project the Darwin Initiative, this large (up to 40cm) silvery-coated, ground-burrowing skink is thriving.

Not all of Mauritius' beaches are as deserted as La Roche qui Pleure – 'The Rock that Weeps' – at Gris Gris on the south of the island, but most are just as beautiful.

## WILDLIFE SPOTTER ALDABRA GIANT TORTOISE

▶ NAME *Geochelone gigantea* (also sometimes referred to as *Dipsochelys dussumieri*).
▶ ID TIPS Males average 1.22m in length and can weigh up to 250kg; females are smaller. The carapace is dark grey or even black.
▶ BEHAVIOUR Active during the day.
▶ DIET Predominantly vegetarian, feeding on grasses, herbs and sedges. Also fruit and even carrion.
▶ LIFE-CYCLE May not start breeding until 25 years old. Females lay small clutches of up to 14 eggs. Can live for up to 100 years.
▶ DISTRIBUTION Endemic to Aldabra Atoll in the Seychelles, introduced to Mauritius and the nearby island Réunion.
▶ STATUS Vulnerable, though the estimated population on Aldabra exceeds 100,000.



A true giant, an Aldabra tortoise can weigh 250kg.

Clockwise from top left: Mark Carwardine; Massimo Ripani/Corbis; Kerstin Layer/Alamy; Gregory Guida/Natural Visions

At first, non-native shrews continued predating on young skinks, but these fast breeders have turned the tables and now feast on the shrews. Sweet revenge, indeed.

Back on the mainland, I headed to the Bel Ombre Sugar Estate – a swathe of the south-west corner that encompasses the 1,400ha Frédérica Nature Reserve. I was itching to catch a glimpse of the rarities the reserve harbours.

After breakfast one morning (mostly spent defending my croissants from the unwanted attention of several avaricious red-whiskered bulbuls), I explored Frédérica with estate manager François Baudot. The reserve consists of rolling hills funnelling down to the southern coast from Mauritius' central volcanic massif, with forests of mangoes, jackfruit, traveller's palms and bamboo. However, this is no untouched Eden. Centuries of introduced exotics have taken their toll: crab-eating macaques were brought over by Portuguese sailors and let loose, non-native fruit trees were grown as cash crops, and some misguided soul introduced mongooses to control the alien rats.

### CATCH THE PIGEON

But Bel Ombre's conservation team is fighting back. In a depleted endemic hardwood forest, thickets of invasive Chinese guava were being cleared, not only providing indigenous ebony trees with space to re-germinate, but also revealing surprises such as the rare orchid *Jumellea recurva*. "Less than 1.5 per cent of Mauritius' original forest remains, and ebony grows at just 5mm a year. So if we don't start to conserve now, in 20 years we'll have nothing," said Baudot.

In addition, the estate has installed nestboxes for echo ▶

The pink pigeon is a notable conservation success story. Its numbers increased from just 10 birds in 1990 to nearly 400 by 2007.

Pigeon: Mark Carwardine/naturepl.com; gecko: Gregory Guida/Natural Visions

parakeets and Mauritius kestrels – of which more later – to counteract a lack of suitable mature trees, and provided supplementary feeding stations for the pink pigeons. The latter have enjoyed another remarkable revival. In *Golden Bats and Pink Pigeons* (1977), Durrell described his collecting expedition to create a last-ditch captive-breeding programme at Jersey Zoo, when their wild population had crashed to an estimated nine individuals.

Once again, intensive zoo management techniques saved the day, though both captive-breeding (on Mauritius) and supplementary feeding continue. The pigeons now number about 400, and are simple to find – they mull around the island's various feeding stations waiting for an effort-free meal. They are easy spots: pink breasts and burgundy-brown wings on a bird slightly smaller than a woodpigeon.

It was getting late, but there was one more species I was determined to see. In a treetop close to a feeding station on the northern boundary of Frédérica roost the island's only native land mammals: Mauritian flying foxes, with treacle-coloured fur and wingspans reaching 90cm – Durrell's 'golden bats'. We watched them preening before they glided off into the sunset for a meal.

## IN SEARCH OF KESTRELS

Bel Ombre borders the 6,754ha Black River Gorges National Park. This refuge of Mauritian hardwood forest and heathland sits atop the island's mountainous volcanic centre. Here, the forestry service is painstakingly weeding out exotic flora to recreate the ebony wildwood while retaining stalwarts such as the buttress-rooted *tambalacoque* or 'dodo tree' – so-called because it was mistakenly thought to have died out with the dodo.

This ornate day gecko is pictured on a Latania palm fruit. The species is endemic to Mauritius and some of the other islands nearby.

**IN 1974, THERE WERE JUST FOUR MAURITIUS KESTRELS LEFT IN THE WILD. IT WAS THE WORLD'S MOST ENDANGERED BIRD.**

Black River Gorges has well-delineated hiking trails along volcanic ridges, offering stupendous ocean views and fine opportunities for birdwatching. I particularly hoped to see the Mauritius kestrel and the echo parakeet, two world-famous examples of species saved by intensive conservation. The tropical storms that lashed the island were not helping my quest, though I was cheered by the sight of white-tailed tropicbirds struggling past, with their streamer tails spiralling like rhythmic gymnasts' ribbons.

The story of the Mauritius kestrel – the most successful raptor-recovery programme ever attempted – is worth relating. As MWF's fauna manager, Dr Nicolas Zuël, told me, in 1974 just four individuals survived in the wild, including a single breeding female – it was the world's most endangered bird. Habitat loss, food shortages – particularly of geckos, which comprise 75 per cent of their diet – and DDT spraying (to counter malarial mosquitoes) had led to this cataclysmic decline. Some

# THE INFORMATION

**MAURITIUS** Lying in the Indian Ocean, 870km to the east of Madagascar, Mauritius has a land area of 2,000km².

## NOW YOU DO IT

### GETTING THERE

▶ **Air Mauritius** flies direct from Heathrow. 020 7434 4375; www.airmauritius.com
▶ **British Airways** flies direct from Gatwick. 0844 493 0787; www.britishairways.com

### VISAS

▶ **UK nationals** do not require visas.
▶ Find out more from www.tourism-mauritius.mu

### WHEN TO VISIT

▶ **Cyclones** can occur from November until May.

### ACCOMMODATION

▶ **Heritage Le Telfair** hotel, on the Bel Ombre estate, has access to Frédérica Nature Reserve. Half-board costs £307 for two sharing. www.heritageletelfair.mu
▶ **Lakaz Chamarel Chalets**, near Black River Gorges National Park, costs from £150 half-board. www.lakazchamarel.com

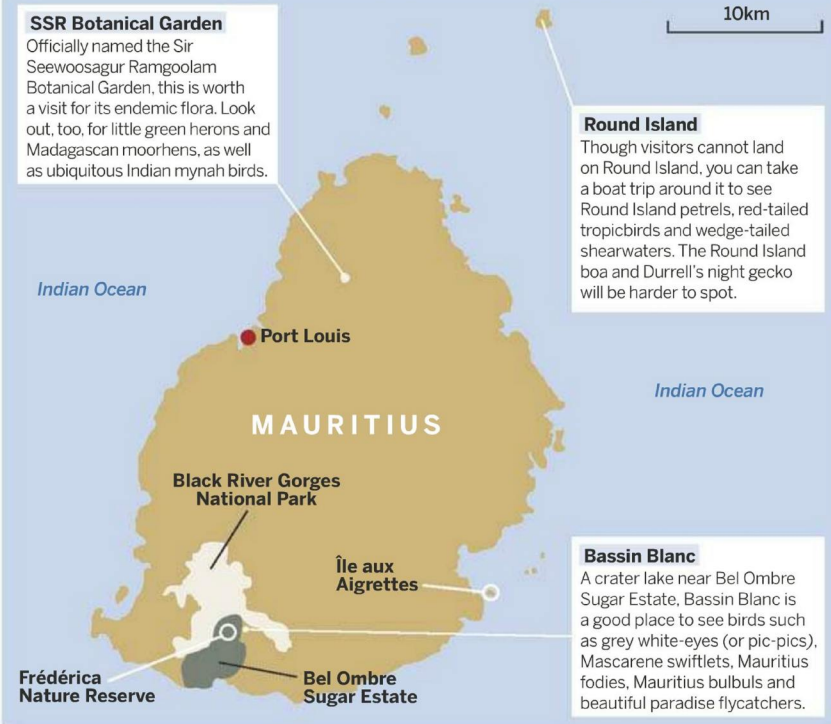
### WILDLIFE RESERVES

▶ Nature-watching tours are scarce, but it's easy to plan your own visits.
▶ For reserves run by the **Mauritian Wildlife Foundation (MWF)** see www.mauritian-wildlife.org
▶ For **Black River Gorges National Park** (*pictured below*) see www.gov.mu/portal/site/npcs
▶ For **Frédérica Nature Reserve** trips, contact Heritage Le Telfair (*left*).

### FURTHER READING

▶ Order **The Native Plants & Animals of Mauritius** from the MWF's website.
▶ **Golden Bats and Pink Pigeons** by Gerald Durrell is currently out of print. Buy second-hand from www.abebooks.co.uk

## THE NAVIGATOR




## WILDLIFE SPOTTER MAURITIUS KESTREL

▶ NAME *Falco punctatus*
▶ ID TIPS Weight 110g, overall length 20–26cm – slightly smaller than our common kestrel. Pale-cream, spotted chest and chestnut-brown, black-streaked or barred head, neck, wings and tail are standout features.
▶ BEHAVIOUR Found usually in forested areas, most active in early morning and late afternoon, when it hunts its favourite prey: day geckos.
▶ DIET Lizards, but also dragonflies, birds, rodents and frogs.
▶ LIFE-CYCLE Pairs use cliffs or tree clefts as nest sites. Females lay 3 or 4 eggs, and chicks become independent at about 12 weeks. Life expectancy is 10–15 years.
▶ DISTRIBUTION Endemic to Mauritius.
▶ STATUS Classed as Vulnerable by the IUCN.

The Mauritius kestrel has been rescued from the jaws of extinction.

Kestrels: Nick Garbutt/naturepl.com; Alexandra Falls: Alan Smithers/Alamy

eminent environmentalists, such as Norman Myers, were even calling for the bird to be abandoned "to its all-but-inevitable fate", with the money saved to be used to conserve other threatened birds that were more likely to survive.

There wasn't time for habitat restoration, so a last-ditch attempt at intensive species conservation, driven by Welsh biologist Dr Carl Jones, began (see My Wild Life, May). He collected the few remaining fertile eggs to induce multiple-clutching, in which birds lay a second brood to replace the first. Jones incubated and hand-reared the fledgling kestrels to adulthood; with the help of supplementary feeding and artificial nest creation, by the early 1990s the population was nurtured back to some 30 pairs. "We may have reached more than 800 kestrels [at one point], but I suspect the number has now stabilised down to 500," said Zuël. "If we want to increase it further, we will have to restore more forest."

That notable raptor remained elusive, so I pinned my hopes on the echo parakeet, itself subject to an amazing conservation effort. Setting out along the Marie Longue Trail, I soon came to a feeding station where several parakeets were huddled on a branch. They are lovely creatures: both sexes are emerald-green but the males stand out, with their peachy-red beaks and a frisson of cranial turquoise. Just minutes later, a dozen parakeets flew over, squawking away as if they had never been in trouble.

Mauritius is a beautiful island whose modern conservation successes leave a glow as warm as the tropical sunshine. And though it will always be associated with the most famous of anthropogenic extinctions, such endeavours just might ensure that nothing comparable ever happens again.

Photos by **SANDESH KADUR**

# CLOUD PLEASERS

Two orphaned clouded leopard cubs raised in India provided unique insights into the lives of these elusive felines. **STUART BLACKMAN** finds out more.

The adoptive human parents of Runaa and Khota knew when it was time to release them back into the wild. The twins had just killed a stray dog unlucky enough to cross their path in the forest reserve that had been their home for 18 months. A dog might not be the cubs' most natural prey, but it was a far sterner test of their predatory skills than the chickens on which they had been trained. And what is a big cat without predatory skills?

Not that Runaa and Khota are particularly large – they're midway in size between a tabby and a tiger. Yet they *are* big cats, sharing an elite branch of the evolutionary tree with tigers, lions, leopards, jaguars and snow leopards, with which they are placed in the subfamily Pantherinae.

But while the closest relatives of clouded leopards are staples of wildlife TV documentaries and magazine covers – even the snow leopard is now giving up its secrets – this species remains defiantly camera-shy.

## STEALTH CATS

"Clouded leopards are nocturnal, arboreal, secretive and solitary," says Indian wildlife photographer Sandesh Kadur, who took the extraordinary images on these pages. "No film has ever been made about them in the wild."

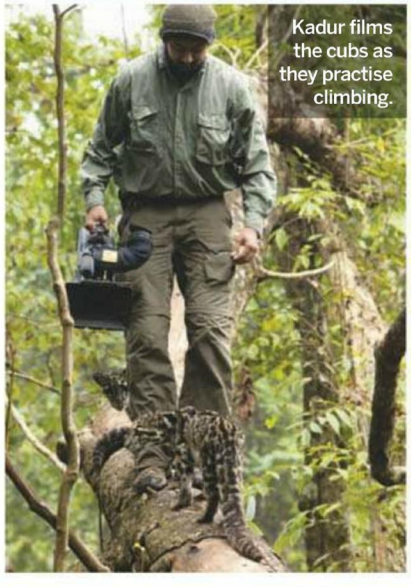
Kadur should know. He's been scouring the remotest forests of north-east India for clouded leopards for the past three years. "I'm pretty sure that I've been spotted by them," he says. "But I haven't been fortunate enough to spot one back. I've found pug marks and scat – that's all."

He's in good company. Zoologists working on clouded leopards aren't guaranteed a sighting, either. "Even people working extensively in the field seldom glimpse their feline study subjects," admits Andrew Hearn, who runs Oxford University's Bornean Clouded Leopard Programme. And the veteran conservationist George Schaller hasn't had ▶


Runaa and Khota explore their forest surroundings. At first, Wildlife Trust of India staff rehabilitating the cubs kept the inquisitive orphans on long leads.

Runaa & Khota: Panjit Basumatary/IFAW-WTI; Sandesh filming: Mandappa KC/tells.in

Runaa and Khota were weak, frightened little balls of fur when they arrived at the WTI's wildlife rescue centre.



Kadur films the cubs as they practise climbing.

No one had attempted to return orphaned clouded leopard cubs to the wild before, so the process was mostly trial and error.

**PHOTOS BY**

**SANDESH KADUR**

couldn't believe his luck when he heard about the orphaned cubs. He is one of India's leading wildlife photographers; find out more at www.sandeshkadur.com

much more luck. "In all my wandering in clouded leopard country," he says, "I've come across just one in the wild, sitting on a trail in a forest in Laos."

So when Kadur heard that the Wildlife Trust of India (WTI) was planning to rehabilitate a pair of orphaned clouded leopard cubs in Ripu-Chirang forest in Assam, he recognised an unmissable opportunity.

## BROTHERS IN ARMS

Superficially, clouded leopards look like small leopards. Their spots are much larger, however – not unlike those of giraffes, but with a pale interior dotted with smaller spots. They're more like clouds than spots, hence the name.

Other telltale features include an unusually long tail, used for balance when climbing, and the longest canine teeth relative to skull size of all big cats (almost as large as in tigers). Their gape is also wider than that of any other big cat – 100 degrees, compared with 65 degrees in lions.

Why clouded leopards have such an impressive gape and dentition is not known, since their typical feeding behaviour (observed in captivity) is much the same as in other big cats. That is, prey is dispatched by latching onto the throat and holding it to the point of suffocation.

**DESPITE THEIR WILD ORIGINS, THE CUBS WERE AFFECTIONATE, CRAVING ATTENTION LIKE MORE CONVENTIONAL PET KITTENS.**

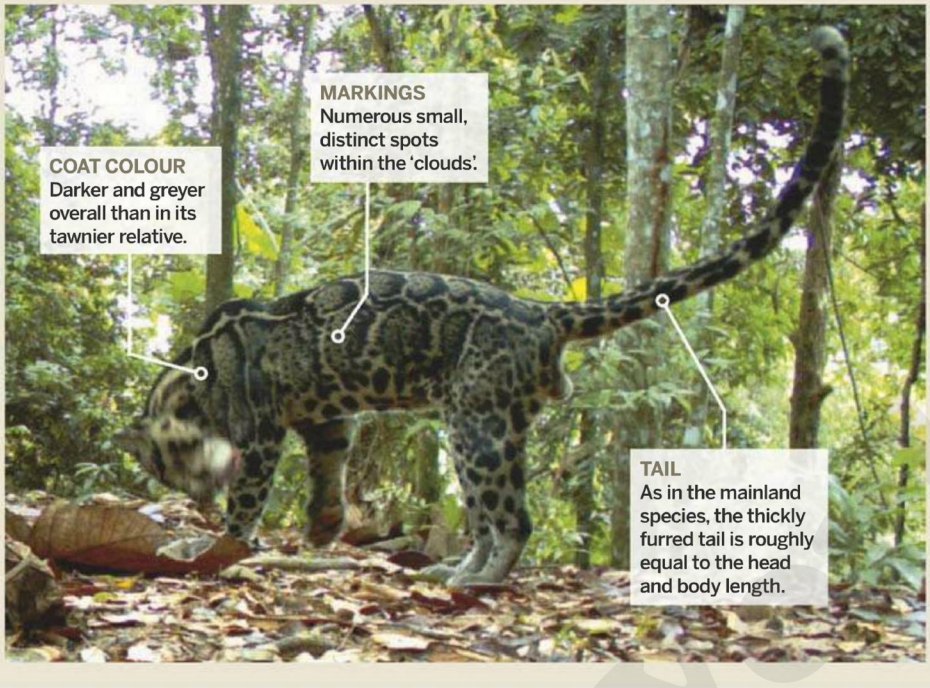
Nevertheless, the two little balls of fur that tumbled out of a hole in a tree felled by woodcutters near India's border with Bhutan mystified their finders. The workers thought that they were leopards or tigers, and took the cubs home to sell. But word reached forest officials, who confiscated them and handed them to the WTI's Centre for Wildlife Rescue on the outskirts of Kokrajhar city.

Only then were the cubs identified as male clouded leopards. Just a few days old, their eyes hadn't yet opened. They were weak but, under the care of WTI vets, day-to-day survival became week-to-week, then month-to-month.

Staff christened the pair Runaa and Khota, the name of the village near which they were found. Despite their wild origins, the cubs were affectionate, craving human attention like more conventional pet kittens. They were mischievous, too, playing with one another and with their food as they exercised their rapidly growing muscles.

When the twins were five months old, the vets decided to risk something never attempted before. Rather than send the feisty felines to a zoo, they would train them for release into the wild. Kadur was out of the country when ▶

The clouded leopard's exquisite markings fuel a lucrative black market in its fur. In 1995, for example, researchers found 95 pelts for sale at Myanmar's Tachilek wildlife market.




WWF-INDONESIA/PHKA

## TWO OF A KIND
## MEET THE SUNDA CLOUDED LEOPARD

In 2006, the clouded leopards found on Borneo and Sumatra were shown to be sufficiently different from those elsewhere in South-East Asia to merit classification as a separate species. Though the two forms may look similar, genetically they are as different from each other as lions and tigers.

The island species, known as the Sunda or Diard's clouded leopard, has smaller cloud markings with numerous spots inside many of them, and tends to be greyer and darker. It is the largest carnivore on Borneo, where it has been seen to prey on proboscis monkeys. Like its mainland counterpart, the species is vulnerable and threatened by habitat loss and fragmentation.

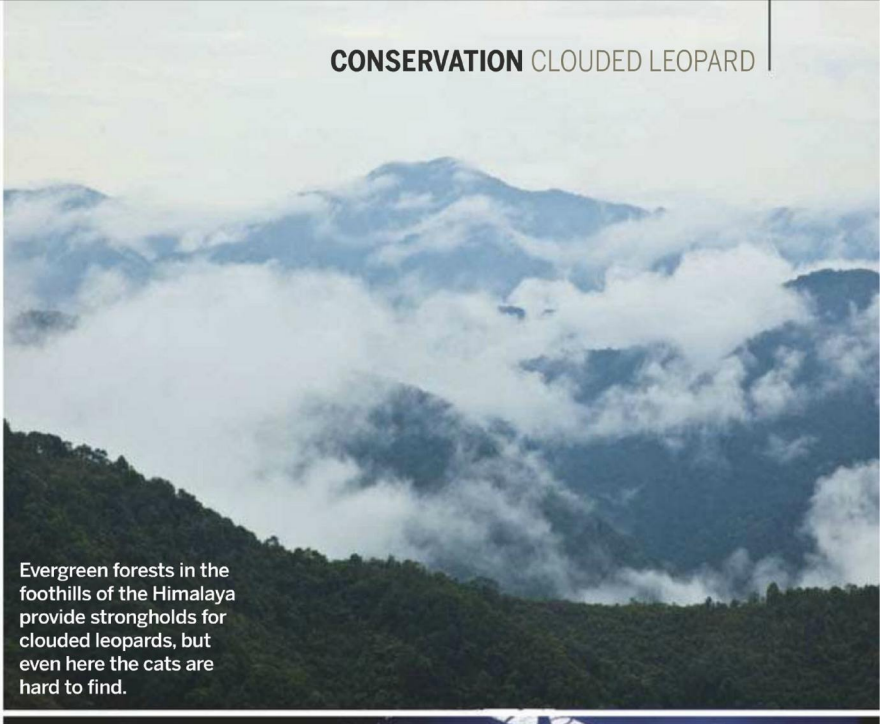
It wasn't long before the rehabilitated cubs began 'hunting' golden langurs – or, at least, chasing the poor monkeys from tree to tree.

he heard about the plan: "I dropped everything and rushed straight back to India to document the process."

Runaa and Khota were accommodated in tree-house cages, from where their carers took them on walks to accustom them to the sights and sounds of the forest. At first the cubs were kept on leashes to prevent them from disappearing. But the instant they were allowed 'off-lead', their tree-climbing instincts took over.

"The cubs raced 30m straight up a tree trunk," says Kadur. "We were worried they couldn't get down again." But the local fire brigade wasn't needed: unlike other cats, clouded leopards have hind feet that can swivel backwards, so they descend trees with squirrel-like ease.

To begin with the cubs were trained to hunt domestic fowl, but when they finished off the unfortunate dog it was clear that no more hunting lessons were needed. Shortly afterwards, in May 2010, they were fitted with white radio-collars and let off their leashes for the last time. The cats were tracked for several weeks until floods and tree-falls caused by the monsoon forced their carers to give up.



Evergreen forests in the foothills of the Himalaya provide strongholds for clouded leopards, but even here the cats are hard to find.

The pelt of an adult clouded leopard hangs up to dry in the kitchen of a Naga tribesman, near the Indo-Myanmar border.

## SPLIT DECISION

So little is known about clouded leopards that it wasn't until 2006 that it was established that there were two species (see box, p67). Andrew Kitchener, principal curator of vertebrates at National Museums Scotland, whose research on the coat patterns of different populations was central to that discovery, says that there is an urgent need for more information about almost every aspect of these cats' biology.

"Southern Asia's forests are disappearing rapidly, so basic data about habitat usage, prey, home-range size and population density is desperately needed for both species of clouded leopard," Kitchener explains.

Conservationists must tackle two key issues. "We need to identify dispersal corridors for clouded leopards in an increasingly fragmented landscape," Hearn says. "And we need to protect and enhance these dispersal routes."

Rampant deforestation is not the only threat to clouded leopards: poaching and the illegal sale of their skins and bones also take a heavy toll. Despite the fact that both species are listed on Appendix I of CITES, which bans all trade in wild-caught specimens, the cats' skulls and jawbones are used to decorate tribal swords and trinkets offered to tourists. These macabre souvenirs are sold openly in government-run handicraft shops.

## BIG CAT, SMALL CAT WHICH IS WHICH?

**There are several definitions of 'big' and 'small' cats, based on different criteria.**

### SIZE

Nine species – the lion, tiger, leopard, jaguar, snow leopard, cheetah, mountain lion (puma) and the two clouded leopards – are often grouped together as big cats on the basis of relatively large size. The qualifying measure is arbitrary, however: a Eurasian lynx can be much heavier than a clouded leopard.

### ROARING

Only members of the genus *Panthera* (the lion, tiger, leopard and jaguar) can roar, due to the elongated, flexible structure of their larynx, the walls of which vibrate as air streams through it.

### HYOID BONE

Most felines have a bony, rigid hyoid bone in the larynx. But in the cheetah, snow leopard and *Panthera* cats, the hyoid is only partially ossified (it is mostly flexible cartilage). This has led some authorities to group these species together as big cats.

### GENETICS

Recent studies show that, genetically speaking, the lion, tiger, leopard, jaguar, snow leopard and the two clouded leopards comprise a single group: the subfamily Pantherinae. This split from the subfamily Felinae, which contains all other cats, about 10 million years ago.

Clouded leopards are large, but they cannot roar – that, and their possession of a rigid hyoid bone, could deny them big cat status.

Clouded leopards are truly arboreal – they have broad, soft feet for leaping, very long tails for balance and hind ankles that roll outwards when they descend trees headfirst.

FACT FILE

## CLOUDED LEOPARD

*Neofelis nebulosa*

**▶ WEIGHT**
Male: 16–18 kg; female: 11.5–13.5kg.

**▶ LENGTH**
Head and body: 69–107cm; tail: 61–84cm.

**▶ ID TIPS**
Stocky, medium-sized cat, with short legs and a very long tail. Coat is patterned with cloud-like splodges.

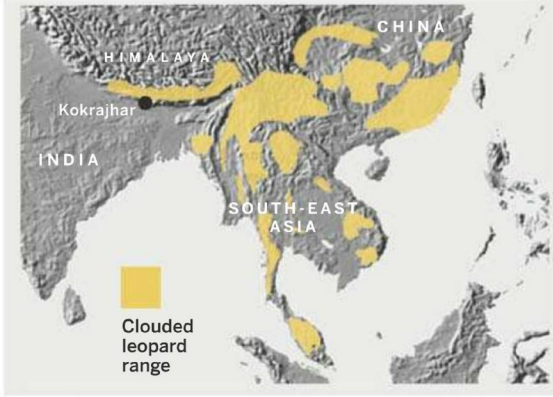
**▶ DIET**
Takes both arboreal and terrestrial prey, including small deer, bearded pigs, monkeys, porcupines, palm civets, squirrels and birds.

**▶ LIFE-CYCLE**
Female gives birth to 1–5 cubs (usually 2 or 3) after a gestation period of 88–95 days. Young are sexually mature at 20–30 months.

**▶ HABITAT**
Primary rainforest; found at up to 2,500m in Himalaya.

**▶ STATUS**
Vulnerable; wild population thought to be no more than 10,000 adults.

**WHERE IN THE WORLD**




WTI researchers began tracking Runaa and Khota again in October 2010, after the rains had subsided and the roads in the forested Himalayan foothills were passable once more. But it was dangerous work: political unrest in the region had brought with it the risk of ambush and kidnap by insurgents. Tracking efforts were erratic, and eventually had to be suspended altogether.

In June 2011, nearly 13 months after Runaa and Khota's release, WTI staff finally judged it safe enough to renew the search for evidence that the twins had survived their first year in the wild. Kadur joined the quest.

**THE CAMERA-TRAPS SNAPPED LEOPARDS, ELEPHANTS AND POACHERS, BUT NO CLOUDED LEOPARDS. THEN CAME A RELIABLE SIGHTING.**

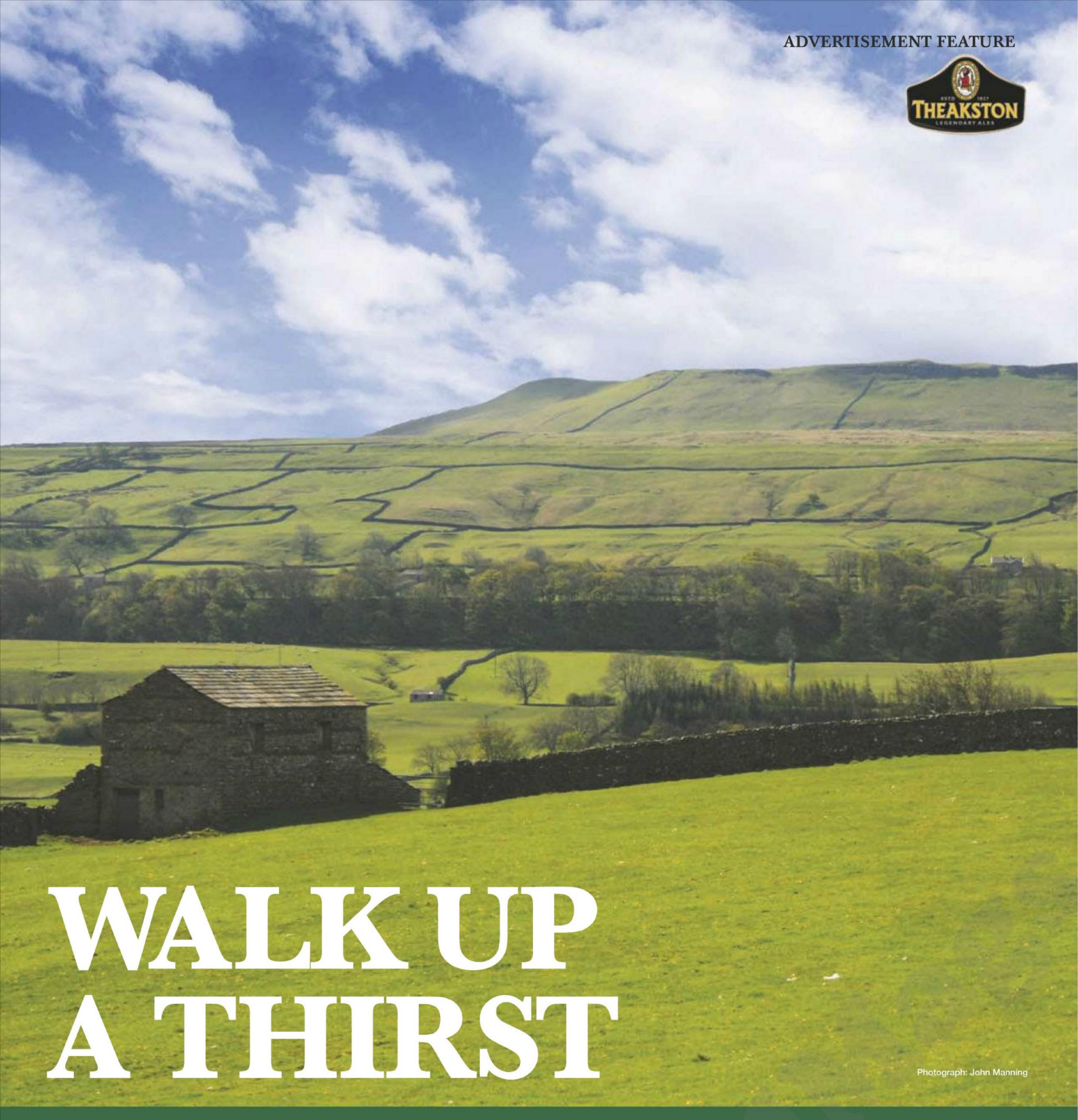
The odds were stacked against the team. "It was a bit like hunting ghosts," says Kadur. Khota's radio-collar had failed already, and the battery in Runaa's was by then very feeble. (Even when functioning properly, the devices' signals were detectable only 450m away. In dense forest where travel is difficult and visibility poor, that's hardly anything.) Moreover, safety precautions were still necessary: "Wherever we went, we were surrounded by 25 guards armed with AK-47s," Kadur recalls.

Happily, traditional 'eyes-to-the-ground' tracking techniques turned up fresh pug marks, scats and telltale scratches on trees. Then two local Bodo men reported seeing a clouded leopard near their village.

The team set camera-traps and tried baiting with a liberal spray of Calvin Klein aftershave, hoping that the perfume might have the same effect on clouded leopards as it does on jaguars in South America. The traps snapped leopards, elephants and, sadly, poachers, but no clouded leopards. Then, out of nowhere, came the first reliable sighting – a Bhutanese forest official saw a cat wearing a white radio-collar on the Indo-Bhutan border. Runaa, at least, had made it.

There was more good news to come. While the WTI team was tracking Runaa and Khota, another pair of orphaned cubs – females this time – were seized by the forest department and delivered to Kokrajhar veterinary centre. As you read this, Koina and Moyna are about to be fitted with radio-collars ready for release into the forest.

Meanwhile, the world still awaits the first photographs of wild clouded leopards. "It's my Holy Grail," laughs Kadur. Though the enigmatic feline is a tricky subject, one day – just maybe – he'll pull the cat out of the bag.



# WALK UP A THIRST

Photograph: John Manning

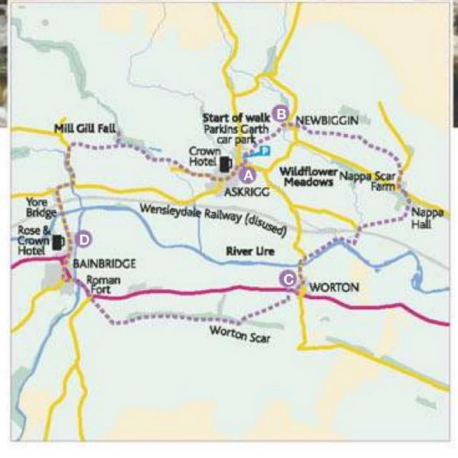
Theakstons is firmly rooted in the Yorkshire Dales community, whether helping salmon return to the River Ure, sponsoring the Theakston Nidderdale League – the oldest village cricket league in the world – or supporting the Old Peculier Crime Writing Festival in Harrogate.

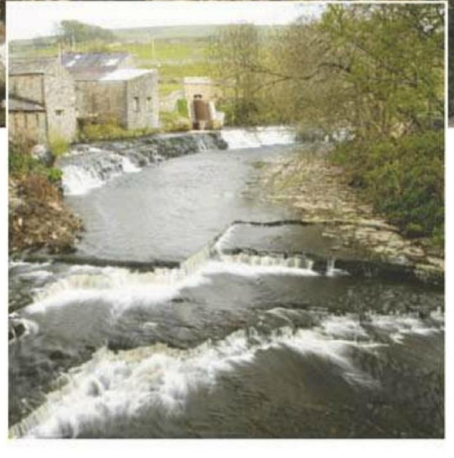
To mark its 185th anniversary the famous brewer, based in the historic market town of Masham, invites you to discover a fascinating corner of Wensleydale, the beautiful valley it is proud to call home.

THEAKSTON
ESTD 1827
LEGENDARY ALES

www.theakstons.co.uk

# Flavour of Wensleydale



**OS EXPLORER MAP OL30**
**Start & finish: PARKINS GARTH CAR PARK, ASKRIGG**
**Map Grid Ref: SD950911**
**Distance: 6 MILES (9.5 KM)**
**Time: 2.5 HOURS**
**Level: MODERATE**
**Ascent: 700ft**

## Useful Information

### HOW TO GET THERE

Askrigg is just off the A684 between Hawes and Leyburn. Buses run there from Darlington, Ripon, Garsdale and Bedale.

### FIND OUT MORE

National Park Centre, Station Yard, Burtersett Road, Hawes DL8 3NT. (01969 666210, www.yorkshiredales.org.uk)

### VISIT

The Black Bull in Paradise, Theakston's Brewery Visitor Centre, offers a welcome in Masham, down the dale. Explore the skills involved in five generations of brewing and discover the story behind the famous Old Peculier ale. As well as a welcoming bar with roaring fire, you'll find a souvenir shop stocked with Peculier merchandise and, of course, the famous Theakston ales.

The Black Bull in Paradise, Theakston Brewery Visitor Centre, Masham HG4 4YD. (01765 680000, www.theakstons.co.uk)

### THE ROUTE

#### A Meadow Ways

A footpath sneaks between houses overlooking the car park. Bear right across a gravel forecourt and over a stile. A brief incline – the day's steepest – carries you to a series of level meadows leading to pretty Newbiggin hamlet.

#### B Fortified Manor

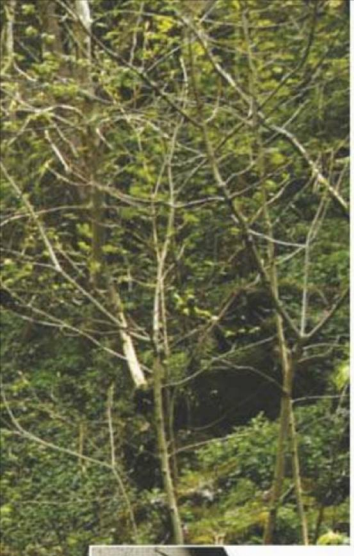
Field paths lead from the village green to Nappa Scar Farm. Descend to the road and bear left for 100m, to take the winding Nappa Mill track past 15th-century Nappa Hall. Field paths cross to a lane, which in turn leads to a riverside path upstream to Worton Bridge and the A684, beyond Worton village.

#### C Roman Relics

Views across the dale can be enjoyed from wooded Worton Scar, reached by a field path, which starts opposite the bus shelter. The earth ramparts of a Roman fort come into view after a mile, at which point the path spills down to Bainbridge where The Rose & Crown Hotel beckons across the village green.

#### D Secret Waterfalls

Take the Askrigg road and, 130m beyond Yore Bridge, a short field path brings you to the foot of Skelgill Lane. Walk up this and, 100m beyond the speed de-restriction sign, take a field track right, to Mill Gill. The gill-side path will lead you back to Askrigg but first follow the there-and-back path signed for secretive Mill Gill Fall. Back in the village, a warm welcome awaits at The Crown Inn.



# Make a delightful new acquaintance


Lightfoot is the most recent addition to the Theakston range of permanent ales. It's named after a brewery in Masham that Theakstons took over in 1919. The Lightfoot and Theakston families were very close and indeed linked through marriage and therefore it was a natural amalgamation of two well-established businesses. For many years it was rumoured that Theakstons took over Lightfoot because they had a better cricket team: something that was deemed unacceptable to the brewers in Red Lane! It is an ideal accompaniment to light curries, fish and salads and for a hot summer's day perfect just on its own after a country walk.


## Refreshments

**The Rose & Crown Hotel, Bainbridge (01969 650225, www.theprideofwensleydale.co.uk)**
The 15th-century coaching inn retains many original features. It offers panoramic views of the dale and a traditional English menu.

**Drinks of choice:**
**Theakstons Lightfoot (4.1% ABV)** A refreshing cask-conditioned golden pale ale, reminiscent of a Continental blonde beer. Brewed with prime English barley and wheat, continental hops and Theakston's Masham yeast.

**Theakstons Best Bitter (3.8% ABV)** Toast Theakston's anniversary with a classic bitter of the kind brewed in Masham for 185 years. Five different hops create Best Bitter's complex but subtle flavour in which their dryness is balanced by the sweetness of malted barley.

**The Crown Inn, Main Street, Askrigg (01969 650298, www.thedales.org.uk/the-crown-inn-askrigg)**
A favourite with locals and visitors since the late 18th-century, the friendly Crown Inn offers traditional, home-cooked pub grub and well-kept cask ales.

**Drinks of choice:**
**Theakstons Black Bull Bitter (3.9% ABV)** Black Bull Bitter, created for Theakston's 165th anniversary, was named after the first pub and brew house bought by Robert Theakston in 1827. Nearly all the sugar is brewed out of Black Bull leaving a dry, spicy ale with a hint of sweetness provided by Bramling Cross hops.

**Theakstons Best Bitter (3.8% ABV)** Celebrate the culmination of your walk with our classic bitter, a perfect balance of the dryness of five different hops and the sweetness of malted barley.

## Places of Interest

### RIVER URE
Beneath the Ure's rippling surface, autumn brings the return of Atlantic salmon and sea trout to their spawning grounds. Numbers devastated by pollution during the Industrial Revolution are today recovering, thanks to Theakstons-supported projects carried out by the Ure Salmon Trust. For information visit www.uresalmon.co.uk.

### WILDFLOWER MEADOWS
Summer brings an eruption of colour to Wensleydale's sweet limestone meadows. Swathes of wildflowers, including blue cranesbill, meadow buttercup and hawkbit, burst into flower, attracting bees, butterflies and other insects. Harvested, this rich mix is winterfeed for the valley's livestock, including the cattle whose milk produces the valley's delicious cheeses.

### WORTON SCAR
The mile-long woodland path along this Hawdraw limestone outcrop offers views across Wensleydale to Lovely Seat, and is a sheltered refuge for plants and animals including roe deer and the elusive, damp-loving tall herb Northern Hawk's-beard.

Photographs: John Manning

## THE LAST WINTER

OVERALL WINNER

**Heather Irvine** Devon

WINNER ANIMALS IN THEIR ENVIRONMENT
MEDIUM OILS ON CANVAS

"I happened across this old moose on a trail in Green River Lakes, Wyoming. I paused to watch it, surrounded by deep, silent woods, as I contemplated its space and the inevitability of its demise. I hope this image is a respectful reflection of the emotion I felt on that day."

**THE JUDGES SAID** *This subtle and atmospheric picture of a moose in the snow is striking in its simplicity. Beautifully composed, with confidently economic brushwork, this painting is a deserving winner.*

**RUNNER-UP** *Skyward* by Ian Griffiths

**COMMENDED** *Meeting At The Saltee Island* by Bee Choo Gallivan; *Gone Fishing* by Tanya Lock

## CUNNING AFOOT ▸

**Katy Rewston** Aberdeenshire

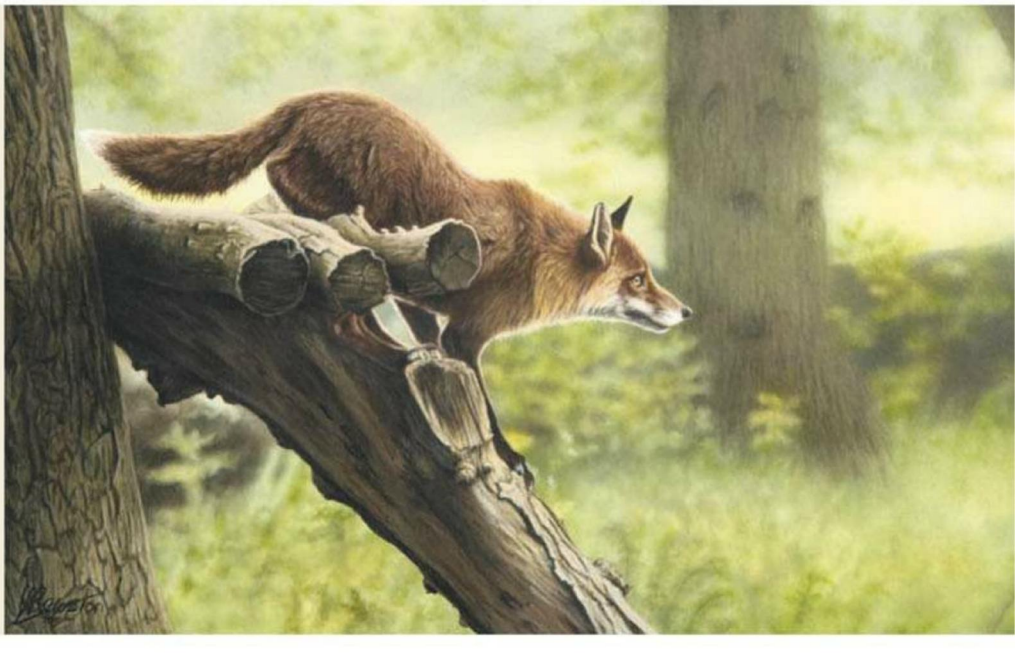
WINNER BRITISH MAMMALS
MEDIUM ACRYLIC AND AIRBRUSH

"With this painting I was trying to portray the insatiable curiosity and opportunistic nature of the red fox. This vixen was exploring a woodland, climbing low branches in search of food. But she remained cautious, pausing at every unfamiliar sound, ever alert for danger."

**THE JUDGES SAID** *This small painting packs in an enormous amount of detail – with the textures of fur and tree bark brilliantly realised – but it was the rhythmic composition, fox poised for action, that we most admired.*

**RUNNER-UP** *Truffles* by Sam Dolman

**COMMENDED** *Scottish Wildcat* by Lara Virginia; *Fallow Buck* by L Paul Matthews



# BBC Wildlife ARTIST OF THE YEAR 2012

## THE WINNERS

**Talented artists spread their wings to create stunning images of the world's wildlife.**

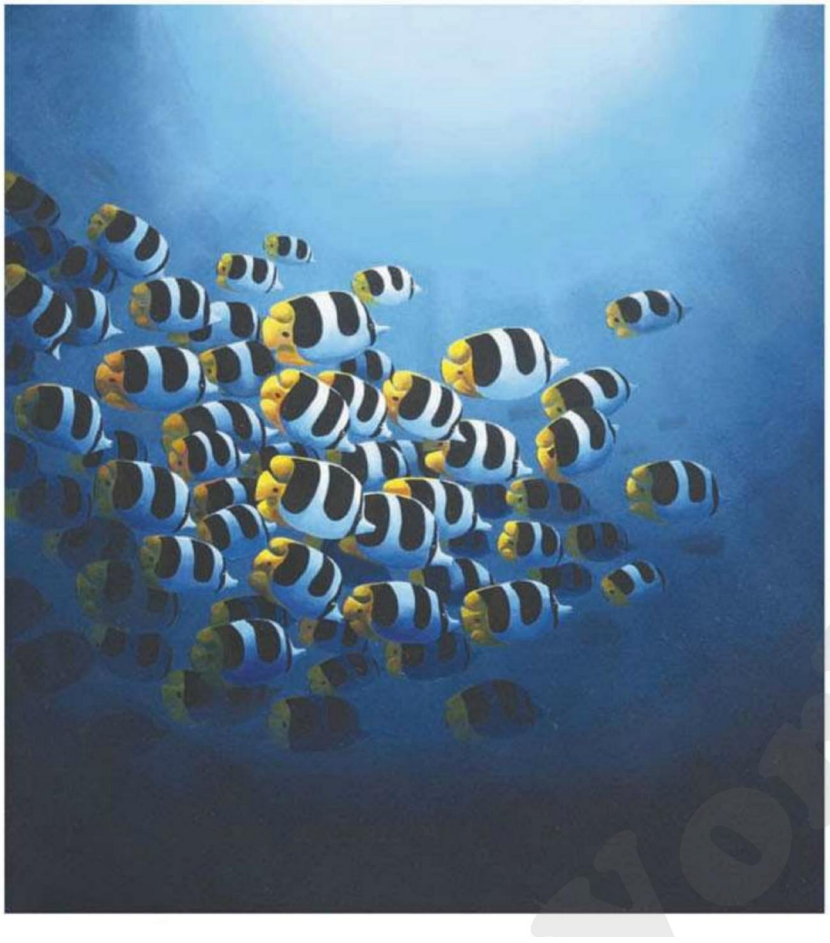
I wasn't sure our judges would be speaking after the final round of judging this year – the toughest yet.

Artists had entered a record-breaking 1,120 images, showcasing a jaw-dropping range of subjects, media and styles. The first-round judges had already tackled a hugely difficult task in whittling down the entrants: only 127 artworks made it through to the finals. But these were the most technically excellent, imaginative, deftly painted pieces you could imagine, from a wonderful woodpecker's-eye view up a tree trunk to an extraordinary glassy jellyfish.

I need not have worried. Our knowledgeable and passionate judges, Chris Rose, Mandy Shepherd, David Cromack and Pip McGarry, chose a stunning selection of original artwork – and they all remained friends. *Sophie Stafford*

**ON OUR WEBSITE**

Enjoy all of the winning, runner-up and commended pictures on www.discoverwildlife.com



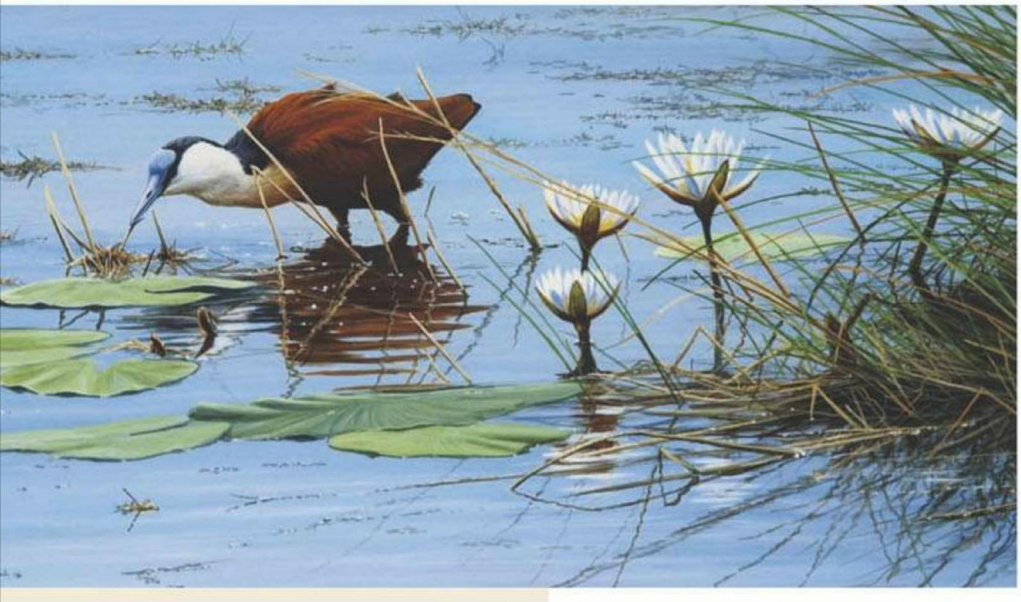
### FLIT, FLY, FLOAT ◂

**Samm MacKinnon** Widley, Hampshire

WINNER BENEATH THE WATER
MEDIUM ACRYLIC ON STRETCH CANVAS

"In my paintings I try to take the viewer on a journey into the tranquil waters of the ocean. Butterfly fish are so colourful, they are among my favourite tropical fish and feature in almost all of my work. I wanted to capture the sunlight filtering through the water, catching a shoal of butterfly fish in its delicate rays, against the deep blue sea."

**THE JUDGES SAID** *The decorative nature of this painting of butterfly fish appealed to the judges. The ghostly shapes of the fish in the background help to give the picture a sense of depth.*



## AFRICAN JACANA ▲

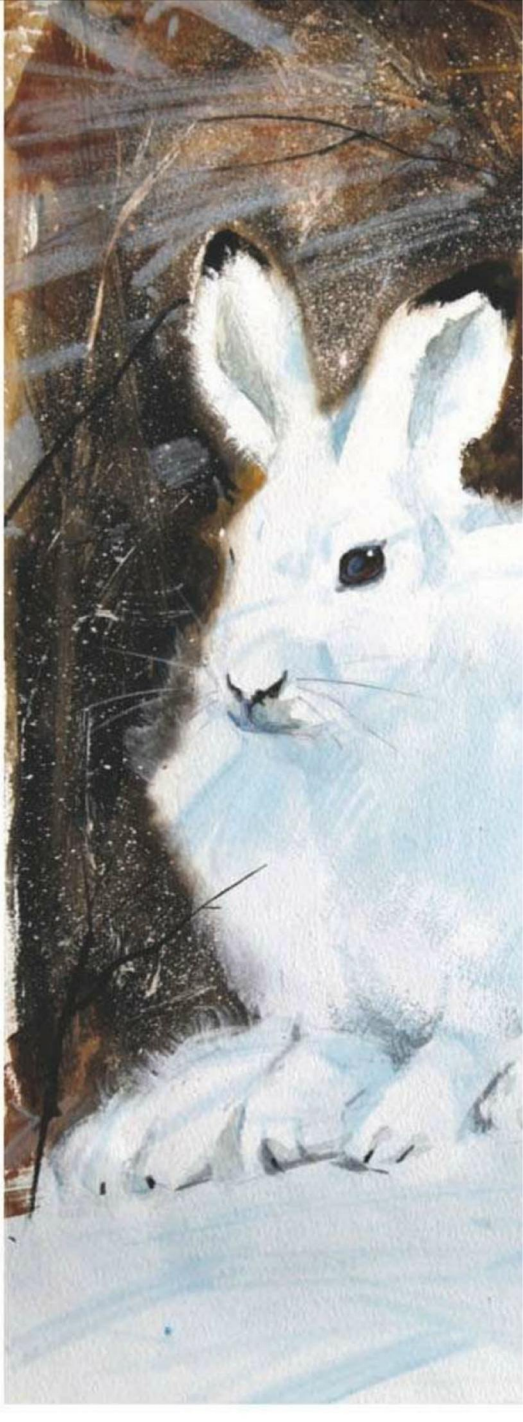
**Jeremy Paul** Isle of Man

WINNER WORLD BIRDS
MEDIUM ACRYLIC ON BOARD

"This painting was inspired by a trip to the Okavango Delta in Botswana, and shows the moment when a jacana I had been watching reappeared from behind some lilies and other vegetation. The painting composed itself in my mind almost immediately."

**THE JUDGES SAID** *This lovely image of a jacana stalking among lilypads immediately caught our attention. Extremely well painted and beautifully composed, this picture succeeds on every level.*

**RUNNER-UP** *Bling On Da Wing* by Heather Irvine



## WHITE CHRISTMAS ▸

**Lars Göran Dalhov** Sweden

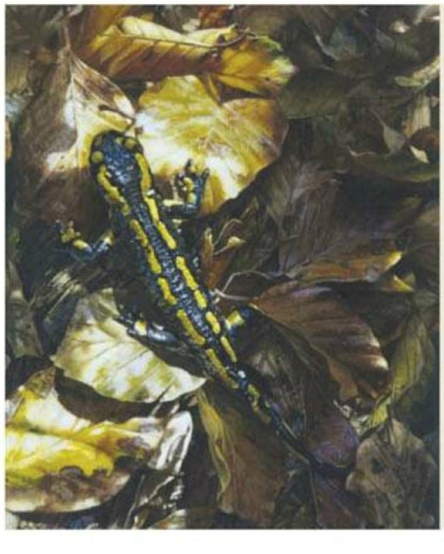
WINNER INTERNATIONAL ARTISTS
MEDIUM WATERCOLOUR & GOUACHE

"I was skiing down a steep slope when, finding myself out of sight of my family, I stopped so I could rest on a comfortable snowdrift. I was delighted when this hare emerged from the birchwood to sunbathe. I guess it was enjoying the April sunshine as much as I was."

**THE JUDGES SAID** *This bold, fresh study perfectly captures the essence of the animal, and the lively brush strokes bring it to life.*

**RUNNER-UP** *Serengeti Sketchbook* by Federico Gemma

**COMMENDED** *Just Relaxin'* by Allan Adams; *Kangaroo* by Eeltie Sayyed; *Javan Tiger* by Prabu Perdana; *Misted Majesty* by Shalese Sands; *Edge Of Darkness* by Cathy Sheeter



## FIRE SALAMANDER ◂

**Jane Cook** Liverpool

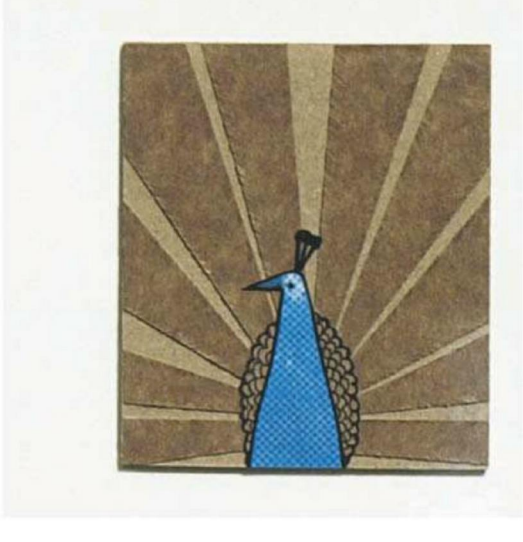
WINNER ALL OTHER WILDLIFE
MEDIUM ACRYLIC

"I chose to portray the fire salamander among fiery-hued autumn leaves both to complement its striking coloration and markings, and as an allusion to its mythical counterpart, dwelling amid the flames."

**THE JUDGES SAID** *Richly painted, with careful attention to colour and tonal contrast, you can really feel the texture of the dried leaves and skin.*

**RUNNER-UP** *Bee* by Teresa Barnes

**COMMENDED** *Damselflies* by Melanie Mascarenhas; *Speckled Wood* by Lisa Treadwell



## ICY SWIM ▸

**Tanya Lock** Bradford-on-Avon, Wiltshire

WINNER FROZEN PLANET
MEDIUM OIL ON BOARD

"This is a Magellanic penguin from Chile. My love of penguins is one of the reasons why I first picked up a paintbrush. I wanted to learn how to paint the water shining on the bird's back and the air bubbles caught on its feathers, and to capture the depth of the sea below. I was fortunate to grow up in the house of the wonderful artist Ray Harris-Ching, so enjoyed opportunities to study his original paintings close-up. I was thrilled when he offered to show me how to paint, and haven't taken a day off since."

**THE JUDGES SAID** *A confident but sensitive treatment of a swimming penguin makes this a very attractive image. The love of painting shines through – simply a lovely piece of work.*

**COMMENDED** *Ice Bear* by L Paul Matthews

## CURLEW ◂

**Madeline Mackay** Watten

WINNER BLACK AND WHITE NATURE
MEDIUM LINOGRAPHIC PRINT

"I grew up amid the stark emptiness of northern Scotland's Flow Country, which influenced my sense of land that is untamed, unpeopled and bleak. I explore the nature of these places obliquely, using the expressive potential of living creatures to personify the secretive and inhuman qualities of the land."

**THE JUDGES SAID** *A wonderful piece of work – it stood out because it was unlike anything else in the competition. Beautifully executed.*

**RUNNER-UP** *Brown Hare* by Marie Brown

**COMMENDED** *Tembo Tango* by Karen Phillips; *Lookout* by Phil Mumby

## HOW TO FLY ◂

**Michelle Morgan** Leicester

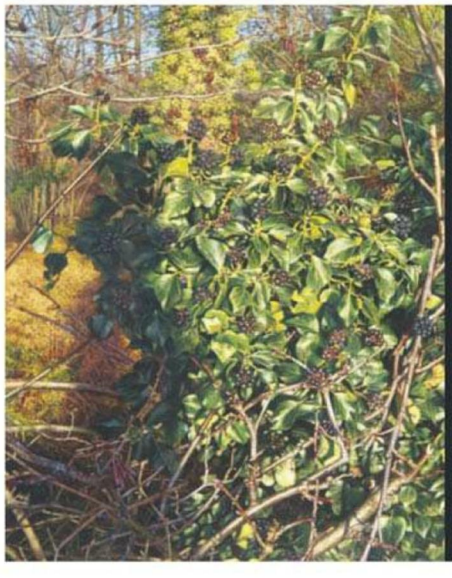
WINNER VISIONS OF NATURE
MEDIUM RECYCLED, BLEACHED PAPER & INK

"This trio of birds was created as a handbook to impress upon graduates various aspects of pursuing freelance work: each has a characteristic relevant to the subject. The peacock represents branding, the little birds imply networking, and the carrier pigeon a hard-working ethic."

**THE JUDGES SAID** *An enchanting triptych and a wholly imaginative approach create a very fresh and delightful piece of work.*

**RUNNER-UP** *Fragile Oceans* by Claudia Hahn

**COMMENDED** *African Giraffe* by Elizabeth Diggins; *Starling* by Rose Sanderson



## WINTER FRUITS ◂

**Jane Cook** Liverpool

WINNER THE WONDER OF PLANTS
MEDIUM ACRYLIC

"I found this fruiting branch of ivy on New Year's Day, growing in a hedgerow bordering a wood. The painting celebrates this ubiquitous British plant, which, by nature of its incongruous life-cycle (flowering in autumn, producing berries in winter), offers food and nectar when they are otherwise in short supply."

**THE JUDGES SAID** *We were stunned by the artist's incredible attention to detail. The hours of work and concentration required to achieve this effect, yet retain perspective and realism, made it a deserving category winner.*

## SQUARING UP FOR A FIGHT ◂

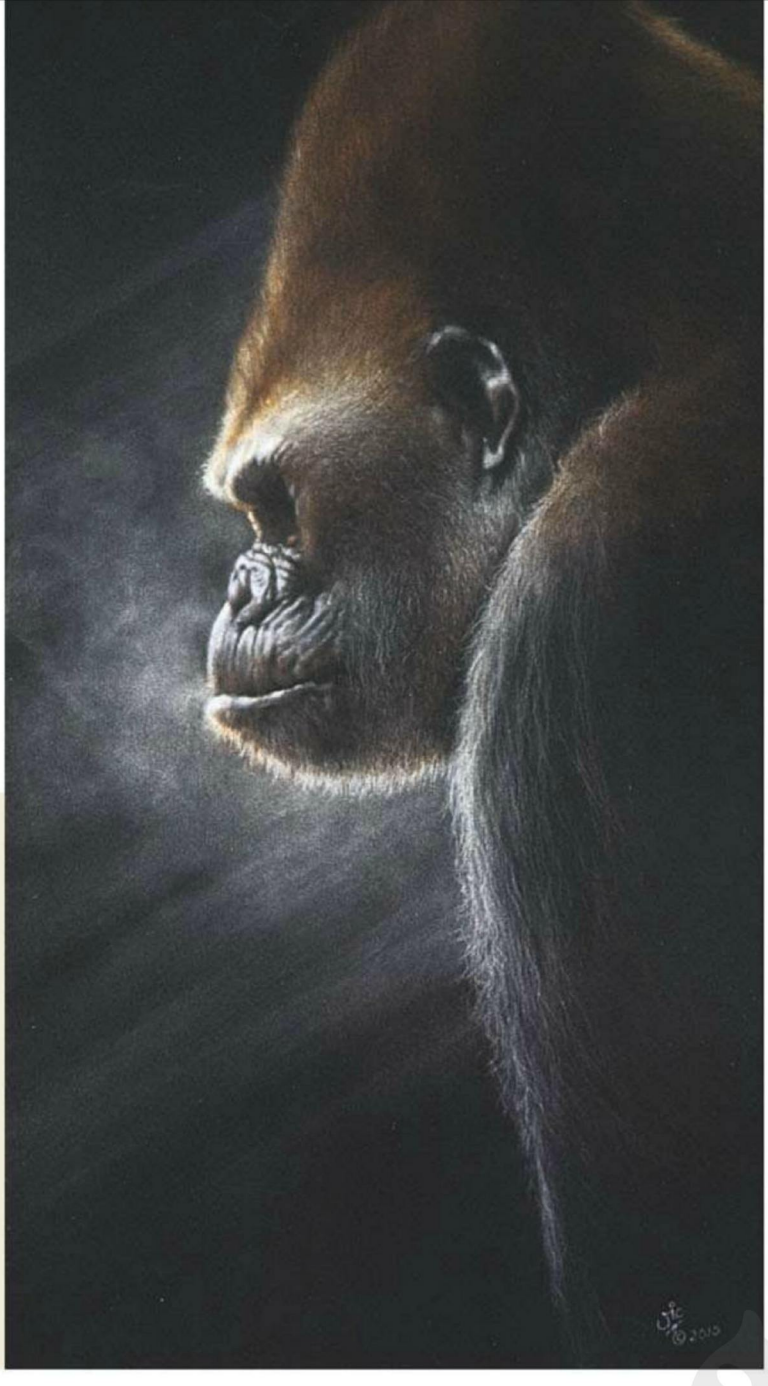
**Dr Julie Cross** West Yorkshire

WINNER WORLD MAMMALS
MEDIUM WATERCOLOUR, GOUACHE & INDIAN INK ON PREPARED GRAPH PAPER

"This piece was created to highlight the dire plight of the tiger. The fight is both a literal struggle between individuals and a metaphorical battle for survival of the species. I felt that the tigers 'squaring up to each other' should be depicted on graph paper, with its own repeated squares of differing sizes, and I used Indian ink to create a square around the two combatants to suggest symbolic protection."

**THE JUDGES SAID** *The boldness of this piece sets it apart: a dramatic scene, freely drawn and using watercolour on graph paper (mounted to show the frayed edges) – it is the work of someone willing to defy convention to get her message across.*

**RUNNER-UP** *The Orphans – Refreshment* by Julie Cross



## MAKAKU ▸

**Vic Bearcroft** Nottingham

WINNER ENDANGERED SPECIES
MEDIUM PASTEL ON VELOUR PAPER

"The photograph I used as reference for this painting was taken at the San Diego Zoo. The gorilla was sitting in the sunshine, looking rather disconsolate, occasionally sounding a disapproving grunt. What I really wanted to do was to 'release' the gorilla back into the wild, hoping to convey the cool early morning of a dark rainforest."

**THE JUDGES SAID** *Simply composed and superbly depicted, this painting in pastel captures the scowling gravitas of a dominant male gorilla. His expression seems to reflect the precarious position of his species in the wild.*

**RUNNER-UP** *At Rest* by Tony Quinn

## HERON ◂

**Helen May** Greater Manchester

WINNER BRITISH BIRDS
MEDIUM WATERCOLOUR, PENCIL & GOUACHE

"There he was again, that heron, watching my koi, as I sat nearby in the late autumn sunshine – I couldn't help but admire his sheer audacity. As his plumes lifted in the cool breeze, he was the epitome of wild beauty and freedom, shunning the domestic bird table."

**THE JUDGES SAID** *We liked the unusual viewpoint of this portrait, drawn confidently to accurately capture the heron's posture and attitude. It's a lively treatment that uses washes of delicate colour to enrich the bird's plumage.*

**COMMENDED** *Winter Wrens* by Julie Vernon; *Grey Heron* by Jonathan Woodward

## WHERE TO SEE THE WINNERS

▸ Heather Irvine wins the title '*BBC Wildlife* Artist of the Year 2012' and a 10-day painting safari in Botswana with Pip McGarry courtesy of Elephant Trails Safari Company (www.elephanttrails.com).

▸ *The Last Winter* will be displayed at the Society of Wildlife Artists' exhibition at the Mall Galleries, London, on 1–11 November 2012 (www.swla.co.uk).

▸ All category winners will be showcased at the Marwell International Wildlife Art Society exhibition taking place at Rookesbury Park Manor, Wickham, on 14–16 September 2012 (www.miwas.co.uk).

▸ Look for details of next year's competition in the November 2012 issue of *BBC Wildlife* and on our website www.discoverwildlife.com

MARWELL INTERNATIONAL WILDLIFE ART SOCIETY

ELEPHANT TRAILS SAFARI CO.

BBC WORLDWIDE PRESENTS

# planet earth IN CONCERT

## GEORGE FENTON
## PHILHARMONIA ORCHESTRA
## HALEY GLENNIE-SMITH

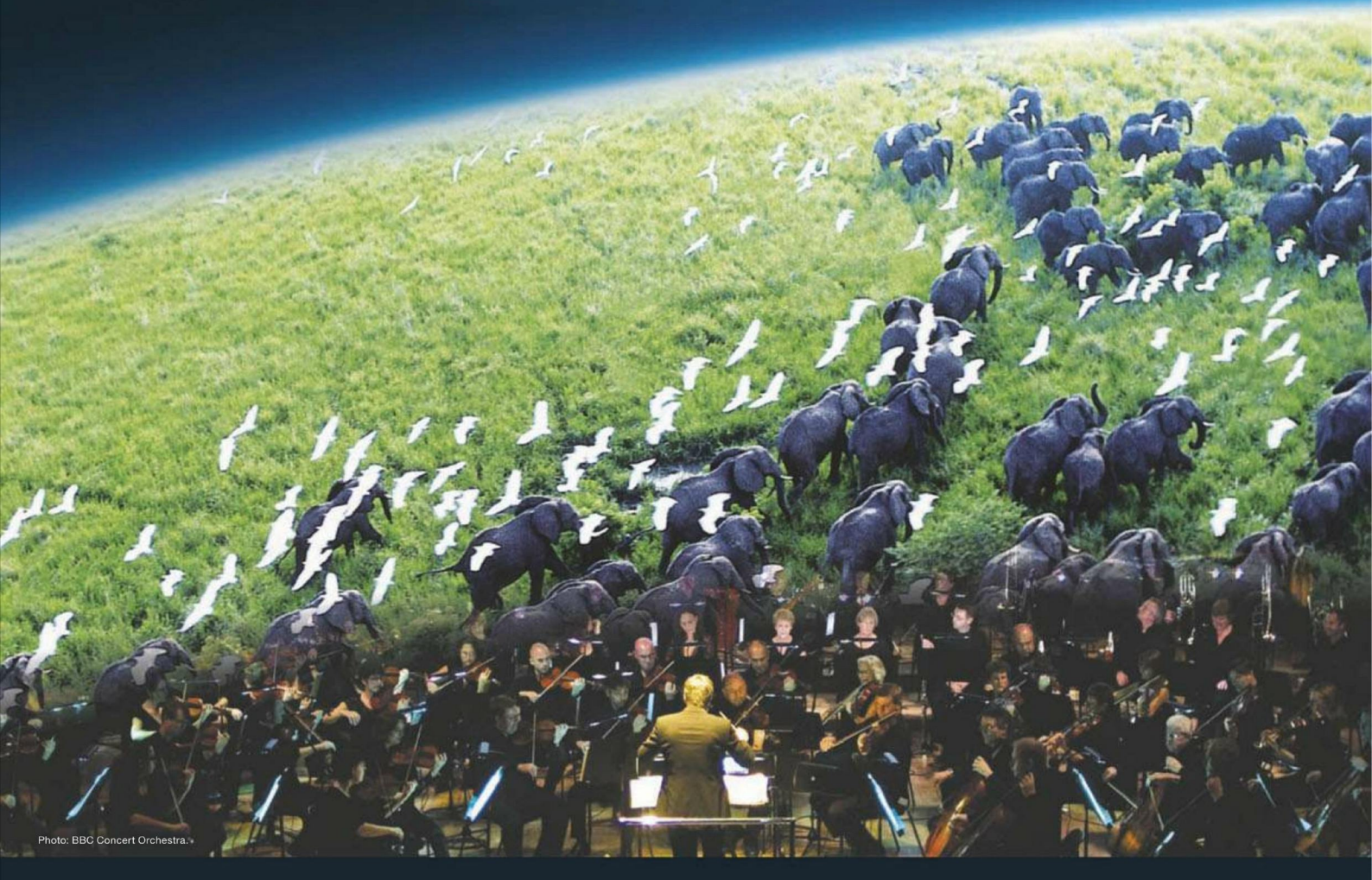


Photo: BBC Concert Orchestra.

| 7TH-8TH* SEPT | 9TH* SEPT | 13TH-14TH SEPT | 15TH* SEPT | 16TH SEPT |
|---|---|---|---|---|
| **NOTTINGHAM** | **CARDIFF** | **BIRMINGHAM** | **MANCHESTER** | **LONDON** |
| ROYAL CONCERT HALL | WALES MILLENNIUM CENTRE | SYMPHONY HALL | THE BRIDGEWATER HALL | ROYAL FESTIVAL HALL |
| 0115 989 5555 | 029 2063 6464 | 0121 345 0600 | 0844 907 9000 | 0844 875 0073 |

FOR MORE INFORMATION AND TO BOOK TICKETS

PLANETEARTHINCONCERT.COM

BBC

# W2

Essential information and expert advice



Mat has spent the past five years living with the hamadryas baboons of Ethiopia's Awash National Park.

John Brown/BBC NHU

TV CHOICE

TV PREVIEW

# MONKEYS AND ME

**LIVING WITH BABOONS**

BBC TWO COMING SOON IN THE NEW SERIES OF *NATURAL WORLD*

Australian biologist Mat Pines has dedicated the past five years of his life to an unpaid job studying hamadryas baboons in the desert scrublands of Awash National Park, eastern Ethiopia.

Hamadryas live in close-knit groups. Males rule by aggression, battering the females if they stray, and killing babies fathered by rivals. Yet, for all the domestic violence, Mat is captivated by these monkeys.

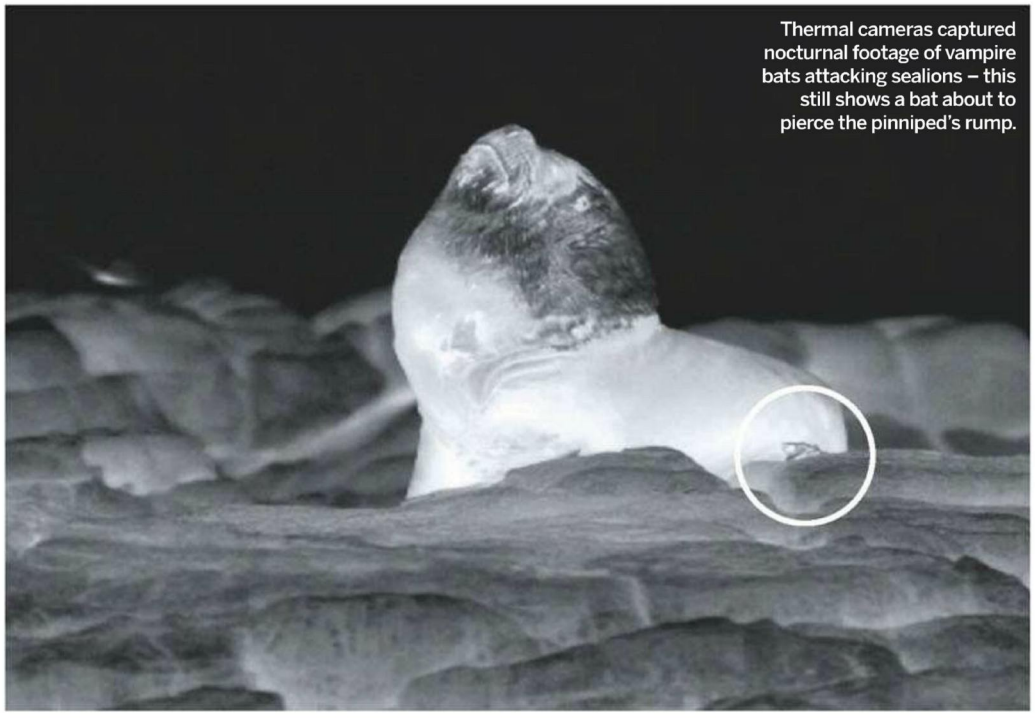
He knows each member of the 200-strong troop individually, and is able to interpret every subtle raise of the eyebrow, grit of the teeth and nod of the head. In turn, the baboons have virtually accepted the scientist as one of their own, visiting, grooming and exchanging grunts with him.

*Living with Baboons*, part of BBC Two's new *Natural World* series, follows the ups and downs of Mat's final year in Awash. There are moments of high drama, such as an epic territorial battle between rival troops; scenes of joy, including a badly injured youngster making an unexpected recovery; and occasional heartbreak – watching a female clinging to her lifeless infant.

But Mat's mission involves more than just understanding hamadryas behaviour. He's also determined to educate the Afar – a tribe of gun-toting pastoralists who graze livestock in the park, harvest the palms that sustain the baboons and even use the animals for 'target practice' – to nurture the land and protect their fellow primates.

It's a challenge, to put it mildly. Nevertheless, Mat is undeterred by the Afar's guns and knives (not to mention their habit of castrating their enemies) and works tirelessly to earn their trust.

"This story is a way of exploring the conflict between people and animals found in almost every national park in Africa," says producer/director Rob Sullivan. "At first the Afar seemed terrifying, but after spending time with them I realised that they were decent, honest people just trying to raise their children and cattle in peace. I've tried to reflect that in the film, as we start to understand their world." **Sarah McPherson**



Thermal cameras captured nocturnal footage of vampire bats attacking sealions – this still shows a bat about to pierce the pinniped's rump.

Sophie Darlington

BEHIND THE SCENES

# FILM NOIR

BBC producer Susanna Handslip and camerawoman Sophie Darlington on night filming.

For new BBC Two series *The Dark*, airing this autumn, the team worked with night-vision cameras to film the nocturnal animals of Latin America. Susanna Handslip and Sophie Darlington reveal what goes on after nightfall.

**What was the aim of this series?**
SH: The camera technology we used – thermal, infra-red and 'starlight', which intensifies natural light – allowed us to film wildlife without needing to shine bright lights at it. And that provided perfect opportunities to capture natural behaviour that's never before been filmed.

**So why Latin America?**
SH: It's a region with such a range of habitats – sea to jungle to desert, swamps, grasslands, mountains, sub-Antarctic waters – and an array of animals. Many of these species are nocturnal. Our mission was to explore how they evolved to handle life in the dark, looking at their senses – eyesight, hearing, smell.

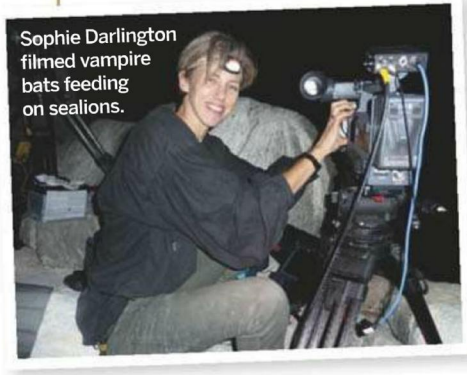
**Where did you film?**
SH: We blitzed the region top to bottom, from Costa Rica to Venezuela, Peru and Patagonia.

**What were the challenges?**
SD: Shooting at night creates many complications – not least bugs. In Peru I was tethered 25m up a tree in a flooded forest. There are 150 different types of mosquito in that forest, and I think I met every single one of them. When it's dark and there's nowhere to go, it's impossible to fight off the biters.

**What's new in this film?**
SD: On the Isla Pan de Azúcar, off the Atacama coast of Chile, we huddled on rocks covered with penguin guano, infested with ticks and lice, and realised only when we set up the cameras that the vampire bats we had come to film were flying around our heads.

Using thermal cameras we discovered that they targeted the island's South American sealions. The pinniped's layer of blubber is thinnest on its rump – the bats sense the blood close to the skin's surface and bite there. They were like a plague, tormenting these huge animals that were thrashing around all night – but were unable to fight off a small, agile bat.

Nobody has ever filmed a bat feeding in this way, training a thermal camera on the wound and the blood – it's quite compelling. I'm just thankful that none of us was bitten. **Paul Bloomfield**



Sophie Darlington filmed vampire bats feeding on sealions.

Susanna Handslip

**DON'T MISS IT...**

BBC TWO *The Dark* stars George McGavin, Gordon Buchanan, Justine Evans and Sophie Darlington.

## 3 THINGS WE LOVE THIS MONTH

**BOOK**
**CONCISE POND WILDLIFE GUIDE**


The latest addition to New Holland's series of pocket wildlife ID guides covers more than 190 species of British pond plants and animals, from hydras and pondweed to water voles. The illustrations and text have been checked for accuracy by The Wildlife Trusts.
▶ *For more information, visit www.newhollandpublishers.com*

**WEBSITE**
**UK BUTTERFLIES**

This wonderfully detailed yet easily navigable website provides information on all 59 butterfly species that breed in the UK, plus migrants. A wide range of photos is included for each species, as well as details of its larval foodplants, key nectar sources, life-cycle and where to find it. The site also features news updates and a forum.
▶ *www.ukbutterflies.co.uk*

**MODELS**
**LEGO BIRDS**

Who'd have thought that several dozen pieces of LEGO could be a passable substitute for thousands of feathers? Thomas Poulsom (a tree surgeon by trade) has used the tiny plastic bricks to create delightful models of common British birds.
▶ *See Tom's toys at http://bit.ly/LbPxg9*

flickr.com/dletomaso

Jamie describes the "restless green" of the aurora borealis: "It's not a show, it's more like watching fluidity of mind."

Juan Carlos Muñoz/naturepl.com

BOOK OF THE MONTH

# WHEN POETRY MEETS PROSE

**A poet's eye for detail and ear for language make this collection of nature writing soar.**

## SIGHTLINES

**By Kathleen Jamie**

Sort of Books, 208pp, ISBN 9780956308665 (pb) **£8.99/£6.99** Code W0812/06

"Nature writing is the new rock 'n' roll" a headline in *The Times* declared a couple of years ago. Yet the 'nature writer' tag does a disservice to many excellent authors whose wide-ranging work explores our experience of the living world. This is particularly true of the brilliant Scottish poet Kathleen Jamie.

*Sightlines*, her first collection of prose since the critically acclaimed *Findings* (2005), is a beguiling blend of memoir and description of wild places, plants, animals and natural phenomena such as the aurora borealis, or the appearance of "metallic ribbons of wind-blown light" in late winter.

The book comprises 14 essays, each exploring a different kind of landscape and the journey to or though it. The locations described vary from the epic (Greenland tundra and remote, "bird-wreathed" sea cliffs) to the intimate (a bedraggled moth drying out on a rock) and even the microscopic (human tissue viewed on a screen in a lab).

Jamie has a poet's gift for language, delighting the reader with unfamiliar terms – smirr, smooring, swithering, gurly. Yet she is also a forensic, frank and unsentimental observer, always questioning what she sees and feels – and what it might mean.

**Ben Hoare** Features editor, *BBC Wildlife Magazine*

## NIGHTWALK

**By Chris Yates**

Collins, 320pp, ISBN 9780007415540 (hb) **£14.99/£10.99** Code W0812/01

"Up to no good!" is how my nana would describe nocturnal wandering, a view shared by many. At worst, it's potentially sinister; at best, a bit weird.

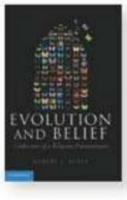
Chris Yates, well known for his writing about angling, has been wandering around in the dark all his life and, unless his quietly amiable style is hiding something, is neither sinister nor weird. From his childhood home on the North Downs to Cranborne Chase in the south-west, where he has lived for 25 years, Yates finds the night fascinating and liberating.

Does he get scared? Well, apart from musings on the murderous intentions of roe deer and a big black cat that turned out to be a fat Labrador (or was it?), his spookiest encounter seems to have been meeting the gaze of a hare: "and what strange high-set eyes they were, staring with a terrible intensity, expressing something much wilder and stranger than I could imagine".

It is to this wild strangeness that the author returns as often as he can. He confesses that if he could come back to the world after his current life, it would be in the form of a raven, "to utter the lovely, sonorous call... that expresses nothing other than joyfulness".

In Yates's darkest England, four delightful decades of meandering nostalgia, curiosity and hedonism meet creatures of the night in the finest tradition of country writing.

**Paul Evans** Nature writer



## EVOLUTION AND BELIEF

**By Robert J Asher**

CUP, 300pp, ISBN 9780521193832 (hb) **£15.99/£13.99** Code W0812/03

Evolutionary biologists and religious believers have been arguing since the publication of Darwin's *On the Origin of Species*. And there's little sign that things are getting friendlier. All that seems to unite the shouts from both camps is a staunch belief that their worldview is incompatible with that of the other.

That makes this contribution from Robert Asher, who is both an evolutionary biologist and a Christian, rather refreshing.

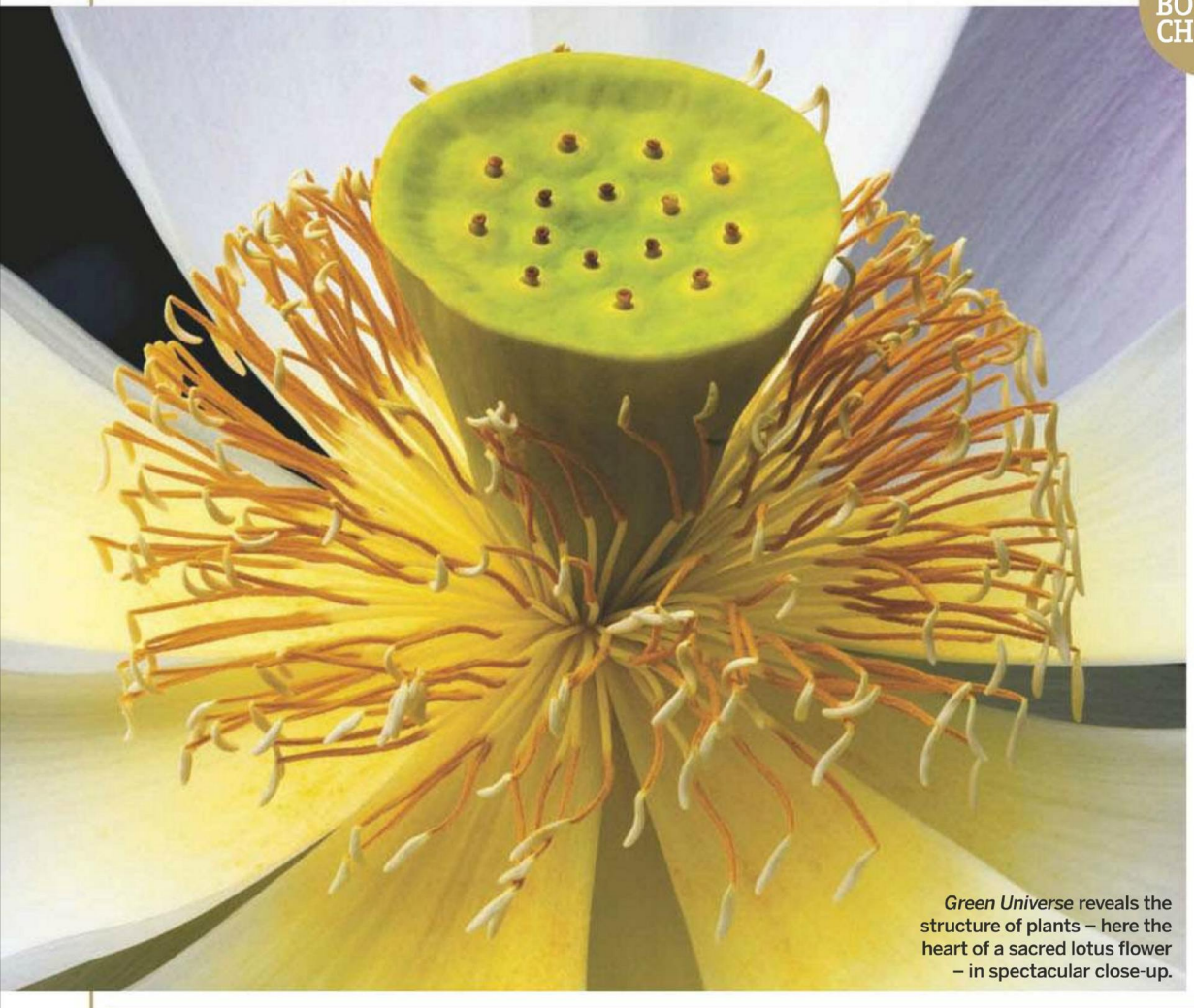
In *Evolution and Belief*, the author first aims to convince doubters that evolution is true. Readers without prior knowledge of the subject would be hard pressed to find a clearer and more persuasive introduction than this.

He goes on to argue that evolution is not the threat to religious faith that many believe, targeting those sitting at both extremes of the debate. The explanatory power of evolution is often overstated, he says: for example, evolutionary biology has been rather unsuccessful at explaining the origins, if not the diversity, of life. And it's in such spaces that God can be found.

The religious have little option but to agree if they are not to resort to sticking their fingers in their ears and shouting, "I can't hear you." Because, as Asher powerfully demonstrates, there are few, if any, grounds for rejecting evolution by the process of natural selection. Meanwhile, religion will always remain a matter of faith.

**Stuart Blackman** Science writer

PICTURE BOOK CHOICE



*Green Universe* reveals the structure of plants – here the heart of a sacred lotus flower – in spectacular close-up.


## GREEN UNIVERSE

**By Stephen Blackmore**

**This sumptuous book takes readers on a journey through time, from the first plant cell to the complex flora of today. It combines detailed text by botanist Stephen Blackmore with gorgeous macro photography to explore the significance of plant cells – the powerhouses of life on Earth.**

Papadakis, 252pp, ISBN 9781906506216 (hb) **£34.99/£29.99** Code W0812/05


## WILDLIFE & CONSERVATION VOLUNTEERING

**By Peter Lynch**

Bradt, 258pp, 2nd edn, ISBN 9781841623832 (pb) **£13.99/£11.99** Code W0812/04

Anyone who wants to devote their time and energy to a conservation project must do so without the help of a co-ordinated international body regulating the volunteering industry. This guidebook is an extremely useful reference that helps plug the gap.

Peter Lynch has analysed more than 50 organisations and provided useful scores across nine categories, including pre-departure preparation, safety and demonstrable outcomes of the conservation work.

Though the audit could be more extensive, it is a credible attempt to go beyond mere acceptance of the claims of travel companies, and identify those that are genuinely green. The at-a-glance comparison between organisations is very valuable.

Practical advice is provided regarding fundraising, insurance, visas and health, as are volunteers' own accounts of life in the field. The most worthwhile projects combine hard work with opportunities to learn skills, make friends and have a great time in some unique and beautiful parts of the world, from the UK to the rainforests of Borneo. Time to pack that suitcase...

**Richard Hammond** Eco-travel expert


## POLAR BEARS

**By Wayne Lynch & Andrew E Derocher**

The Johns Hopkins University Press, 249pp, ISBN 9781421403052 (hb) **£20.99/£17.99** Code W0812/02

For 15 years, Andrew Derocher has been the go-to man on polar bears for the BBC's Natural History Unit (NHU). When I started my research for *Frozen Planet*, his number was one of the first I rang. In fact, I wouldn't be surprised if he wrote *Polar Bears* just to stop us asking him so many questions.

His book covers the species' evolution, ecology, behaviour and conservation, and is packed with amazing facts. For example, the polar bear evolved only 200,000 years ago (it's the world's newest bear), and descends from a species of Irish brown bear. Its home range can be huge – one female was tracked travelling 4,800km between Greenland and Alaska.

Derocher is an accomplished field scientist, and his own close encounters with bears are alluded to throughout the text. But despite his knowledge and experience, what really distinguishes this book is the passion for polar bears that he so clearly shares with photographer Wayne Lynch.

This magnificent species has got the book it deserves. If you want to understand polar bears, make it your first port of call. No doubt the NHU will.

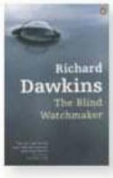
**Jeff Wilson** Producer, BBC NHU

Alex Wilson/Royal Botanical Gardens of Edinburgh

The evolution of the elephant's remarkable trunk has attracted numerous competing theories over the years.

Neil Aldridge/NHPA

## BEST BOOKS EVOLUTION by *Nature* senior editor Henry Gee




### THE BLIND WATCHMAKER
By Richard Dawkins

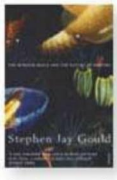
This book shows convincingly how evolution makes complex structures from nothing. It works in the eternal present. There is no memory, no end in view, no instruction manual and – most of all – no divine designer. The writing is Dawkins at his best, capturing his early fire with none of the bombast that came later.

Penguin, 332pp, ISBN 9780141026169 (pb)
£9.99/£7.99 Code W0812/09

### THE CUVIER-GEOFFROY DEBATE
By Toby Appel

Don't be fooled by the drab cover: Appel's book tells a gripping tale of two young scientists, 'father of palaeontology' Georges Cuvier and Étienne Geoffroy Saint-Hilaire. Caught up in the French Revolution, these fast friends became bitter enemies in a rivalry that shaped evolutionary thought in the decades before Darwin.

OUP, 272pp, ISBN 9780195041385 (hb)
£68.00 Code W0812/07




### WONDERFUL LIFE
By Stephen Jay Gould

We often think of *Homo sapiens* as evolution's inevitable culmination. Not so fast, says Gould, in his exploration of the fossils from the 540-million-year-old Burgess Shale of British Columbia. The earliest relatives of our animal group, the vertebrates, were just worms that got lucky. Run life's tape again and the result could have been so very different.

Norton, 347pp, ISBN 9780393307009 (pb)
£15.99 Code W0812/08

## BBC *WILDLIFE* BOOKS ORDER FORM Closing date: 24 September 2012

I enclose a cheque/postal order for £_____ with my name and address on the back, made payable to *BBC Wildlife Magazine*.

Please charge £_____ to my credit/payment card

☐ Am Express ☐ Visa ☐ MasterCard ☐ Maestro

Card number:

Start date: Expiry date: Issue no. (Maestro)

Security code (the 3 digit verification number on the reverse of the card)

CARDHOLDER'S SIGNATURE:
NAME (MR/MRS/MS/MISS/DR):
ADDRESS:

POSTCODE: EMAIL*:
HOME TEL. NO.*: MOBILE TEL. NO.*:
SUBSCRIPTION NO. (TO QUALIFY FOR DISCOUNT):

| CODE | TITLE | PRICE | QTY | SUBTOTAL |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | POST & PACKING | | £1.99 (UK) |
| | | TOTAL | | |

Please continue on a separate sheet if necessary.
You may photocopy this form. Send your form...

BY FAX: 01803 865280 OR BY POST: *BBC Wildlife* Shop, NHBS, 2–3 Wills Rd, Totnes, Devon TQ9 5XN

Immediate Media Company Limited (publisher of *BBC Wildlife Magazine*) would love to keep you informed by post or telephone of special offers and promotions from the Immediate Media Company Group. Please tick if you'd prefer not to receive these ☐
*Please enter this information so that *BBC Wildlife Magazine* may keep you informed of newsletters, special offers and other promotions by email or text message. You may unsubscribe from these at any time.
Please tick here if you'd like to receive details of special offers from BBC Worldwide via email ☐

nhbs

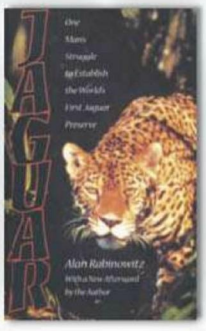
**Credit card hotline** For credit card orders and general enquiries contact NHBS on:

☎ 01803 865913 (UK)
Fax: 01803 865280 Email: bbcwm@nhbs.com

☎ +44 1803 865913
Fax: +44 1803 865280 (overseas)

All prices include 20% VAT, if applicable. Allow up to 28 days for delivery. You may pay by credit card or sterling cheque. VAT No: GB 407484644 (overseas/EU only). All prices are subject to change without notice.

## MY FAVOURITE BOOK




### JAGUAR
CHOSEN BY KIERAN MULVANEY

It was a woefully wet weekend. But when I lay on my bed and cracked open *Jaguar,* I was instantly transported to the jungles of Belize.

In 1983–84, conservationist Alan Rabinowitz lived among Maya Indians, studying jaguars and campaigning for their protection. His book, published in 1986, relates a story of conservation as a practical endeavour, one that was arduous and complicated.

Rabinowitz got to know the big cats as individuals, and each of their deaths broke his heart. His account is full of such drama. A love affair, a shaman, a drug dealer, snake bites, a bout of hook worm, language difficulties with his hosts – and, at the heart of the story, a man transformed by the attempt to defend the region's jaguars.

Rabinowitz's efforts ultimately proved successful. A wildlife sanctuary was established, and the story ends with him stealing away, his work complete – the jaguars' protection assured.

I closed the book. I had not moved since I began reading. *Kieran is a conservation writer and author based in the US.*

# NEW

# FOREST OPTICS®


## FORESTER ED 8X42 10X42

*ARGON GAS FILLED*
*WIDE ANGLE*
*LIGHTWEIGHT*
*HIGH TRANSMISSION ED GLASS*
*MULTI LAYER DIELECTRIC COATING*
*MAKE THIS A GROUNDBREAKING OPTICAL SYSTEM*

FROM £380


FROM £599

## FORESTER ED
## ED 68 ED 85
## EYEPIECES

*30 X WA*
*20-60 ZOOM*
*25-75 ZOOM*

FROM £189

## FORESTER PPC 8X42 10X42

*WATERPROOF*
*RUGGED LIGHTWEIGHT BODY*
*PREMIUM PHASE COATED*
*SUPER CLOSE FOCUS*

twitter @Forestoptics

www.marchwooduk.co.uk Tel: 01543 424255

# Q&A

Your questions answered, plus the latest discoveries, fantastic facts and people who made natural history.

## OUR EXPERTS

**MIKE TOMS**
Mike is head of garden ecology at the British Trust for Ornithology. He has written and co-written several bird books, including the BTO's *Garden Birds and Wildlife*.

**STEVE HARRIS**
Professor of environmental sciences at the University of Bristol, Steve is one of the UK's leading mammal experts and a regular contributor to *BBC Wildlife*.

**RICHARD JONES**
A former president of the British Entomological Society, Richard has been fascinated by insects since childhood. He now works as a surveyor and wildlife writer.

**PHIL GATES**
A botanist and lecturer in biological science at Durham University, Phil often appears in *BBC Wildlife*. He writes about animal athletes on p42, and how drought affects British wildlife on p92.

**STEPHEN MILLS**
Stephen is a regular contributor to *BBC Wildlife*, and a natural-history film-maker. He is an expert in the wildlife of Africa, particularly big cats.

### SEND YOUR QUESTIONS TO

Q&A, *BBC Wildlife Magazine*, Immediate Media Company, 4th Floor, Tower House, Fairfax St, Bristol BS1 3BN

**OR EMAIL**
wildquestions@immediate.co.uk
We are very sorry, but due to the high volume of questions we receive, we cannot acknowledge or answer them personally.

## Q What is the advantage of a bird flying at a particular height? Mike Corran, via email

Mark Carwardine/naturepl.com

By turning its long, slender wings into the wind above the waves, an albatross (here a Buller's) can glide effortlessly – a technique known as dynamic soaring.

**A** There are several reasons why birds fly at certain heights. Species that feed on the wing choose an elevation at which their preferred prey is most abundant. So swallows hunt fairly low to take large flies; house martins go higher to seize aphids and midges; and swifts zoom around higher still to pursue the smallest invertebrates.

A decrease in prey availability due to poor weather conditions can lead to some overlap, but hunting at a range of heights generally reduces the competition.

Some birds fly at particular heights to minimise energy expenditure. Petrels and albatrosses, for instance, travel very low to make use of the uplift caused by waves, while griffon vultures soar very high on rising thermals.

Many small migrants gradually gain altitude during their long-haul flights, climbing from 1,000m to 6,000m. This allows them to take advantage of the thinner air, which is easier to move through when their cruising speed and power begin to fade. The travellers aren't affected by the low levels of oxygen, since they can competently extract it from the air, nor the cool temperatures, as plenty of heat is generated by their busy flight muscles.

**Mike Toms** *BTO*

Harvest mice are rare north of Yorkshire. They spend much of their time feeding on seeds and insects among long stems – here, wild fennel.

Amy Lewis (captive)

## Q Are harvest mice declining?

**A** No one really knows, because harvest mice tend to be overlooked even when they're common. In the 1930s, naturalists reported that the species was in imminent danger of extinction, but a national survey in the 1970s revealed the mice to be widespread and abundant. Two of their main habitats were grassy roadside verges and field margins, but many of the former have been lost and the latter are now heavily cut, removing the tall grasses that these tiny mammals favour.

So, numbers may have fallen locally, and harvest mice are thus listed as a priority species in the UK Biodiversity Action Plan. But it's not all bad news. When the habitat is suitable for them, they rapidly bounce back. **Steve Harris** *Mammal expert*

## Q What are these strange beetles I photographed in Berkshire?

Celia Russell, via email

**A** They are not beetles but the young nymphs of the spiked shieldbug *Picromerus bidens*, a widespread but sometimes secretive insect of heathland, meadows and chalk downland.

In comparison with beetles, shieldbugs are usually less domed and less shiny, and sport more muted colours, with browns and greens (the adult spiked shieldbug is a mottled brown with orange legs and, as its name suggests, two spines on its shoulders).

However, their nymphs can be quite garish. As your photograph shows, many are marked with bold tones of red and black, making them look similar to ladybirds.

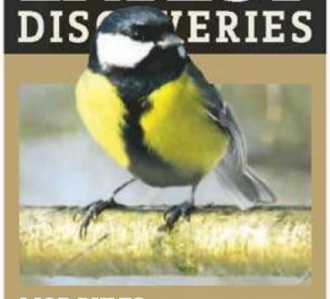
While the adults rely on camouflage to avoid detection (or simply fly away), the wingless nymphs use this mimicry as an effective survival tool: ladybirds are foul-tasting to any would-be predators (mostly birds, which learn quickly), and as such are generally avoided by any avian that has ever sampled a ladybird supper.

The spiked shieldbug is also predatory, attacking and eating other small insects and, like most hunting animals, not above cannibalism. So the nymphs in this cluster will soon disperse for their own safety. **Richard Jones** *Entomologist*

Celia Russell

Shieldbugs go through several instar stages before becoming adults – these nymphs are halfway there.

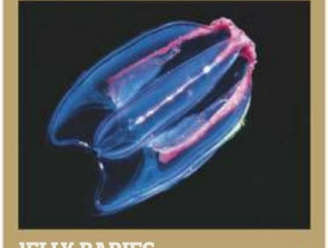
## LATEST DISCOVERIES



Imagebroker/FLPA

### MOB RULES

Great tits don't gang up with just anyone to mob nest-predators such as crows. They are more likely to join a neighbour's mob if they are familiar with them from previous years, suggesting that a history of mutual assistance is necessary if birds are to take risks for each other. *Biology Letters, DOI: 10.1098/rsbl.2012.0183*



Norbert Wu/Minden/FLPA

### JELLY BABIES

Biologists have discovered an unusual population of comb jellies *Mertensia ovum* in the Baltic Sea. The species usually grows to 10cm, but these individuals are dwarfs: they only reach 2mm and breed while still larvae. The high predator densities in the Baltic favour early reproduction. *Biology Letters, DOI: 10.1098/rsbl.2012.0163*

### FLYING START

When spring comes early, female big brown bats *Eptesicus fuscus* produce twice as many daughters as sons. With this head-start in life, the daughters are able to reproduce in their first year – there is no such advantage for early-born males. **SB** *PLoS ONE, DOI: 10.1371/journal.pone.0036344*

# STRANGE BUT TRUE...

## Sap is thicker than water

Plants aren't the most socially spirited of organisms – they tend to leave teamwork and co-operation to the animal kingdom. A few species, however, are quite capable of a bit of mutual back-scratching – they are just choosy about whose backs they scratch.

Take yellow jewelweed *Impatiens pallida*, a North American species that ekes out a living in the woodland understorey – a cut-and-thrust world where these plants compete aggressively for scraps of sunlight filtering through the canopy above. Each attempts to maximise its share of the light by growing dense foliage to shade out its neighbours before it is itself screened out. Unless, that is, it finds itself sharing its patch with siblings rather than strangers.

It is not known how a plant recognises its kin, but when it does, it calls a truce, tucks in its botanical elbows and slows its growth rate. The precious light is distributed equally among the relatives, who can then put their resources to better use elsewhere.

**Stuart Blackman** *Science writer*

Yellow jewelweed, also known as touch-me-not, spurns strangers but is faithful to family.

Hal Horwitz/Corbis

### FAMILY VALUES

- **American sea rocket** *Cakile edentula* competes for soil nutrients using a vigorous root system. However, plants growing among family groups divert their energies into producing flowers and fruit.
- **When attacked by** insects, tomato plants release jasmonate, a chemical that stimulates their neighbours to manufacture insecticides in their leaves. However, it is still unclear whether the damaged plants are communicating altruistically.

## Q What are these plants? I found them in a lake in Lincolnshire.

Steve Heath, via email

A This is gutweed, a green alga named after its resemblance to intestines. It's one of two closely related species: *Ulva flexuosa*, which occurs inland in fresh water, or *U. intestinalis*, found on the upper seashore and in coastal brackish habitats.

Gutweed is famously tolerant of extreme fluctuations in salinity. On the upper seashore it can survive both high salinity in evaporating rockpools and inundation in freshwater run-off from the land. The alga's inflated appearance is due to trapped oxygen, generated by photosynthesis.

**Phil Gates** *Botanist*

Steve Heath

## Q Late last summer, I came across countless dead crabs along the high tidemark of the Alaw Estuary, Anglesey. What had happened?

Steve Roberts, via email

A At first glance, this scene might be mistaken for the mass mortality of shore crabs. But these are just empty shells.

A crab spends most of its life encased in a hard carapace. To grow – and thus have more mating success, win territories and see off predators – it needs to squeeze out of its shell and produce a larger one. This is called ecdysis, or moulting.

Moulting is most common in the summer, with fast-growing youngsters shedding their shells up to 10 times during their first year. To moult, a crab resorbs calcium from its current carapace while a new, soft one grows beneath. The old shell eventually splits and the animal wriggles out.

The crab then swallows and absorbs large quantities of water, causing its body to swell. Thus, when the new carapace hardens two or three days later, there will be enough space for subsequent muscle and organ growth.

While their shells are soft, the crabs shelter from predators beneath rocks. Their discarded carapaces are cast adrift and wash ashore, often in their thousands.

**Matt Doggett** *Marine biologist*

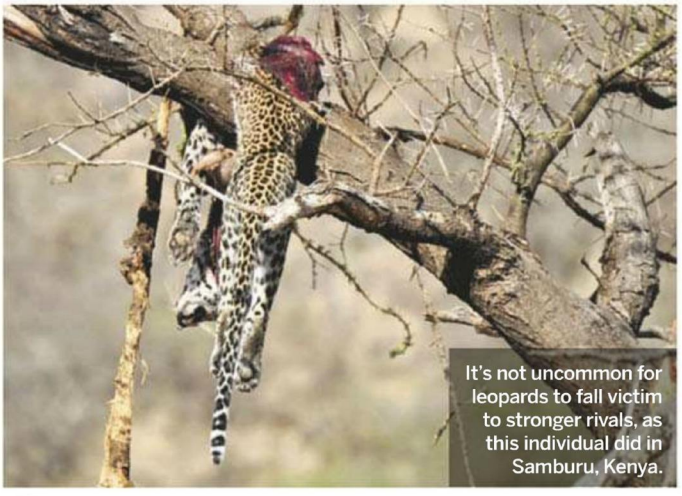
Crab shells degrade over time – fragments are often part of the sand.

Steve Roberts

## WHAT'S IN A NAME?

### *Aha ha – an Australian wasp*

"Aha!" This was the legendary reaction of entomologist Arnold Menke when he opened a package that had been sent to him by a colleague and found not just a new species of wasp, but a whole new genus. He went on to describe the discovery in a 1977 paper with the title '*Aha*, a New Genus of Australian *Sphecidae*'. **SB**



It's not uncommon for leopards to fall victim to stronger rivals, as this individual did in Samburu, Kenya.

Pedro Segura

## Q This leopard was killed and partly eaten by a rival following a territorial dispute. Is this unusual? Pedro Segura, via email

A Cats do occasionally kill other cats, and leopards are no exception. The trigger is usually a fight between males. These may break out when a new, powerful individual or a careless youngster encroaches on another's turf – though the battles tend to be more about protecting mating rights with females than defending territory. If the weaker opponent is too slow or unable to back off, he could be killed, with the victor sometimes eating the free meal as an afterthought.

Infanticide (a male killing cubs he has not sired) occurs in most cat societies. It allows a strong male to leapfrog the breeding process and promote his own genes. The bereft female will almost immediately come into oestrus for him, which she would not do while still rearing the previous father's offspring. She may even consume the dead cubs.

Larger cats also kill and eat their smaller cousins. Tigers, for instance, sometimes take leopards, especially where they are competing for the same prey. **Stephen Mills** *Big cat expert*

## Q Why are these bees attempting a bizarre 'pyramid?' Ulric Salthouse, via email

A These are red mason bees *Osmia rufa*. The two smaller, browner individuals with long antennae are males; the larger, redder bee beneath them with the distinctive face-horns is a female. They are trying to mate, but the one on top is out of luck.

Like many solitary bees, red masons nest in simple, mud-daubed tunnels in soil or wall crevices. These abodes are little more than a series of cells, each housing a grub and a store of pollen.

The larvae feed and pupate, becoming adults in the autumn. They remain dormant until the weather warms in spring, then start to emerge. The males, who usually occupy the outer cells, surface first, followed by the females a few days later. The sex ratio is thus skewed during these early days, so pile-ups are common. **Richard Jones** *Entomologist*

Two male red mason bees vie for a female.

Ulric Salthouse

THE MAN WHO...

## politely grabbed Africa for the Queen

**JOSEPH THOMSON** (1858-1895)

It's amazing where a childhood interest in natural history can take you. Joseph Thomson started out scouring his local patch of Dumfriesshire for plants, rocks and fossils, and ended up in the midst of the Victorian scramble for overseas territory.

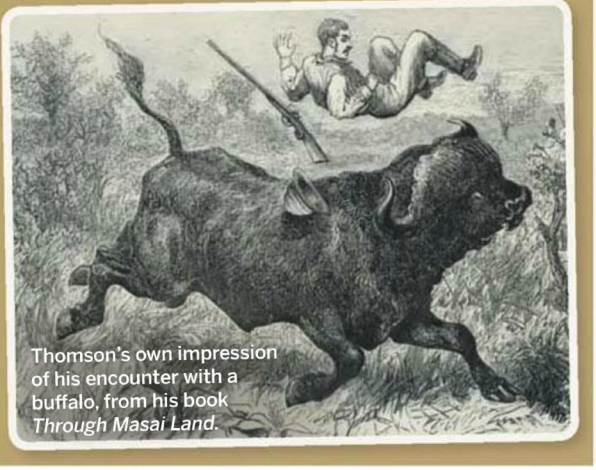
Encouraged by a local doctor to pursue his hobby more seriously, Thomson read natural history at Edinburgh University. After graduating, he was appointed scientist on a Royal Geographical Society expedition to what is now Tanzania, to open up a route from the coast to the interior. After the death of the leader from malaria and dysentery, Thomson steered the mission to success.

His triumph led to other expeditions, to East Africa and Nigeria, to open up trade routes and negotiate concessions for Britain in the face of stiff competition from Germany.

Thomson trekked a total of 24,000km through Africa. He collected hundreds of species new to science, including plants, molluscs and the gazelle that eventually took his name.

His expeditions were remarkably peaceful affairs. He even crossed the territory of the notoriously fearsome Maasai without incident. But the man whose motto was "He who goes gently, goes safely; he who goes safely, goes far" had a few tricks up his sleeve. He would diffuse tense encounters by brewing spectacular fizzy concoctions of indigestion salts, or making his (false) teeth vanish miraculously.

Nature, however, was less forgiving. Thomson was only 37 when he succumbed to the cumulative ravages of tropical disease and goring by buffalo. **SB**



Thomson's own impression of his encounter with a buffalo, from his book *Through Masai Land*.

From top: The Bridgeman Art Library; *Through Masai Land* by Joseph Thomson, 1858–1895, London S Low, Marston, Searle, & Rivington/Robarts – University of Toronto

## THE BIG QUESTION

# HOW WILL DROUGHT HIT BRITAIN'S WILDLIFE?

**Despite record rainfall, many parts of Britain remain in drought. So when groundwater levels drop and rivers dry up, which of our animals and plants suffer most – and which end up as winners?** Sarah Fox, by email

THE EXPERT **PHIL GATES**

Phil teaches biology at Durham University. He has studied desert trees that drink dew through their leaves at night.

After a dry winter, many of Britain's reservoirs, rivers and lakes are perilously low – and some experts predict that such droughts will become increasingly frequent in the future. So how do arid conditions affect our wildlife?

Falling water tables caused by low winter rainfall and rising consumer demand present a serious threat to wetland ecosystems – especially at the start of the breeding season. Amphibians lose spawning sites when ponds dry up, and lower water levels in lakes, reservoirs and rivers can affect birds' breeding success.

Kingfishers might benefit initially from easy fishing where dwindling rivers create isolated pools of trapped fish, but when rivers dry up altogether the birds need to travel further to find food during the critical nestling-feeding period. Retreating lake and reservoir margins also make it easier for ground predators to reach the nests of birds such as moorhens, coots and great crested grebes.

But the most damaging droughts combine low water tables with exceptionally hot, dry weather – as during the summer of 1976 when parts of Britain experienced record high temperatures and up to 45 days without rain. Trees died, crops wilted and toxic algal blooms developed in warm, nutrient-enriched lakes and shallow coastal waters, where filter-feeding shellfish accumulated the toxins and passed them up the food chain.

Such conditions also lead to outbreaks of botulism – *Clostridium botulinum* bacteria proliferate around stagnant water margins and on rubbish tips. Botulism killed thousands of gulls in the Firth of Forth in 1975, and almost wiped out the herring gull population on

Kingfisher: Paul Sawer/FLPA; lake: Adrian Sherratt/Alamy

Falling water levels in lakes can reduce oxygen and result in increased fish mortality. *(Left)* As rivers dry up, kingfishers may struggle to find enough food for nestlings.

## DIY RESURRECTION

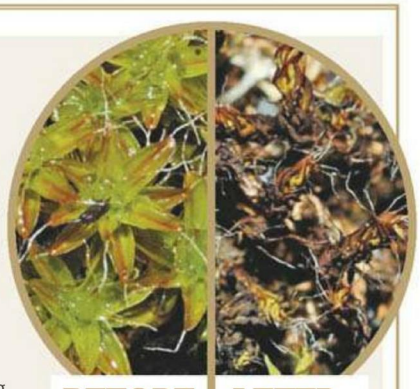
▶ Some UK plants are amazingly tolerant of drought – as this home experiment demonstrates.

Pick a yellow-green cushion of the screw moss *Syntrichia ruralis* from a wall top and leave it on a sunny windowsill – ten days later it will be withered and 'dead'. But add water and within minutes the shrivelled shoots will revive.

▶ Research on wild organisms such as *Syntrichia* could lead to more drought-resistant crops. Biochemical studies reveal that screw mosses produce proteins called dehydrins and rehydrins that protect drying cells from damage and repair them during rehydration.

Tomato and rice plants that have their genes manipulated to over-produce these proteins also tolerate drought better.

▶ Some species – tardigrades and 'resurrection plants' growing in deserts – accumulate a sugar, trehalose, to protect dehydrated cells. Genetically manipulated rice with elevated trehalose levels also proved to be drought-tolerant.




**Water of life** Screw moss *Syntrichia* can withstand lengthy arid spells– recovering miraculously after rain.

Both photos: Phil Gates

**DID YOU KNOW?**
Starfruit, one of Britain's rarest aquatic plants, flowers best when ponds start to dry up. Its seeds germinate when water returns.

Steep Holm in the hot summers of 1989 and 1990.

Some mammals switch food sources during droughts: rabbits and rodents will gnaw bark, as they do when winter snowfall hides their usual food sources.

But specialist feeders such as moles are likely to struggle. They depend on active worms – but during drought conditions worms aestivate, entering a period of dormancy, so moles must dig and patrol tunnels more frequently in order to find food. Radio-tracking studies show that moles' activity patterns change during drought, with more frequent periods of sleep – presumably to conserve energy between strenuous food searches.

### BORN SURVIVORS

Of course, not all wildlife will suffer in the same way. Britain may not have deserts, camels or cacti, but we do have some native species that are surprisingly well adapted to drought. We even have one habitat – heathland – that is reminiscent of savannah in dry-season Africa, where wildfires are part of the natural ecological cycle.

Southern lowland heaths are prone to fires during droughts, but gorse and heather – key heathland species – regenerate vigorously from roots left unharmed by fast-moving flames. The buried seeds of both plants are stimulated to germinate by heat and smoke, so their seedlings can take advantage of mineral nutrient ash made available by a blaze. The frequency of such fires is a critical factor, though; if they occur more than once every four years, heathland gorse declines, but fires on a 16-year cycle maintain maximum growth rates.

Such fires also affect two of our rarest reptiles – the sand lizard and the smooth snake. They are physiologically and behaviourally adapted to life on the sun-warmed sandy soils of heathland, but the combustibility of the vegetation can have devastating effects on their populations if fires are widespread and frequent.

Droughts combined with exceptionally hot summers are rare, but there's one phylum equipped to survive the severest water shortages: tardigrades, less than 1mm long. These minuscule 'water bears' feed on mosses; when their host plants wither in summer heat, they encase themselves in drought-resistant, barrel-shaped cysts called tuns. The tardigrades persist in a state of anabiosis – a kind of suspended animation in which they can survive for decades until rain arrives, when the tiny creatures hatch and resume feeding.

**NEXT MONTH**

How do mammals live underground? Send your big questions: details on p87.

## DROUGHT AS DEFENCE

The struggle for life around a shrinking water hole is a familiar feature of wildlife films about arid lands, but similar scenes play out on a microscopic scale in Britain during droughts.

Phytotelmata – pools of water that collect in tree holes – host dense populations of bdelloid rotifers, tiny organisms that depend on drought to keep disease at bay.

Rotifers rapidly produce parthenogenetic eggs. Numbers can quickly exceed 200 in a single millilitre of water; typically fungi then attack and the rotifers decline – unless their water hole dries up. Then they encase themselves in drought-resistant cysts that outlive the spores of their fungal enemies. When rain refills their pool, the cysts hatch within minutes and the rotifers, now free from fungi, reproduce clonally as fast as before.

This rotifer's 'claws' are cilia that whisk food into its mouth.

Wim van Egmond/Visuals Unlimited/Corbis

# THE MOST VIVID VIEWING IN HD MAX

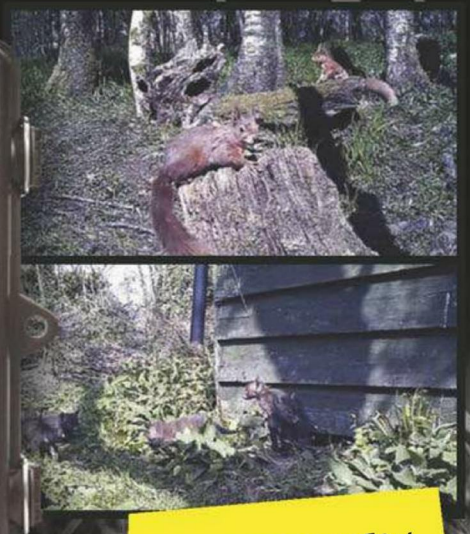
## INTRODUCING THE NEW 2012 MODELS WITH A FULL ROUND OF UPGRADES

**It just keeps getting better.**

**While other trail camera strain to keep up with the world leader, we have continued to improve Trophy Cam.**

**The new 2012 models now feature truly awesome improvements that make for the most vivid viewing experience possible, with practical features to ease your work.**

**Now available in the UK in limited numbers.**




HIGH-DEFINITION STILLS & VIDEO

**NEWEST HD MODELS NOW IN THE UK!**

## TROPHY® CAM HD 2012

**HD VIDEO** 2012 Trophy Cams are capable of capturing 720p HD video, with audio record.

**HYPER NIGHT VISION** A quantum leap in distance and brightness, this new system ensures the sharpest after-dark imagery.

**FIELD SCAN 2X** Now with two time-lapse slots, you can monitor dusk and dawn movement. It provides the widest viewing area possible and, unlike others, it will also capture live triggered images simultaneously.

**AUTO PIR** This new system's built-in temperature sensor self-regulates the passive infrared sensor for more consistent function in all conditions.

**WIDE SCREEN 16:9** Now in 16:9 format and 4:3 format.

**MULTI FLASH MODE** Allows you to adjust flash power for different setups to conserve battery power where applicable.

**GPS GEOTAG** 2012 Trophy Cams have the option to embed GPS coordinates to make tracking animals and camera placement simple.

**NO GLOW BLACK LEDs** HD Max Only - 32 No Glow Black IR LEDs provides complete stealth nightvision illumination without attracting unwanted attention from passers-by or disturbing wildlife.

**TEMP STAMP** **BARO PRESSURE** Images from the 2012 Trophy Cams display date/time/moon/temp/name. The HD Max adds barometic pressure.

**Trophy Cam HD Max (119476)**

**Trophy Cam HD Max - Colour Viewer (119477)**


**Trophy Cam HD Brown (119437)**

**Trophy Cam HD Camo (119447)**

For details of your nearest stockist, please contact the exclusive UK distributor J J Vickers & Sons Ltd.

JOIN THE COMMUNITY

VIEW & SHARE USERS' TROPHY CAM FOOTAGE FROM AROUND THE WORLD AT trophycam.co.uk

**T: 01634 201284 - E: sales@jjvickers.co.uk - www.jjvickers.co.uk - www.bushnell.com**

BUSHNELL ESTD 1948

Bushnell®

# your letters

Share your thoughts on any issue covered in *BBC Wildlife* by writing to us at: Letters, *BBC Wildlife*, Immediate Media Company, 4th Floor, Tower House, Fairfax St, Bristol BS1 3BN; or email wildlifeletters@immediate.co.uk

LETTER OF THE MONTH

## The rise of the animal machines


It was good to read Conor Jameson's account of how Rachel Carson's *Silent Spring* triggered the emergence of the environmental movement ('The legacy of *Silent Spring*', June).

However, another book deserved a mention in your box discussing other revolutionary volumes. Ruth Harrison's *Animal Machines*, published in 1964, described the nature of intensive animal husbandry – or factory farming – that emerged in the same post-war period.

The book prompted extensive research into the behaviour and welfare of animals that are intensively farmed. Legislation banning practices such as transporting veal calves in crates, sow-stalls and the most extreme battery conditions was a direct result.

Ruth founded The Farm Animal Care Trust (FACT), a charity devoted to encouraging scientific research into the welfare of farm animals. We're planning a conference that will be held in Oxford next year to celebrate the achievements of these two near-contemporaries – both of them pioneering women.

**Ian Horrell** Trustee, FACT (Cornwall)

**▶ WIN, WIN, WIN**

The Letter of the Month wins a pair of HI-TEC V-Lite Fasthike waterproof boots, worth £50 and perfect for hiking. They're available in sizes 7–13 for men and 4–8 for women. For more information, visit www.hi-tec.com/uk


** Please keep your letters short (no more than 150 words). Sorry, but we can't acknowledge them and must reserve the right to edit as necessary*

### Tough times for foxes

I read with interest your article on red foxes and why dry summers can be tough for cubs ('The gender agenda, July).

Here at HART Wildlife Rescue in Hampshire, we have had 19 fox cubs brought to us this year – four times our average annual intake. The extreme weather has made 2012 a very tough year for young foxes. With floods flushing out dens, there has been an increased risk of their parents being hit on the roads, making them orphans.

Fortunately, all of our cubs are doing very well and will one day be released back into the wild.

**Ava Pierro**
HART Wildlife Rescue, Hampshire


This orphaned cub is doing well at HART rescue centre.

### Forlorn horn truth

As a South African conservationist dealing with the rhino-poaching crisis, I believe that legalising the trade in rhino horns (Agenda, June) is counterproductive, merely paving the way for more hunting.

John Hume is of the opinion that the sale of horns would push down the price, making poaching less viable. In the past, the legal sale of ivory stockpiles has unfortunately not had this effect; the end-user market is insatiable and this simply creates more of a market for the product.

Additionally, it would become more difficult to distinguish legal horns from poached, further compounding the problem.

**John Slabber**
Indlovu West Conservation Research, South Africa

### Voices make you see red

The views of Kate Fowler from Animal Aid, in the article about culling grey squirrels (Analysis, June), were flawed, trivialising a serious conservation issue into a choice between squirrel colours. Surely it would have been better to have included the views of a respected conservationist?

In the same issue, the choice of letters published in response to the excellent lynx reintroduction article ('Is it time to bring back the lynx?', April) felt wrong. Aside from the letter by the veterinary surgeon Romain Pizzi, your correspondents offered no constructive arguments.

In particular, publishing the letter from Patricia Brown about white-tailed eagles preying on lambs and poultry, and without a response, was a mistake. A 2010 study in west Scotland found that white-tailed eagles are linked to only 2 per cent of lamb deaths.

**James Walker**
Via email

I am alarmed that anyone can condemn the culling of grey squirrels, as Kate Fowler did. Grey squirrels are an invasive species and should not be tolerated.

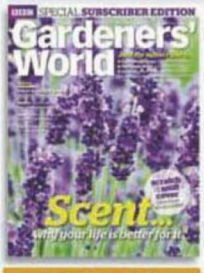
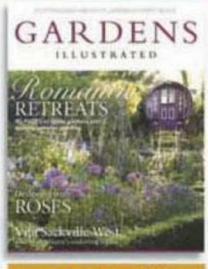
Fowler states that "red squirrels suffered from deforestation, severe winters, diseases and persecution before grey squirrels arrived in the UK". While this is true, the introduction of greys has clearly made things worse.

In the early 1970s I moved to Tasmania where, in a similar scenario, introduced cats and dogs played havoc with our native ▶

# SUMMER SALE

## Get 5 issues of your favourite magazine or try a new one for just £5*

## TRY 5 ISSUES FOR £5* THEN...

| The UK's biggest selling gardening magazine | Beautiful plants and gardens | For every motoring enthusiast | Swim, bike, run, faster | Travel experiences to inspire and entertain | Science, technology, future |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| ...SAVE 15% £19.38 every 6 issues | ...SAVE 25% £17.95 every 6 issues | ...SAVE 20% £19.99 every 6 months | ...SAVE 33% £8.49 every 3 issues | ...SAVE 30% £15.90 every 6 issues | ...SAVE 25% £17.70 every 6 issues |

| Essential wildlife guide | A must for anyone who loves cooking | Discover the night sky | Your ultimate countryside companion | Find the best programmes | All about Koi |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| ...SAVE 30% £15.95 every 6 issues | ...SAVE 15% £18 every 6 issues | ...SAVE 25% £21 every 6 issues | ...SAVE 30% £16.60 every 6 issues | ...SAVE 9% £36.40 every 26 issues | ...SAVE 20% £9.50 every 3 issues |

## Great reasons to subscribe:

- Your first 5 issues for £5*
- Save up to 48% when you continue your Direct Debit subscription
- Every issue delivered direct to your door
- Never miss an issue
- Perfect summer reading

To order & view our wide range of magazines visit

**www.buysubscriptions.com/summersale**

Or call now on **0844 844 0260**

**PLEASE QUOTE CODE SSWLP12**

*The 5 issues for £5 offer is only available for UK delivery addresses (excluding BFPO addresses). For overseas rates visit www.buysubscriptions.com/summersale. This is a Direct Debit only offer where the first 5 issues will be charged at £5. The discounts and prices shown are follow-on rates payable by Direct Debit. You are free to cancel your subscription at any time – if you cancel within 2 weeks of receiving your fourth issue you will

## BEST OF THE WEB

DiscoverWildlife.com

jamesabsmith.co.uk

### STUNNING GALLERIES

New photo galleries go live every week, so watch out for images of Blackpool's starling spectacular, the world's top animal athletes and beautiful Botswana.


### GREAT WHITE SHARK!

If you like *Carcharodon carcharias*, then you'll love our website. Enjoy stunning images, learn about the latest shark research in South Africa, and find out if a great white would triumph in a fight with an orca!

wigglywigglers.co.uk

### WIN GREAT PRIZES

This month, win a beehive composter (worth £128), new books *Art for the Love of Sark* and *Springwatch British Wildlife* (with a pair of luxury EWE wellington boots, worth £160), and an Iceland DVD.

### EXCITING PODCASTS

Catch up with the *BBC Wildlife* team and our experts – this month Tony Brazier on the wonderful world of bats – and hear the stories behind our top articles in our podcast: www.discoverwildlife.com/podcasts

# WHAT ON EARTH? Amazing wildlife antics from our postbag

I was walking round Kew Gardens in London when I noticed a flurry of activity near the life-belt container beside the lake. Spotting a blue tit popping in and out of a small opening, I realised that it must be raising a family in there. I hope that none of the chicks fell into the lake before they fledged!

**Julia Keddie** Richmond, Surrey

Life-saver: a great place to raise a family.

Julia Keddie/RSPB

wildlife. The situation may even get worse, because foxes have now arrived from the mainland. If these become established, we will lose much of our native fauna.
**Bob Holderness-Roddam**
Austins Ferry, Tasmania

***Environment editor James Fair responds:*** *While we appreciate that many readers will not agree with the views of Kate Fowler, the article also quoted other experts such as Andrew Kendall of the European Squirrel Initiative, Nick Mason of Red Squirrels Northern England and Dr Craig Shuttleworth of the Anglesey Red Squirrel Project, all of whom are pro-culling.*

## Reviving the Hula Valley

H Morris's memories of the Hula Valley in northern Israel 60 years ago (Letters, June) made for fascinating reading, but his comments warrant amplification.

The reason that the marshes around Hula Lake were drained, largely during the 1950s, was because they were a notorious malarial blackspot. But the triumph of conquering malaria and releasing lands for agriculture quickly gave way to the realisation that this was leading to a range of unintended consequences, including a loss of soil quality and the run-off of chemical fertilisers into the nearby Sea of Galilee. This led to the formation of the Society for the Protection of Nature in Israel (SPNI) in 1953.

A section of the marshes was reflooded in the early 1990s, and Israeli conservationists have succeeded in restoring the natural vibrancy of the area.

Even the Israeli Air Force plays its part, changing its flight paths during the migration season to accommodate the 500 million birds that pass through Israel.
**John Levy**
Honorary secretary, UK-SPNI

## Algae in 3D

Many algae – a much-maligned and neglected category of our wildlife – have an extreme 3D form, which makes them difficult to photograph.

Though some good pictures of algae can be found, they are in 2D. So I have recently been experimenting with special techniques that will portray them in their three-dimensional glory.

The images are derived from 'left' and 'right' microscope views that are computer-combined and colour-processed so that they can be viewed with red-cyan spectacles. These are quite widely available, but even without them the pictures are striking.

Pictured below is water net *Hydrodictyon*, an algae that can reach nuisance levels in slightly enriched water.
**Christopher F Carter**
Northampton

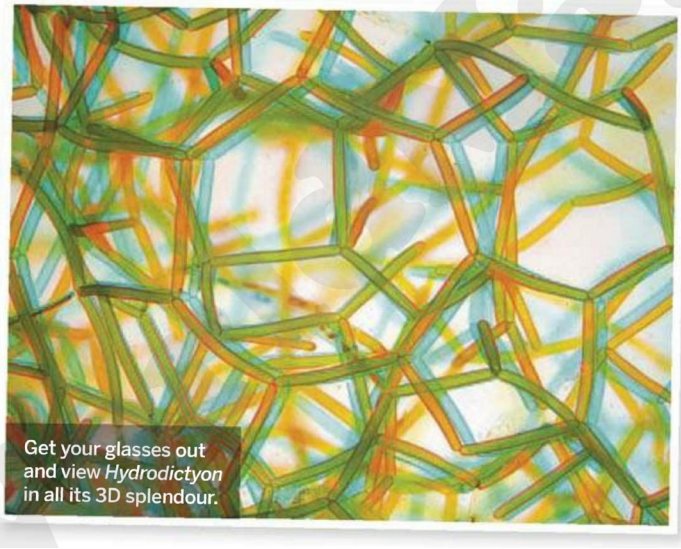
## *Planet Earth* love

I'm sure you will receive many letters commending *Planet Earth Live*, but I thought the series was spectacular and totally captivating.

The show illustrated the trials facing the young of many species around the world, and the outstanding footage and gripping stories both thrilled and tugged at our heartstrings. On more than one occasion, I found myself reaching for the tissues or laughing out loud.

The relationships between mothers and their young made for emotional, endearing and fascinating viewing.

I admit that I had reservations about the choice of Richard Hammond as a presenter,



Get your glasses out and view *Hydrodictyon* in all its 3D splendour.

## From the forum

### Slate success

I have a south-facing garden with a rough slope next to an abandoned quarry. About a month ago I put down some roofing slates, which I periodically lift to see what's underneath. The first stage of colonisation appears to be small red ant nests, which provide food for the second stage: the amphibians – toads and small newts (smooth, perhaps?). Finally, the triumph: a thick, fat slow-worm nicely coiled up – brilliant! **Thlyacine**

▶ www.discoverwildlife.com/forum

◀ but soon realised that he was as educated and passionate about the subject as any established wildlife personality, and made for a refreshing change.

**Kate Ferrie**
Greasby, Wirral

I watched the first programme of *Planet Earth Live*, and felt short-changed and almost insulted by its simplistic and dumbed-down nature, as well as the obvious lack of wildlife knowledge of the two presenters, Richard Hammond and Julia Bradbury.

When I watch wildlife programmes, I want to learn something new and exciting about wildlife from an expert. Hammond hid under his tent flaps and appeared to be frightened of the images of nearby Cape buffalo. In any case, with enthusiastic cameramen such as Charlie Hamilton James on hand, Hammond and Bradbury were superfluous.

On a complaints programme, I listened to a producer explain that his intention was to bring wildlife to a broader audience. Well, the late Steve Irwin was able to do that with his amazing enthusiasm. Admittedly his methods were sometimes intrusive, but at least he had extensive personal experience of wildlife.

I now note with horror that Freddie Flintoff is making four programmes for the Discovery Channel about bushcraft, one of which involves a trip to Borneo to track orangutans. I understand that these people want to earn a crust after their other careers have finished, but why do they have to choose wildlife?

**Peter Thomas**
Tourrettes-sur-Loup, France

### Gait expectations

In your article about maned wolves, I was fascinated to read that they walk like camels ('Why the wolf needs the ant', June). My dog, a cairn terrier, does this, too: she moves her front and back legs on the same side together.

This does give her a most peculiar and stiff-looking gait, which made me concerned. However, when I mentioned it to our vet, she was not worried, though she had no explanation.

I am relieved to learn that she is probably just conserving energy! I wonder whether anyone else has seen such behaviour in their dog?

**E Lord**
Darwen, Lancashire




IMMEDIATE MEDIA Co

*BBC Wildlife Magazine* is published by Immediate Media Company Bristol Limited under licence from BBC Worldwide.

HEARING-IMPAIRED CALLERS
01795 418688

EDITORIAL
**Editor** Sophie Stafford
**Deputy Editor** Paul Bloomfield
**Features Editor** Ben Hoare
**Environment Editor** James Fair
**Section Editor** Sarah McPherson
**Production Editor** Seth Burgess
**Art Editor** Richard Eccleston
**Deputy Art Editor** Gary Nickolls
**Picture Researcher** Wanda Sowry
**Editorial Assistant** Heather McKay

ADVERTISING
**Ad Director** Caroline Herbert
**Senior Ad Manager** Laura Gibbs 0117 314 8760
**Deputy Ad Manager** Phil Jones 0117 914 8387
**Classified Sales Executive** Luke Stoneham 0117 933 8012

INSERTS
**Laurence Robertson** 00353 876 902208

MARKETING
**Head of Subscriptions and Direct Marketing** Marie Davies
**Senior Marketing Co-ordinator** Mark Summerton
**Marketing Assistant** Kate Jones
**Press and PR Manager** Carolyn Wray

LICENSING & SYNDICATION
**Syndication Manager** Simon Goodman
020 8433 1277; simon.goodman@bbc.co.uk
**Head of Licensing & Syndication** Joanna Marshall

PRODUCTION
**Ad Co-ordinator** Derrick Andrews
**Ad Designer** Andrew Hobson
**Production Director** Sarah Powell
**Production Co-ordinator** Emily Mounter

IMMEDIATE MEDIA COMPANY BRISTOL LTD
**Publisher** Jemima Ransome
**Managing Director** Andy Marshall
**Chairman** Stephen Alexander
**Deputy Chairman** Peter Phippen
**CEO** Tom Bureau

BBC WORLDWIDE MAGAZINES UNIT
**Managing Director** Nick Brett
**Publishing Director** James Hewes
**Editorial Director** Jenny Potter
**Unit Co-ordinator** Eva Abramik

PRICES
**Subscriptions** UK £49.40; Europe including Eire (printflow air) £43.45; Rest of World (printflow airsaver) £45

*BBC Wildlife* champions ethical wildlife photography that prioritises the welfare of animals and the environment. It is committed to the faithful representation of nature, free from excessive digital manipulation, and complete honesty in captioning. Photographers, please support us by disclosing all information – including, but not restricted to, use of bait, captive or habituated animals – about the circumstances under which your pictures were taken. *BBC Wildlife* provides trusted, independent travel advice and information that has been gathered without fear or favour. We aim to provide options that cover a range of budgets and will reveal the positive and negative points of all the locations we visit.
The views expressed in *BBC Wildlife* are those of the authors and not necessarily those of the magazine or its publisher. The publisher, editor and authors accept no responsibility in respect of any products, goods or services that may be advertised or referred to in this issue or for any errors, omissions, mis-statements or mistakes in any such advertisements or references.



Printed by William Gibbons Ltd.

FSC www.fsc.org MIX Paper from responsible sources FSC® C015155

Immediate Media Company Bristol is working to ensure that all of its paper is sourced from well-managed forests. This magazine is printed on Forest Stewardship Council (FSC) certified paper.

This magazine can be recycled, for use in newspapers and packaging. Please remove any gifts, samples or wrapping and dispose of it at your local collection point.

recycle
When you have finished with this magazine please recycle it.

ABC Jun–Dec 11 44,050
NRS Jul10–Jun11 268,000

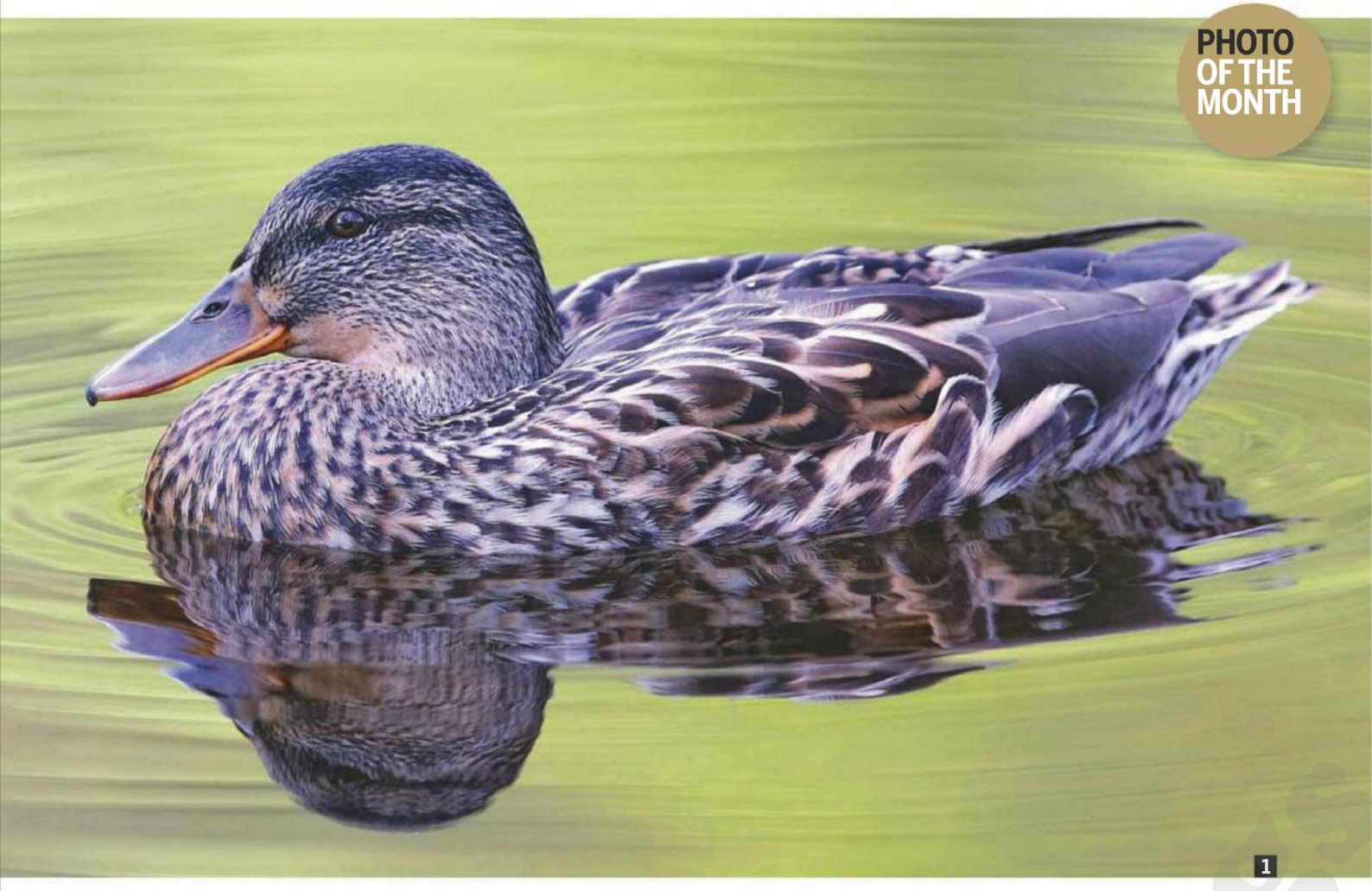
# your photos

Share your special wildlife moments, at home and abroad.

**EMAIL YOUR PHOTOS AND STORIES TO**
**wildlifephotos@immediate.co.uk**

- Please submit your photos as 300dpi jpegs (at largest possible size) labelled with your name and the subject. Accompany each photo with a 70-word story.*
- Submission of your photos to Your Photos constitutes a grant to *BBC Wildlife* to publish them at any time in any media with attribution.

## PHOTO OF THE MONTH



1

### 1 SITTING PRETTY

When I reached the hide at David Marshall Lodge near Aberfoyle, the light was too harsh to photograph red squirrels, as I had planned. But on my way out I took a few shots of the ducks amid the reflections of the trees in the pond. I like the softness of light on the water around this female mallard – as if it has been painted.
**Allan Donaldson**
Via email

### 2 PEEK-A-BOO

This was the first wallaby joey to peek out of mum's pouch at Yorkshire Wildlife Park this spring. Once out of the pouch she will continue to return until she no longer fits. Even when she can no longer squeeze in, she will stick her head in for a drink of milk.
**Jessica Riederer**
Yorkshire Wildlife Park

2

### ▶ WIN, WIN, WIN

The photo of the month wins a pair of Vortex Diamondback 8x32 binoculars, worth £169. Weighing just 505g and measuring 112mm tall, they have a very wide field of view and good close focus. They are fully waterproof and rubber-armoured, argon-gas-filled and covered by the Vortex Unlimited Lifetime Warranty. For details call 01367 242411 or visit www.newprouk.co.uk

** Sorry – we can't acknowledge receipt of photos and reserve the right to crop and edit as necessary.*




**3 PRIDE OF MULL**
Across much of the UK, otters are associated with rivers and are notoriously difficult to see. But in coastal regions of north-west Scotland they are relatively easy to spot. The Isle of Mull – where this photo was taken – is one of the more accessible hotspots.
**Ian Howarth**
Via email

**4 GREBE GRAPPLE**
Visiting Carr Mill Dam, Merseyside, I watched these great crested grebes circling each other, occasionally diving shallowly, for about 15 minutes. Suddenly they went for each other, even fighting underwater, until the loser flew away.
**Eddie Whitham**
Via email

**5 PUFFIN PARLOUR**
This recent shot was taken on a spur-of-the-moment trip to Skomer Island, Pembrokeshire. We could not believe how friendly the puffins were, so I took the opportunity to get a shot from an unusual angle.
**Leigh Gregory**
Via email

**6 STOLEN PRIZE**
Walking out to Lady's Tower, in Elie, Fife, I stumbled on a buzzard with a fresh kill, but it flew off before I could lift my camera. On my way back from the tower I discovered that a heron had stolen the raptor's prey – a water vole.
**John McNairn**
Dundee

**7 DOWN IN ONE**
Volunteering in the Kalahari Desert, South Africa, I watched a meerkat pup feasting on a scorpion – one of the species' favourite meals, but a dangerous delight. Happily, the pups quickly learn to avoid getting stung, and this brave hunter lived to tell the tale.
**Charlotte Davies**
Brighton

**8 PONY PARADE**
I photographed this slender seahorse at Hastings' Blue Reef Aquarium. The challenge was to shoot clear pictures through the glass and water.
**Oliver Mannion**
Via email

**9 WELCOME RETURN**
In spring I visited relatives in Victoria, Vancouver Island. It was great to spot all of my favourite North American wildlife once more. On a trip into the Juan de Fuca Strait we were fortunate to see some of the first transient orca pods of the season – 14 individuals in total.
**Martin Rogers**
Via email

## PHOTO CONTEST BABY ANIMALS The editor's pick from July's online challenge

**SNUGGLY CYGNETS** by Michelle B

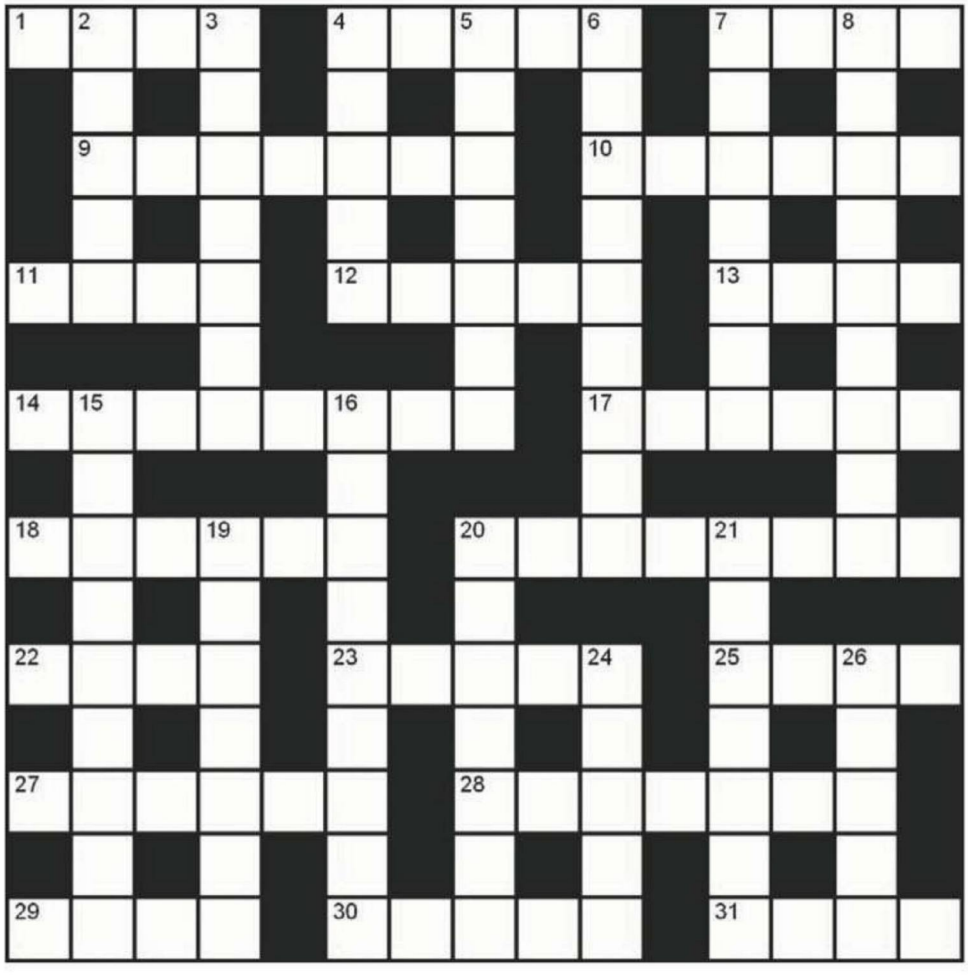
**GALÁPAGOS SEALION** by B Jakabek

**LAID-BACK MUM** by Ralph Snook

▶ **For galleries, contests and expert Photo Masterclasses, visit us online at DiscoverWildlife.com**

# crossword

compiled by **EDDIE JAMES**



## ACROSS

**1** Small diving duck with delicate bill (4)

**4** A reptile (and a shark?) ____ in sunshine (5)

**7** Giant ___, fish seen in rockpools of Cornwall and Devon, up to 25cm long, with 'pepper and salt' freckling (4)

**9** South American freshwater fish with sharp teeth and voracious appetite (7)

**10** Those of mayflies are called nymphs (6)

**11** The grey ___ is the larger of Britain's two breeding species of pinnipeds (4)

**12** Adjective relating to bees (5)

**13** Display areas of male capercaillie, grouse, etc (4)

**14/25** Reputedly the world's fastest shark (8, 4)

**17** Another name for the European garden spider (6)

**18/27** One who shoots animals as a prize (6, 6)

**20** Type of beetle named for its extensive antennae (8)

**22** Type of seaweed growing in underwater 'forests' (4)

**23** Small lizard able to walk on vertical surfaces (5)

**25** See 14 across

**27** See 18 across

**28** Bushy-tailed North American nocturnal mammal (7)

**29** Large black New World birds related to cuckoos (4)

**30** Sharp, horny nails on animal digits (5)

**31** New Zealand forest parrot (4)

## DOWN

**2** Common name for a tree of the Acer family (5)

**3** The Dartford ____ is a resident bird of lowland heathland in the UK (7)

**4** The ____ Sea, south-east of Sulawesi in Indonesia, is part of the Coral Triangle, a particularly biodiverse marine ecosystem (5)

**5** A pinniped that has external ear flaps (7)

**6** Rare, venomous shrew-like insectivore found only on Cuba and Hispaniola (9)

**7** There are two species (western and eastern) of this African great ape (7)

**8** North America's most common member of the genus *Ursus* (5, 4)

**15** Ladybird introduced to UK in the past decade, now a threat to native species (9)

**16** Toadstool with white-spotted red cap (3, 6)

**19** Develops from larva into adult insect (7)

**20** Genus containing some 40 lizard species (7)

**21** Highly poisonous umbelliferous plant, found in the UK in roadside verges, riverbanks and ditches (7)

**24** Killer whales (5)

**26** Semi-feral pony of Poland; may turn white in winter (5)

### ANSWERS FROM JULY 2012 ISSUE

**Across** 7/25D Flying fish 8 Colorado 9 Gnus 10 Aspen 11 Blue 12 Yucca 14 Cetacean 16 Bechstein's bat 18 Woodchat 19 Heath 21 Shag 23 Guano 25 Fire 26 Club-rush 27 Oyster. **Down** 1 Blenny 2 Hips 3 Iguana 4 Plankton 5 Crab 6 Adjutant 8 Cap 13 Cycad 14 Chest 15 Cobra 16 Blowhole 17 Sphagnum 19 Hoopoe 20 Hornet 22 Gobi 24 Ash.

Answers appear in our next issue

# the directory

Specialist wildlife holidays, products and services





ADVERTISEMENT FEATURE

## The Wildlife Trusts

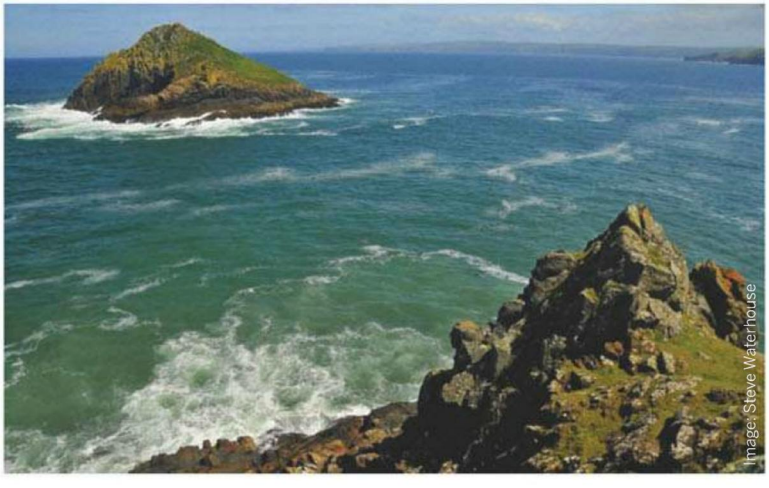


Image: Steve Waterhouse

In 1912, Charles Rothschild founded The Society for the Promotion of Nature Reserves, which later became The Wildlife Trusts. He first proposed seeking out the best places for wildlife and promoting them as 'nature reserves'. Rothschild compiled a list of 284 sites 'worthy of preservation', which included woods, meadows, heaths and moors, mountain and downland, rivers and wetlands, and the coast.

100 years on, The Wildlife Trusts now manage around 2,300 nature reserves which protect rare and threatened species and habitats. All are a gateway for you to experience the UK's natural world. While many of the original sites on land are protected, we need to ensure that sites in the sea are protected, too.

In recent years a similar process to the one Rothschild started in 1912 has been carried out at sea by more than one million stakeholders. As a result, 127 Marine Conservation Zones (MCZ) in England have been recommended for designation and, ultimately, protection. It took 36 years to get protection for the Rothschild list but we cannot wait so long for English waters.

Find out how to join The Wildlife Trusts, and so help conserve our wildlife and habitats – including marine areas – by visiting www.wildlifetrusts.org/joinus

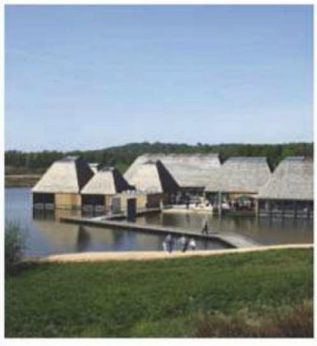
To experience a flavour of our amazing marine environment, join The Wildlife Trusts for National Marine Week. Events take place up and down the UK this month. Show your support by joining your Wildlife Trust.

**Email: enquiries@wildlifetrusts.org**
**Tel: 01636 677711 | www.wildlifetrusts.org/joinus**

Image: Emma Bradshaw

Image: Nicola Davison

## 1. BROCKHOLES



Brockholes has been transformed by the Lancashire Wildlife Trust from an old quarry site into a microcosm of 'Old Lancashire.' Located next to the M6 at Preston, wetland, grassland, ancient woodlands and the River Ribble provide diverse habitats that attract a wide range of wildlife and our floating Visitor Village means that you can get as close to nature as possible.

www.brockholes.org ☎01772 872000

## 2. THE WELSH WILDLIFE CENTRE

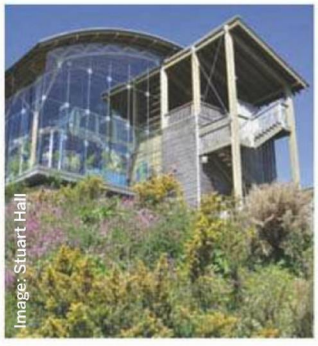


Image: Stuart Hall

Discover one of Wales' best wetland reserves, just outside Cardigan. Its many accessible habitats support a huge diversity of flora and fauna, including abundant birdlife and 17 species of dragonfly. Explore, then reflect, enjoying fabulous food in the award-winning Glasshouse Café, in a stunning setting with panoramic views.

www.welshwildlife.org ☎01239 621600

## 12. MONKEY WORLD APE RESCUE CENTRE

Monkey World is a 65 acre park in Dorset, providing sanctuary to more than 240 rescued and endangered primates of 17 different species. Observe them living with others of their own kind in a safe and natural environment. Summer events celebrate the park's 25th anniversary, including a 'Party in the Park' on 14 July.

www.monkeyworld.org ☎01929 462537

Image: L Thomas

# Go wild in Britain

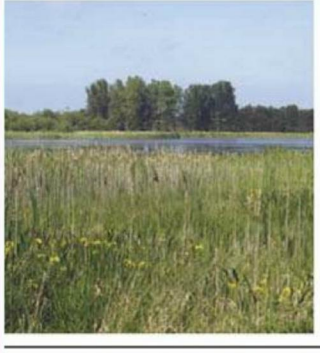
**Britain offers countless opportunities for experiencing wildlife – both our native species and more exotic creatures. Explore nature reserves bustling with birds, mammals and insects, sail to peaceful islands, and visit wildlife parks, rescue centres and aquariums to encounter a world of wildlife.**

## 11. MONTGOMERYSHIRE WILDLIFE TRUST

Our pair of ospreys are one of only two breeding pairs in Wales, so this makes them really special. Monty and Nora have now bred successfully for the second year. To see this wonderful wildlife spectacle, visit us at Cors Dyfi Nature Reserve, located in mid Wales from now until September. For more details call us or visit our website.

www.dyfiospreyproject.com ☎01654 781414

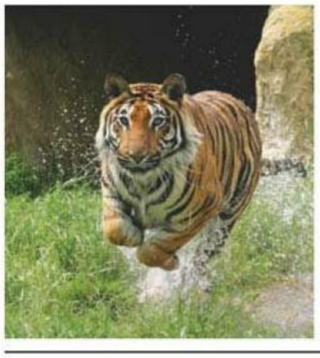
## 10. NORTHUMBERLAND WILDLIFE TRUST



Northumberland Wildlife Trust has more than 60 nature reserves within Northumberland, Newcastle and North Tyneside. These include Druridge Bay, with internationally important birdlife, rockpools and sand dunes; Big Waters, a tranquil setting for water birds and otters; and Weetslade, north of Gosforth Park, a country park with easy-access walkways and great views.

www.nwt.org.uk/nature-reserves-guide ☎0191 284 6884

## 9. PARADISE WILDLIFE PARK



Fall asleep to the distant howling of wolves and awake to the lions' roar... Paradise Wildlife Park is proud to announce the opening of our brand new, luxury on-site accommodation. It's a fantastic and rare opportunity to stay overnight at the zoo and experience the atmosphere and sounds of the wild as the sun goes down.

www.pwpark.com ☎01992 470490

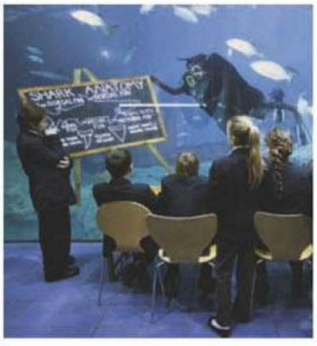
## 3. SKOMER ISLAND NATURE RESERVE


Image: Eleanor Stone

Set in a marine nature reserve just off the Pembrokeshire coast, come and marvel at Skomer's seabirds nesting on sheer cliffs, and grey seals gathering to give birth to their white pups. Then experience the thrill of an overnight stay, watching the mysterious nocturnal Manx shearwaters arriving noisily in their thousands.

www.welshwildlife.org Email: info@welshwildlife.org

## 4. NATIONAL MARINE AQUARIUM



The National Marine Aquarium was set up as a charity to drive education, conservation and research. Believing everyone should be inspired to learn about the marine environment, we created a state-of-the-art learning centre 'Just Add $H_2O$'. Marine biologists, teachers and resident artists deliver inspiration to over 30,000 children annually.

www.national-aquarium.co.uk ☎0844 893 7938

Map is for illustrative purposes only

## 5. YORKSHIRE WILDLIFE TRUST

Join Yorkshire Wildlife Trust at our coastal nature reserve, Flamborough Cliffs, this summer. Take a walk along the cliff tops or book onto one of our Living Seas Safari boat trips – a great opportunity to spot the masses of seabirds that flock here to breed on the chalk cliffs.

www.ywt.org.uk ☎01904 659570

## 6. THE LUNDY COMPANY

Over the past 40 years, Lundy has led the way in marine conservation, with four major achievements. The island set up the UK's first voluntary and statutory marine nature reserves, the first No Take Zone, and the first marine conservation zone, in 2010. Visit to spot basking sharks, grey seals and profuse birdlife including the inimitable puffins.

www.lundyisland.co.uk ☎01271 863636

## 8. CUMBRIA WILDLIFE TRUST

Cumbria Wildlife Trust is running its annual Beached Art event at St Bees Beach, Cumbria, on Sunday 12 August, 11am–4pm. This sand sculpture competition is a great family day out, with rockpool rambles, bird walks, arts, crafts and a cetacean watch – part of Sea Watch Foundation's National Whale and Dolphin Watch – plus much more. Book your plot now for just £1 per person.

www.cumbriawildlifetrust.org.uk ☎01539 816300

## 7. LONDON WILDLIFE TRUST

Discover the wildlife on your doorstep at one of London Wildlife Trust's 40 reserves. From floating gardens and wildlife walks across chalk grasslands to bushcraft, pond dipping and fun activities for all the family, there's something for everyone to do. If you love nature, become a member today and join London Wildlife Trust in protecting the capital's green spaces.

www.wildlondon.org.uk ☎020 7261 0447

## Asia



## Europe

## UK

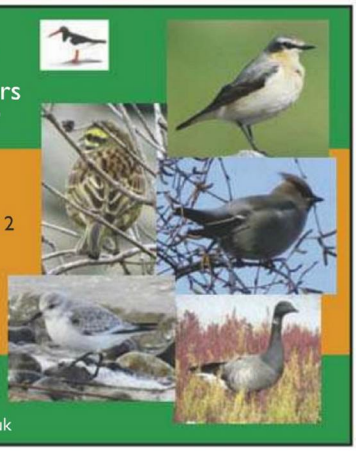












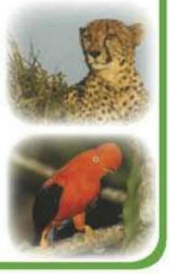
## Worldwide



## Worldwide





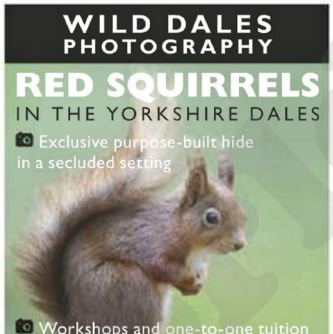




## Wildlife Photography







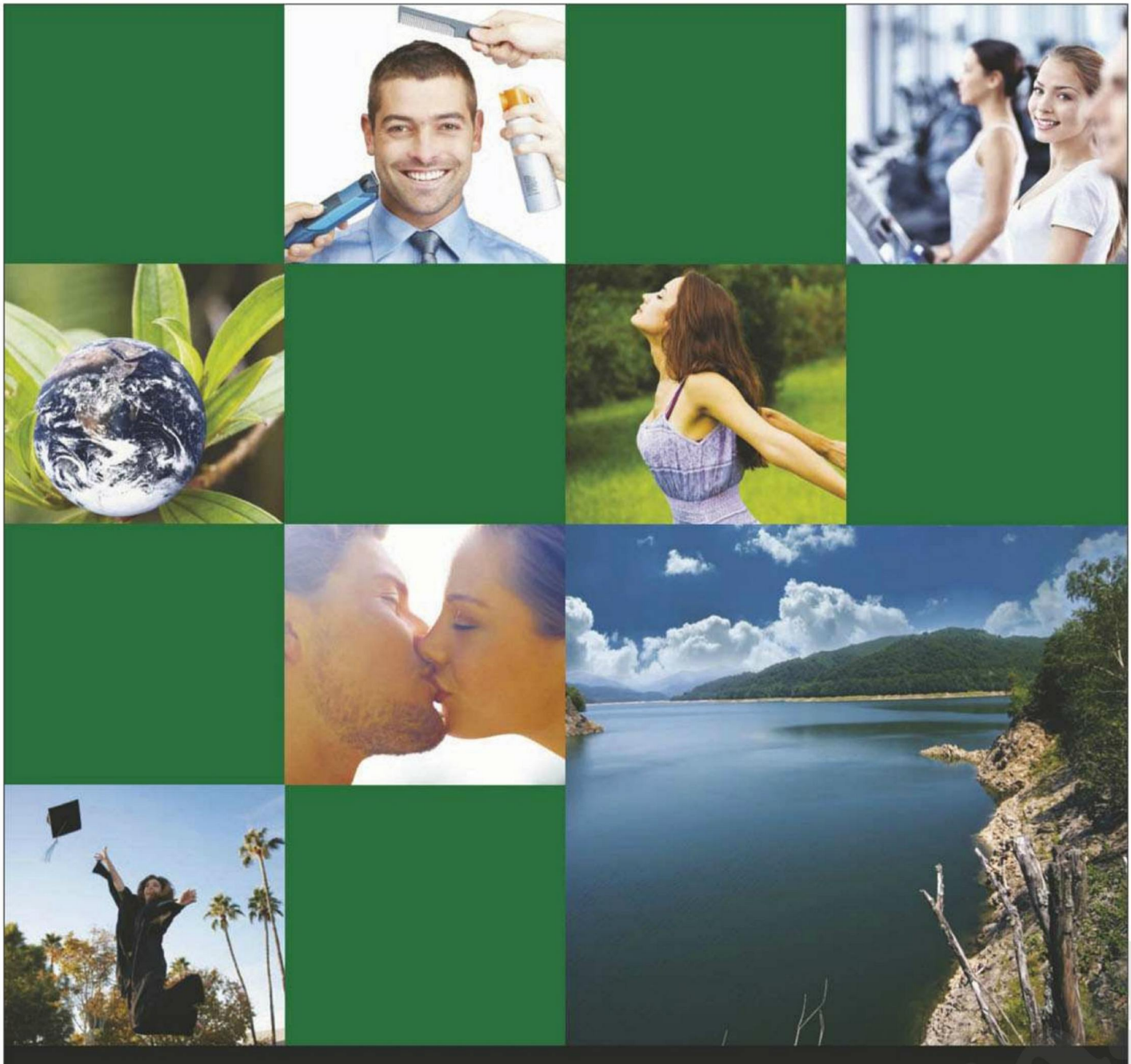
## Wildlife Photography



## Education & Conservation



## Optics & Cameras



# a brand new you.co.uk

Inspiration for a brand new you

Beauty & Grooming | Breaking Habits | Careers | Education | Fashion | Finances
Fitness | Green Living | Love | New Home | Pets | Travel | Weight Loss & Healthy Eating

DREAMSTIME.COM

# TALES *from the* BUSH

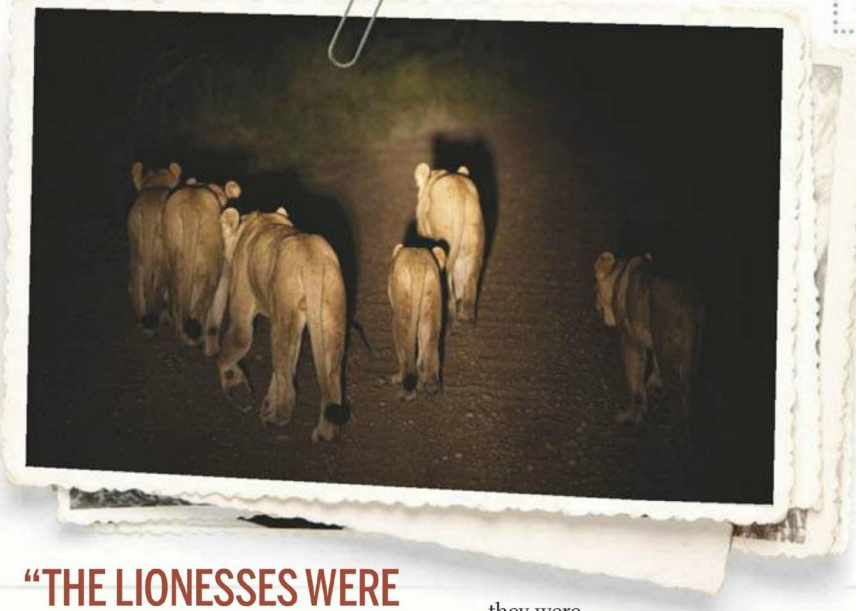
## STRANGERS IN THE NIGHT

Peter missed the game drive, but the evening's dramatic encounter more than made up for it.

NAME Peter Windridge-Smith

PROFESSION Consulting engineer

LOCATION Moremi, Botswana



It wasn't my wife Hilary's fault – everyone gets safari tummy in the Okavango Delta. You can drink bottled water and avoid salad, but you're bound to succumb. And I could hardly swan off on a game drive and leave her suffering alone at our camp site in Moremi Game Reserve. But it still hurt when the rest of our group returned with reports of lions: graceful females, playful cubs and a big male, all just down the road.

That night, the inevitable happened. "Pete, I need the loo," Hils groaned. "I'll come with you," I replied. "We might as well wash while we're at it."

The ablutions block was at the far end of the camping pitches, which were strung out for several hundred metres along the edge of a reedy creek. We grabbed our torches – however bright the southern stars seemed, the night was moonless and dark – and left our tent.

A grunting hippo broke the monotony of the crickets, as did loud tutting from my wife. "Look at that," she complained. "Don't they know the rules?"

Moremi has a strict ban on night driving, and yet, in the middle distance, a pair of headlights was gently bouncing and weaving towards us. Followed by another, and another.

### US AND THEM

Then we spotted what appeared to be animals preceding the cars – they were difficult to make out, but I thought they might be impala. The oncoming vehicles were still about 100m away when we heard an urgent whisper from a Toyota parked in the next pitch. "There are lions in the road," warned an Afrikaans accent.

Suddenly, the half-dozen shapes in front of the lights crystallised into lionesses. Hils and I stood side by side, facing our fate just as countless humans before us had, and considered our situation. "What shall we do?" she asked.

We knew that running would be a very bad idea. "Let's back off slowly," I said. This was what we'd been told to do when encountering animals unexpectedly, but it's far from easy to walk backwards down a rutted track in the dark. So we were forced to adopt an awkward sideways shuffle, constantly glancing from the lions to our footing and back again.

I began to worry that the big cats were gaining on us, even though they were only walking. I wondered whether it would be better to stand our ground.

**"THE LIONESSES WERE GAINING, EVEN THOUGH THEY WERE WALKING. WOULD IT BE BETTER TO STAND OUR GROUND?"**

**What would have happened to Peter and Hils if the vehicles hadn't followed the lions? Maybe they would never have made it to the toilet...**

But we were there – we had made it to the camp. I shouted a warning to the other guests relaxing by the fire; however, no one reacted. I yelled again, and a couple of people glanced over at us. To my relief our guide appeared from his tent, having heard the word "lions", and began to shepherd the others towards the Land Rovers. We reached the safety of the vehicles at the same time and climbed inside.

I hoped that the lions would pass really close, but they turned off the track when still 20m away, perhaps to avoid the fire. Moving beyond the glare of the headlights, the cats faded until they were one with the night.

Ten minutes later, we heard the distant death scream of a mammal less fortunate than ourselves. I glanced at Hils and knew that she was thinking the same as me: what if we'd not been warned?

Our guide later reassured us that the lionesses would have slipped past silently in the darkness and gone on their way. But a part of me likes to think that we'd have been eaten on the way to the toilet...

Do you have a tale you would like to share? If so, please email a synopsis of your idea to james.fair@immediate.co.uk

From top: Roy Toft/National Geographic/Getty; Shutterstock

# Reef & Rainforest

## Travel With The Wildlife Experts

### Wildlife specialists for over 20 years!
### Tailor-Made Itineraries and Small Group Tours

**JAGUAR WATCHING**
Brazil's Pantanal, tailor-made & groups plus amazing Amazonia

**FAMILY ADVENTURES**
Dedicated brochure & website for wildlife-loving families

**SRI LANKA**
Leopards in Yala, blue whales, elephants & the cultural triangle

**GALAPAGOS**
Wide range of boats plus mainland Ecuador for volcanoes & rainforest

**WILDLIFE CRUISES**
Baja California, Panama Canal, Amazon, Antarctica & much more

**INDIA**
Dedicated tiger-watching & off the beaten track itineraries

**COSTA RICA**
Rainforests, cloud forests, beaches, volcanoes & 800 bird species

**MADAGASCAR**
We are the UK's longest-established & most experienced specialist

**AFRICA**
Classic safaris, gorilla & chimp trekking, wild unspoilt landscapes

**PERU**
Cloud forest birding, spectacled bears, Manu Biosphere & condors

**BORNEO**
Orang-utans, plentiful primates, pygmy elephants, rainforests & reefs

**PAPUA NEW GUINEA**
Birds of paradise, coral reefs, mountains, great rivers & tribes

**Tel: 01803 866965**

**www.reefandrainforest.co.uk www.familytours.co.uk**

L A T A

4088 ATOL PROTECTED