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Chris, Gillian and Iolo are all set for the show's 15th anniversary

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# Can you dig it?

Summer's here, and though the time isn't yet right for dancing in the street, it's perfect for getting out in the garden.

One of the hottest topics that readers ask us about is how to get more wildlife on their plots. So, we've assembled an inestimable panel of experts to answer your questions, and offer their advice on how to go completely wild at home.

If this issue leaves you gasping for more, download our free *Garden for Wildlife* digital magazine, full of top tips, projects and expert advice – see page 22 to find out how to get your copy.

There's a prize\* for anyone who manages to encourage

anything as spectacular as this burrowing owl into their garden. It may seem unlikely, but that's exactly what's been happening on an island resort in Florida, where a community project has been dedicating front lawns for these big-eyed birds.

So why not take a leaf out of their book and see if you can engage your neighbours in a spot of wildlife gardening for your community? You're most welcome to share the free digital magazine with them. After all, the more the merrier! Dig in!

*Paul*

Paul McGuinness  
Editor

\*There isn't really a prize, sorry.



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TURN TO P22 TO  
FIND OUT HOW

A Florida community is encouraging burrowing owls into their front gardens.  
See photo story from p68

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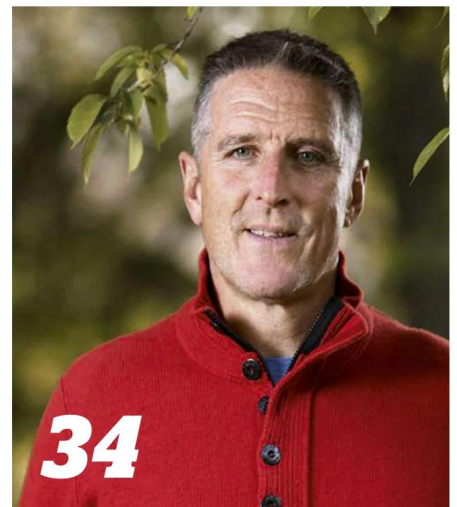


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June 2020

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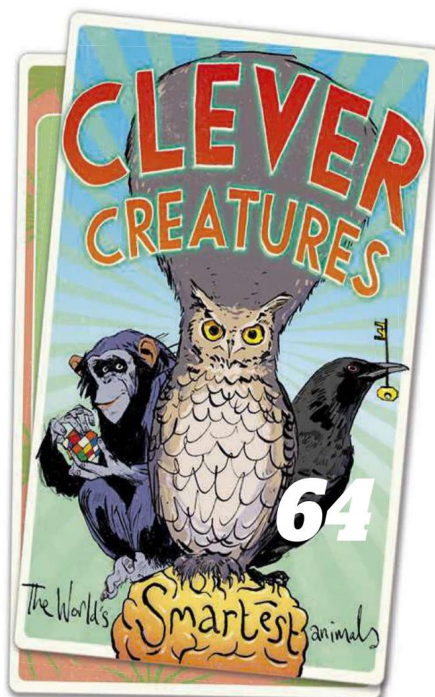
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## The people behind our stories



**GILLIAN BURKE**

The *Springwatch* presenter shares her thoughts on how lockdown will affect this year's programme. "There has never been a more important time to bring nature to our screens," says Gillian. See p34



**KATE BRADBURY**

Gardening guru Kate is on hand with top tips for creating wildlife-friendly habitats at home, no matter what kind of space you have. Her advice? "If mammals and amphibians can't access the garden, focus on birds and insects." See p40



**STUART BLACKMAN**

When it comes to intellect, the animal kingdom offers plenty of candidates for top of the class, as science writer Stuart uncovers: "Intelligence doesn't necessarily require a brain or even a nervous system." See p64



**KARINE AIGNER**

Photographer Karine got to know Florida's burrowing owls and the people protecting them. "This is a perfect example of what people can accomplish when they commit to saving something," she says. See p68





## IN FOCUS | *Totally tropical*

Bryde's whale isn't keen on the cold. It's the only baleen species to stay in warm waters all year, giving rise to its alternative name of 'tropical whale'. The Azores, where this shot was taken, is about as far north as a Bryde's will go – and even then, it's pushing it: the species was only officially recorded here 16 years ago. Bryde's may be a giant among giants – it belongs to the rorqual family, alongside the blue, fin and sei whales – but is not opposed to company from common dolphins when chasing schooling fish.

## IN FOCUS | *Out with the old*

If you happen to have the attention of a scientist and a photographer, there's no better opportunity to show exactly what you're made of. This western whip snake in Chizé, France, was being measured for a study when it started to moult, the old skin lifting neatly from its head like a visor. Snakes usually shed their skin two or three times a year, for condition and growth. Secretions from the new skin enable the outer layer to detach in one piece – and the new and improved reptile to glide free.

Maxime Briola







## IN FOCUS | *Wonder worm*

To see nature at its most dazzling, you sometimes have to look down. This psychedelic spiral consists of the feeding tentacles of a feather duster worm – a marine species that conceals its body in a slender tube of sand and debris. Protruding from the end of the tube, the tentacles sway on the current, filtering oxygen from the water and snaring passing plankton. Should danger approach, the crown is swiftly retracted. When the coast is clear, it emerges again, like a flower from a magician's wand.



# WILD MONTH

June extends a warm welcome to everything from butterflies and bats to snakes.

By Ben Hoare

ONLINE

NATURAL HISTORIES

Brett Westwood on butterflies.

SOUNDS

## 1 | MARSH FRITILLARY

### Fussy customers

Sailing low over a flowery meadow or hillside in hot June sun, this is one of our most impressive butterflies. Its stunning chequered wings, resplendent in orange, yellow and brown, look like miniature stained-glass windows. However, the fritillary family are known for being as fussy as they are fabulous. As Britain's farming landscapes have changed beyond recognition since World War II, such picky habitat preferences have often translated into dramatic losses. The marsh fritillary (here seen on a spotted heath orchid) is now a great rarity.

This lovely insect needs lush grasslands where a patchwork of tussocky grass has been grazed by cattle to differing heights, with plenty of flowers such as buttercups and thistles. There must also be devil's-bit scabious, a pretty lilac flower on whose leaves the clusters of black caterpillars feed. Added to that shopping list, marsh fritillaries seldom wander far – even a road or hedgerow can act as a barrier. Many colonies are today isolated and inbred as a result. Nature-friendly farmers and volunteer surveyors have been watching over them, but many sites may go unrecorded this year due to COVID-19. The good news is that conservation work planned in Cumbria, Dartmoor, Dorset and other places, along with the launch of more rewilding projects, means the future might yet be full of fritillaries.

### GET INVOLVED

Help butterflies closer to home:  
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**2 | SMOOTH SNAKE**

## Heathland enigma

Compared to the grass snake and adder, our third native snake is mysterious. Small, slow, secretive and scarce, it likes to hide in dense clumps of heather. Nor is its best distinguishing feature smoothness, but rather a dark smudge on top of the head. In summer, this snake divides its time between basking and hunting

lizards, which (pretty impressively) it kills by squeezing, like a mini boa constrictor. There's a new push to map and protect its last UK strongholds in Dorset, Hampshire and Surrey.

**FIND OUT MORE**

Rescue project: [www.arc-trust.org/  
snakes-in-the-heather](http://www.arc-trust.org/snakes-in-the-heather)



**3 | GREAT BURNET**

## Meadow magic

Familiar from old Constable paintings, water meadows used to provide valuable hay and grazing, but these days are few and far between. Most have long since been drained, ploughed or built on. Great burnet is among the suite of wildflowers adapted to this fertile landscape, which floods in winter but drains fast in spring. It's a tall plant with flowerheads like frilly, burgundy-coloured eggs. Nature reserves have the best surviving displays, though you'll also sometimes see burnet planted in 'prairie-style' gardens.

**FIND OUT MORE**

Water meadow flora:  
[www.floodplainmeadows.org.uk](http://www.floodplainmeadows.org.uk)

Snake: Jason Steek; great burnet: Colin Vandyke; guillemot: Laurie Campbell



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#### 4 | BLACK GUILLEMOT

### Odd one out

“Puffins get all the press,” observes Neil Ansell in his moving memoir *The Last Wilderness*, “but I have a particular fondness for the black guillemot.” This loner is, as Ansell points out, the black sheep of its family. Whereas other auks breed on cliffs in raucous colonies, pairs of black guillemots are furtive, nesting quietly on their own among shoreline rubble. They dive for small fish in harbours and close to the coasts of Ireland and north and west Scotland – again unlike most auks, which head out to sea.

#### FIND OUT MORE

All about British birds: [bto.org/understanding-birds/birdfacts](http://bto.org/understanding-birds/birdfacts)

## 5 | PIPISTRELLE BATS

### Pupping season

Most bats give birth now, almost invariably to a single pup. But next to the mother, it's a monster. Given that common and soprano pipistrelles, Britain's two most abundant species of bat, weigh about the same as a 20p piece, the feat is comparable to a human female giving birth to a five-year-old. Nursing bats gather in single-sex maternity roosts, occupying buildings with warm, south-facing roofs where temperatures can exceed 30°C under the tiles or roofing felt.

#### GET INVOLVED

How to help bats: [bats.org.uk](http://bats.org.uk)



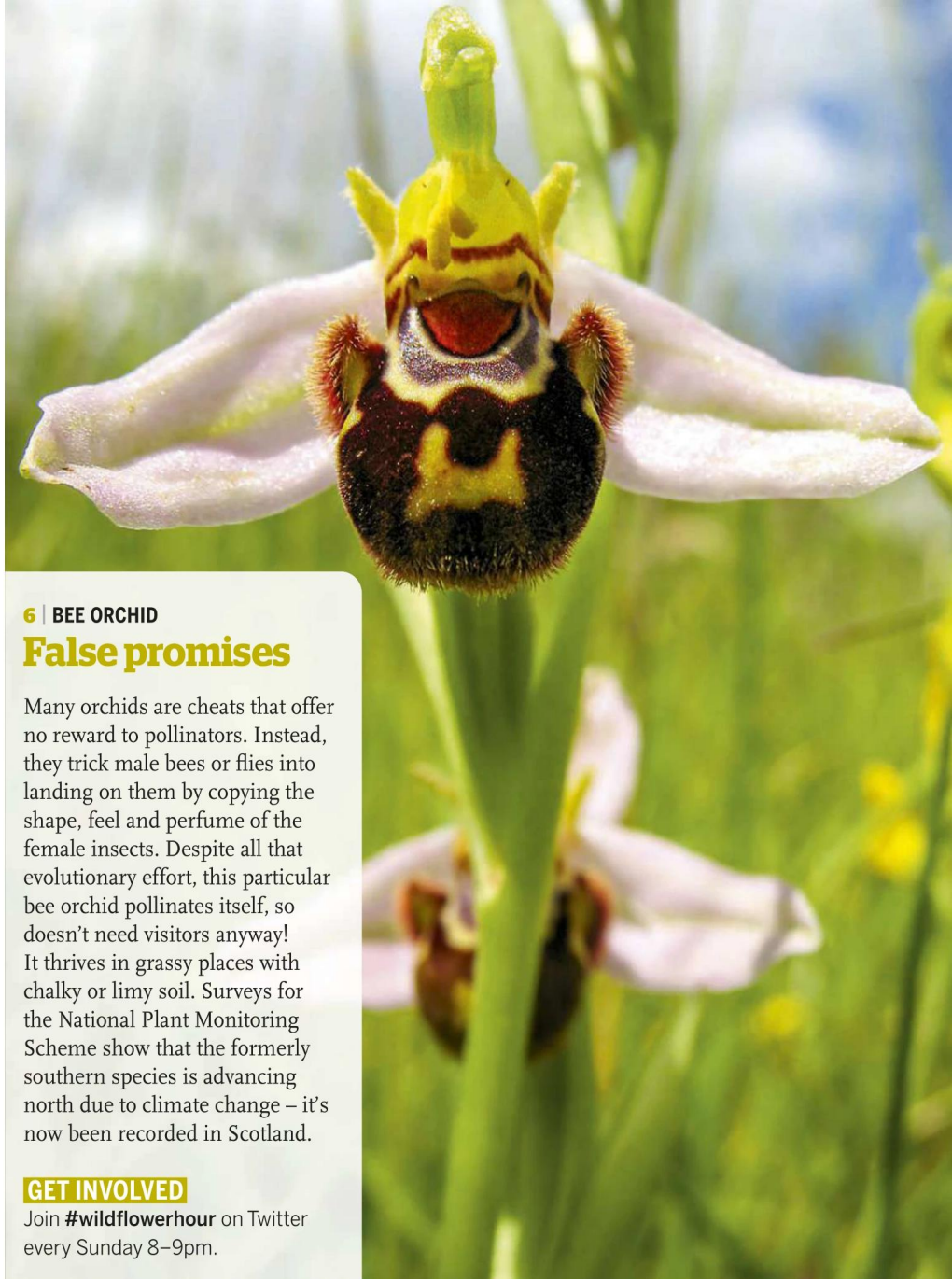
## 6 | BEE ORCHID

### False promises

Many orchids are cheats that offer no reward to pollinators. Instead, they trick male bees or flies into landing on them by copying the shape, feel and perfume of the female insects. Despite all that evolutionary effort, this particular bee orchid pollinates itself, so doesn't need visitors anyway! It thrives in grassy places with chalky or limy soil. Surveys for the National Plant Monitoring Scheme show that the formerly southern species is advancing north due to climate change – it's now been recorded in Scotland.

#### GET INVOLVED

Join [#wildflowerhour](https://twitter.com/wildflowerhour) on Twitter every Sunday 8–9pm.



## 7 | LEOPARD MOTH

### Beauty spots

We tend to think all insects have rapid life-cycles, but these handsome moths spend two or even three years as caterpillars. The larvae bore through twigs of deciduous trees: not a very nutritious diet, hence the long wait. Finally, the adults – which don't feed –

emerge in June and July. You might spot them using a moth trap or at the light from a window. According to the Woodland Trust, this is one of 107 British species heavily dependent on ash that sadly may be affected by the spread of ash dieback disease.

#### GET INVOLVED

RHS and Wildlife Trusts gardening project: [wildaboutgardens.org.uk](http://wildaboutgardens.org.uk)



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## MIKE DILGER'S WILDLIFE WATCHING

### ARABLE FIELDS IN JUNE

In his series of great places to watch wildlife in the UK, the star of BBC One's *The One Show* this month turns our attention to the spaces created by agriculture and the fact that there is more than crops to be seen there.

With around 6.2 million hectares designated for crop production, arable farmland must surely be one of the UK's most abundant terrestrial habitats. But with the majority of fields currently little more than large, featureless monocultures, the number of places capable of supporting a wide variety of arable flora and fauna has unsurprisingly become worryingly low.

Crops such as wheat, barley, oats, sugar beet and potatoes have been cultivated to feed the nation for millennia. Until as recently as the 1960s and 1970s, they were largely grown using traditional farming methods, and the arable fields created niches for a range of 'weeds', such as corn marigold, corncockle and various poppies. Many of these colourful

plants are in fact ancient introductions, or archaeophytes. The accidental, now cherished aliens are thought to date right back to Neolithic times, having arrived in the British Isles as stowaways among farm seed, when agriculture first spread across Europe.

Arable land, by its very nature, is a habitat that's frequently disturbed by ploughing and harvesting. So, it tends to support those species best able to exploit the ephemeral, open conditions continually being created. Most of the weeds (any plant the farmer didn't intend to grow, I'm not using the term pejoratively) in this environment are known

as annuals. In other words, they complete their entire life-cycle in a year.

This opportunistic ability to grow, flower and set seed, often in a matter of weeks, means that weeds quickly proliferate when conditions are suitable. The seeds will then lie dormant in the soil, waiting for the opportunity to spring into action. So successful was this life strategy that some species were once so common they were considered pestilential. Pheasant's

eye, for example, which originated in the Mediterranean, grew in such profusion in the late 18th century that it was collected and sold as a cut flower in London's Covent Garden under the pseudonym 'red Morocco'.





**Clockwise from top left: a species-rich arable field border at Ranscombe Farm; a corn bunting amid a crop of oilseed rape; shepherd's needle has distinctive seed heads; the minute harvest mouse may feed on cereal grain; the yellowhammer is widespread, but it is scarcer than it once was; a prickly poppy.**

Weeds also acted as an essential countryside source of pollen and nectar for bees, butterflies and other pollinators. Grasshoppers and beetles would then have used the cover offered, alongside many beneficial predators such as ladybirds and spiders, which in turn fed on aphids and other crop pests. And the philanthropic nature of these weeds didn't stop there either. Their seeds supported small mammals such as harvest mice, as well as a host of farmland birds, from the linnet to the corn bunting and yellowhammer.

### Increasing production

With demands being placed on farmers to produce ever more food, modern agricultural methods, such as efficient seed-cleaning techniques and the ►

widespread use of herbicides, have resulted in many arable plants becoming rare or even extinct. In 2009, the charity Plantlife described them as the “most threatened group of flora in Britain”.

These losses have, to an extent, been partly offset by the valiant efforts of some landowners, who through agri-environment schemes have been able to reinstate wildflower margins, create set-aside plots and build ‘beetle banks’.

## Identifying a plant-rich field is not always easy – it can sometimes be tricky to separate the wheat from the chaff.

But there are still relatively few fields that support the plants and birds of yesteryear.

Identifying a plant-rich field is not always easy – it can sometimes be tricky to separate the wheat from the chaff when hunting for your fix of farmland wildlife. Red swathes of common poppies are easy to spot from afar, and a good sign that herbicides may have been used sparingly, but you will need to get closer to find the less obvious arable plants, such as round-leaved fluellen, Venus’s looking-glass and corn spurrey. Another clue is to look for the attendant finches and buntings.

Remember that different soils support different communities of cornfield flowers. So, the arable weeds found on chalky soils and heavy clays will be as different as, well, chalk and cheese! 🧀

## SPECIES TO LOOK OUT FOR

### Corn bunting

Similar to a skylark in size, our largest bunting is likewise streaky by nature, but with a hefty, straw-coloured bill. Its song is often likened to a jangling bunch of keys. The species’ population has crashed by 90 per cent since 1970, but it is still locally common in dry, open farmland, particularly in eastern England and Scotland.



### Yellowhammer

This farmland bird is widespread and slightly larger than a chaffinch. The spring male, with his sunflower-yellow head and breast, brightens up many a hedgerow. His famous ‘little-bit-of-bread-and-no-cheese’ song remains a familiar soundtrack across farmland in central and eastern England and eastern Scotland.

### Harvest mouse

This mouse competes with the pygmy shrew and pipistrelle bats for the title of Britain’s tiniest mammal. It is golden-brown with a white belly, but its standout

feature is a long, prehensile tail, which helps it move through the swaying stems and flower heads of field margins. They are most numerous in southern and central England and South Wales.

### Prickly poppy

You may not realise that Britain has several wild farmland poppies. Shorter than the common poppy, this species has four orange-red petals that usually only persist for a day before being shed. But the key feature to clinch identification is the club-shaped seed capsule,

covered with numerous prickles. Today, this beauty is only regularly found on the chalky and sandy soils of south-east England.

### Shepherd’s needle

Belonging to the carrot family, shepherd’s needle grows to 60cm when supported by the surrounding crop, but doesn’t stand out from the crowd until its seedheads are produced. These finger-like projections were described by 16th-century botanist John Gerard as “packneedles, orderly set one by another like the great teeth of a comb”.

## CHOICE LOCATIONS



**1 RSPB Balranald** on North Uist is managed by traditional crofting with little or no herbicides and pesticides. Surely the best place in Scotland to see corn buntings and the elusive corncrake.

**2 Hope Farm** in Cambridgeshire was bought by the RSPB in 1999 to trial farming techniques that can produce food cost effectively while benefitting wildlife. The site turns a profit and supports populations of farmland birds.

**3 Ranscombe Farm** in Kent, managed by Plantlife and Medway Council, is arguably Britain’s best location for arable plants. The working farm, nature reserve and country park host a huge array of nationally rare species.

**4 College Lake** is cared for by the Berkshire, Buckinghamshire & Oxfordshire Wildlife Trust and has been reclaimed from a worked-out chalk quarry. Its ‘cornfield’ plants put on a glorious show of colour each summer.

**5 Fivehead Arable Fields** is a south-facing slope situated on clay soils, in the care of Somerset Wildlife Trust. It has one of the UK’s most spectacular displays of rare arable ‘weeds’.



**While the spread of COVID-19 means it’s not possible to travel to these locations at the moment, we hope they offer some inspiration for days out once lockdown has ended.**

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# Hidden BRITAIN

When paddling on a rocky shore in spring and summer, it's not unusual to find clumps of pink 'silly string'. These egg masses are often more obvious than the animals that produce them. But if you're up for the challenge, then get down on your knees and start to scrutinise the rockpools for sea hares, *Aplysia punctata*.

Since they take on the colour of the algae they consume, sea hares blend in with their surroundings so to be almost invisible. What you're looking for are brownish blobs with varying levels of black or white speckling.

These mad-looking marine molluscs are frequently lumped together with sea slugs and other superficially similar, shell-less animals. Don't be put off by what seem to be ugly, glutinous masses – I guarantee that they're fascinating and rather lovely.

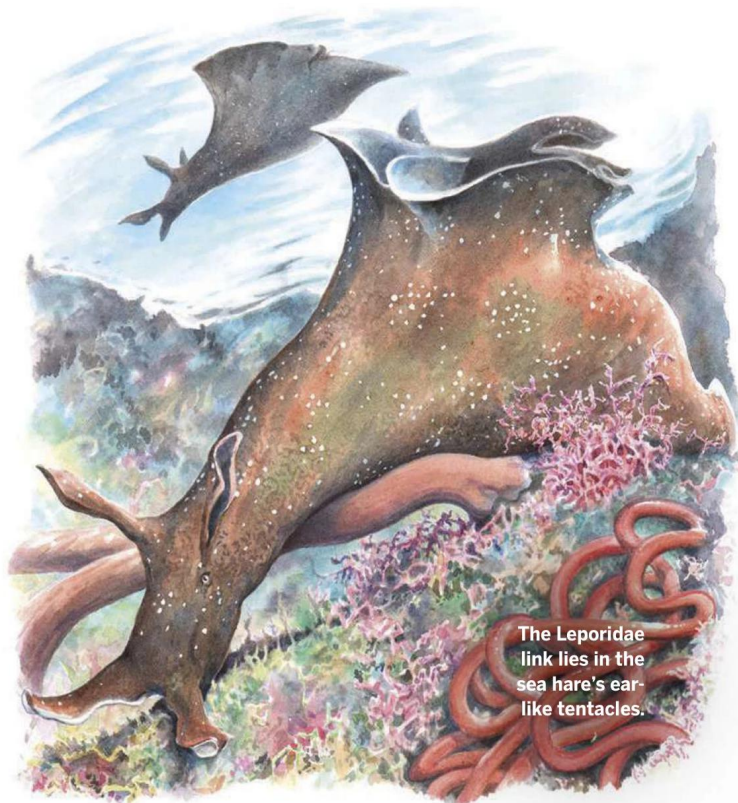
Sea hares have a bizarre sex life (though to be fair, not that odd for molluscs). Like many others, they are hermaphrodites, with functional male and female organs in the same beast. This can lead to confusing orgies, where a chain of animals forms, each fertilising their neighbour



**NICK BAKER**

Reveals a fascinating world of wildlife that we often overlook.

## SEA HARE



The Leporidae link lies in the sea hare's ear-like tentacles.

and laying eggs at the same time, with the animal that started the chain acting like a female and the last to the party a male.

But when sea hares stretch out to feed, they start making some kind of sense. How they get their name is immediately apparent. On top of their 'head' are a pair of tentacles called rhinophores, which stick up like bunny ears. Together with another pair of oral tentacles closer to the mouth and a couple of tiny beady eyes

inbetween, these form a sensory array used to detect food, mates and predators.

Meanwhile, on their back is a frilly, upside-down skirt made up of wing-like appendages called parapodia. Hidden under these is a soft internal shell, the gill chamber and a structure known as the siphon, which sucks water in and out, allowing the animals to breathe.

Sea hares slide around rockpools, grazing in a slug-like manner. They use their radula (equivalent to a tongue, but wielded like a file) to scrape away mouthfuls of seaweed. However, these creatures represent a good mouthful of protein to many a potential predator, from crabs and lobsters to anemones and

fish. Soft and squishy they may be, but defenceless they are not.

If you were to pick up a sea hare, you might find your hands covered in a spectacular purple substance. Underwater, the cloud of ink they produce must undoubtedly serve as a visual warning, yet it also contains a special kind of molluscan alchemy. The ink is made by one gland, while another produces opaline. This secretion is squirted at an attacker using the exhaling siphon.

When mixed with seawater, opaline becomes a gloopy, sticky compound – imagine getting this all over your gills or mouthparts! Initially, the gunk becomes a super-stimulus to crustacean predators, who think that the sticky soup is their prey, rather than the sea hare itself. Shortly afterwards, secondary effects kick in. The sensory organs with which the crustaceans located the 'prey' become blocked.

Better still, the sea hares' glandular secretions react with each other to form more nasty compounds, including sodium peroxide and carboxylic acids, which act as extra deterrents. One squirt of this foul chemical cloud is usually enough for a sea hare to slink away unharmed. 🐚

**NICK BAKER** is a naturalist, author and TV presenter.

### DID YOU KNOW?

The sticky sleight of hand with which sea hares confuse predators is called phagomimicry.

## SEAWEED SUCKER

For your next challenge... try spotting this curious character.

Another much smaller species of sea hare, found around the coasts of Britain and Ireland, is even harder to find. *Elysia viridis* is a dainty sea slug that sucks the 'sap' from seaweeds. But here comes the clever bit. *Elysia* steals the still-

functioning green chloroplasts (the structures that contain the engine for photosynthesis) from inside the seaweed cells.

Then it utilises them to harness the sun's energy, thereby providing itself with sugars. Really, it is nothing less than a solar-powered sea slug!



# WILD NEWS

By  
STUART BLACKMAN, JAMES  
FAIR, BEN HOARE, JO PRICE  
and CATHERINE SMALLEY

KEEPING YOU UP TO DATE WITH THE BIG NATURE STORIES



## PRIMATES

# LOVE IS IN THE AIR

'Stink-flirting' lemurs woo mates with the first pheromone to be identified from a primate.

Some say it with flowers, while others use flashy plumage, athletic prowess or vocal gymnastics. The ring-tailed lemurs of Madagascar attract mates with a sticky fluid that smells like a mixture of pears and well-hung meat. And now, biologists have found that this potent concoction contains the first pheromone known from a primate.

Ring-tailed lemurs employ a unique courtship routine known as 'stink flirting'. The males of the species exude an aromatic secretion from glands on their wrists, which they apply to their fluffy tails and waft at potential mates.

These secretions have long been suspected of containing pheromones – chemical compounds released by one individual of a species to influence the behaviour of another. Though they are used widely among insects to attract mates and are also produced by mice, pheromones have proved elusive in primates.

Now, Japanese biologists have identified at least one, and perhaps three, compounds from the secretions that attract the attention of females.

"The key odour component, 12-methyltridecanal, smells fruity and floral, like a pear, and is also reminiscent of the aroma of aged meat," says Kazushige Touhara of the University of Tokyo.

Touhara's team found that purified extractions of the compounds were enough to engage female interest. The biologists also showed that the compounds are more abundant in the secretions during the species' breeding season.

It's not yet known whether higher pheromone production translates into greater mating success for the signalling males. "We must now look more closely at how females' behaviour changes after having a sniff," says Touhara.

He adds that these compounds may prove useful to efforts to conserve these endangered primates, if they can be used to increase reproductive rates.

It might yet turn out that humans employ pheromones, too. But Touhara is sceptical.

"There are probably crucial odours that affect each other's emotions," he says. "The smell of babies' heads make parents feel happy, for example, and females' underarm odours affect males' emotions."

However, he suspects that these odours have more to do with individual preferences than with a specific communication system between members of the species.

**Stuart Blackman**

## FIND OUT MORE

Current Biology: [bit.ly/3c4mXvN](https://bit.ly/3c4mXvN)

Male ring-tailed lemurs attempt to woo a mate with their own fragrance. Right: the seductive scent is secreted from glands on their wrists.



## BIRDS

# Falconers to be allowed to take wild peregrine chicks from nests

Natural England issues licences for taking peregrine falcons from the wild for falconry.



The licence permits chicks to be taken where there are three or more present in the nest.

## DID YOU KNOW?

Peregrine falcon numbers have increased greatly in the past half century – from 47 breeding pairs in England in the 1970s to more than 800 today.

**T**hree falconers have each been granted a licence to take up to six peregrine falcon chicks from the nests of wild birds.

Natural England's decision worries conservationists. The RSPB says that, though peregrine numbers have increased significantly in recent years, there is still concern that some are being illegally taken from the wild to serve demand for falconry birds in the Middle East.

"We fear that granting this licence could open the door to more such applications, and it is therefore vital that this is given full public scrutiny," it adds.

Gary Wall, who is one of the falconers to have been granted the licence, has written a

number of blogs explaining why they want the chicks.

In one post, he says there is little understanding of where Britain's captive peregrines have come from, and that by taking these birds, they can start a studbook of birds of known origin. "It's an important step in reinstating our cultural right of access to wild populations here in the UK," he writes on the British Archives of Falconry Facebook page.

Scottish Natural Heritage previously turned down a similar application from Wall.

BBC Wildlife contacted Wall for an interview but did not receive a response.

Dr Rob Thomas, a senior lecturer in biosciences at Cardiff University and who has been following the case closely, says one

of the rationales has been the greater cultural value to falconers of pure British falcons.

But, he argues, the demand for British peregrines outside the UK needs to be considered. "It implies these birds will have a high commercial value, but the commercial side of this has not been explained," Thomas says.

The licence comes with various conditions attached, such as chicks can only be taken from nests where three or more chicks are present. "We have specified that the smallest chick must be taken, [one] which would ordinarily not survive in the wild," Natural England's director for wildlife licensing Dave Slater wrote on the agency's website.

In addition, no peregrine chicks can be taken from upland areas, where persecution of birds of prey is still a risk, and it is unlikely the birds would ever be permitted to be sold. **James Fair**

## FIND OUT MORE

Dave Slater blog: [bit.ly/2VYczjw](http://bit.ly/2VYczjw)



## FIND OUT MORE

Rothamsted Research  
[bit.ly/3b7AYIP](https://bit.ly/3b7AYIP)

## FISH

## Spring migration of elvers shows big increase

**C**onservationists are celebrating an unprecedented eel run into British rivers this spring.

Andrew Kerr, chairman of the Sustainable Eel Group, says numbers coming up the River Parrett in Somerset and the River Severn in Gloucestershire were astonishingly high.

Eel populations have been slowly recovering since around 2010. "There was a spike in 2014, and

now we've had another spike this year – though we don't know how many have arrived," Kerr says.

"Fishermen I've spoken to are saying it was way, way more than in 2014 and bigger than anything they can remember in their lifetimes. On the Severn, some were reporting a band of eels 1m wide by 1m deep, stretching all the way from Tewkesbury to Gloucester."

Over the past 200 years or so, European eel numbers have declined by 90 per cent across the species' entire range, as a result of loss of wetlands and the barricading of rivers. More recently, the illegal trade in glass eels to China may also have played a role in their demise.

The eels are vital prey items for a range of birds, mammals and other fish in our rivers. James Fair

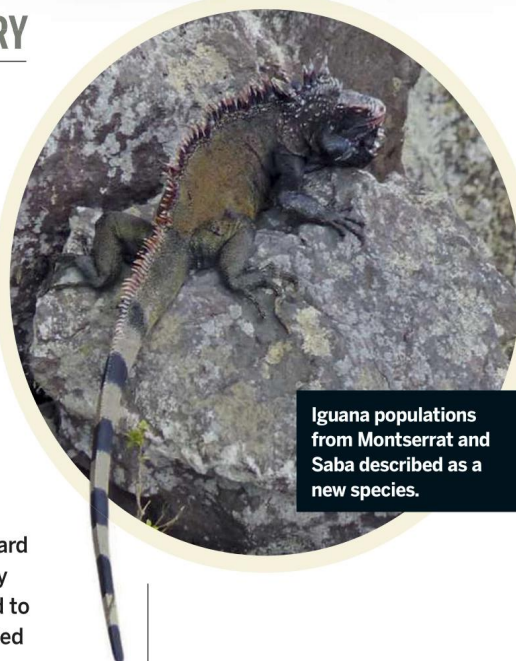
The eels hatch in the Sargasso Sea. Once they migrate to our rivers, they stay for about 20 years.

## NEW SPECIES DISCOVERY

### Saban black iguana

**WHAT IS IT?** This impressive reptile, which reaches nearly 1m in length, can be distinguished by the bold, dark patterns on its skin, which get more pronounced with age and may be an adaptation to warming up quickly in its windswept coastal habitat.

**WHERE IS IT?** *Iguana melanoderma* occurs on two of the Caribbean Leeward Islands – Saba and Montserrat. It may have been introduced from one island to the other by Amerindians who occupied the islands hundreds of years ago. An immediate threat to its survival is posed by interbreeding with other iguana species introduced to the islands. **SB**



Iguana populations from Montserrat and Saba described as a new species.

## FIND OUT MORE

ZooKeys: [zookeys.pensoft.net/article/48679/](https://zookeys.pensoft.net/article/48679/)

## IN NUMBERS

# 4

-year survey by Froglife shows that mitigation tunnels provide valuable corridors between terrestrial and aquatic habitat for amphibians.

# 56

pairs of common cranes were recorded in 2019 in the UK, bringing the total population to an estimated 200 birds – the highest level for over 400 years.

# 2,000

Critically Endangered hooded vultures are estimated to have died in Guinea-Bissau due to deliberate poisoning in a mass mortality event.

## ENVIRONMENT

## Scientists discover plastic-eating bacterium

A soil bacterium that is able to break down polyurethane has been found on a plastic-waste site. Commonly used in nappies, foam insulation and footwear, millions of tonnes of this hard-to-recycle plastic end up in landfill every year, but in laboratory tests scientists discovered that it could be used as food by the microorganism.

"The bacteria use about 50 per cent of the material to produce their own biomass, ie new bacteria," says Hermann Heipieper, a member of the research team at the Helmholtz Centre for Environmental Research-UFZ in Leipzig, Germany. "And they use the remaining 50 per cent for their energy supply, which ultimately results in nothing else left, other than carbon dioxide."

Finding the new strain of *Pseudomonas* bacteria is an important step in determining which plastics can be attacked by microorganisms and are therefore biodegradable. However, Heipieper hastens to add that it will take time to develop use of this bacteria on



Could bacteria help to reduce the vast amounts of plastic waste that end up in landfill?

a large scale in landfills. The next step is to identify the genes within the bacterium that code for the enzymes responsible for breaking down the polyurethane.

A separate group of scientists has already created a mutant bacterial enzyme that breaks down PET plastic bottles within hours, with the research published in the

journal *Nature*. "For a sustainable future of plastics, we need to introduce more biodegradable plastics and to organise a better recycling system," says Heipieper.

**Catherine Smalley**

### FIND OUT MORE

*Frontiers in Microbiology*: [bit.ly/35rgmsW](https://bit.ly/35rgmsW)

## TRUTH OR FICTION?

## Singing in harmony is unique to humans

*Dolphins can also call in unison, it seems - though this may not strictly be classed as singing.*



**WANT TO COMMENT?** Email [wildlifeletters@immediate.co.uk](mailto:wildlifeletters@immediate.co.uk)

**VOCALISTS LINED UP** and belting out love songs in close harmony has long been a pop music cliché, but new research published in April challenges the notion that humans are the only ones to do it. Marine biologists studying a population of Indo-Pacific bottlenose dolphins at Shark Bay, on the coast of Western Australia,

noticed that small groups of males team up to call together. They produce series of rapid 'pops' at exactly the same intervals and rate, perhaps as a form of male bonding or to attract females.

It used to be thought that vocal displays by male animals were either a form of competition, or duets with partners. But then groups of meerkats and marmosets were shown to take turns, to avoid 'speaking over' each other.

This study goes further, since the male dolphins are synchronising their vocals, too. Nevertheless, the scientists involved caution that this doesn't necessarily count as singing in harmony. To a zoologist, song has a specific function, associated with courtship or territory. What the Shark Bay dolphins are up to is not yet known.

**Ben Hoare**

**FIND OUT MORE** *Proceedings of the Royal Society B*: [bit.ly/2YCZpdL](https://bit.ly/2YCZpdL)



Dolphins seem to form cetacean boy bands.



MY WAY OF THINKING

# MARK CARWARDINE

The conservationist discusses the pressure to close live animal markets and invites your thoughts on the subject.

One positive outcome of the coronavirus could be an end to commercial trade in wild animals. If ever there was a wake-up call, this is it. So much human suffering – plus a global financial bill of trillions of pounds – all because the Chinese eat bats and use them in traditional Chinese medicine. As Humane Society International warns, the coronavirus is a “tipping point that governments must not ignore”.

COVID-19 is believed to have originated in a so-called wet market in Wuhan, China (‘wet’ because of the melting ice used to preserve goods, and the copious amounts of water used to wash away blood from butchered animals). Wet markets are where traders sell fresh produce such as fruit and vegetables, but also countless wild and domestic animals – everything from macaques and iguanas to dogs and snakes. Species that should never meet face-to-face are crammed, alive, into cages and piled on top of one another, under incredibly stressful conditions, making these miserable places a hotbed for pathogens.

Conservation and animal welfare groups have long campaigned for this trade to be stopped. No fewer than 237 of them recently signed an open letter to the World Health Organization, the Office International Epizootologie and the United Nations Environment Programme, demanding a ban. Now they are being joined by politicians from around the world – even the UN’s biodiversity chief, Elizabeth Maruma Mrema, has added her support.

Trade in wildlife in wet markets is clearly bad for the welfare of millions

of individual animals. It’s bad for conservation, too, because it is one of the major drivers of species extinction. But what has made everyone finally sit up and take notice is that it’s also very bad for human health. Yet it is still common in China (where commercial trade in wild animals for food, traditional medicines and other uses is worth an astonishing £59 billion per year) and many regions of South-East Asia – and it is happening in Africa and Latin America.

Compelling evidence suggests that COVID-19 originated in horseshoe bats, then jumped the species barrier through an intermediate host (probably a pangolin), where it was refined before making the final leap to humans. It’s by no means the first time this has happened. Indeed, this is the seventh coronavirus to make the

**“It’s no longer China’s decision alone. The whole world has a stake in what happens next.”**

jump from animals to humans – SARS and MERS among them. Ebola, bird flu and many other diseases have also jumped from animals to people.

Not surprisingly, epidemiologists have been warning about a pandemic timebomb for years. There are countless other viruses in nature – to which we have no immunity – just waiting to be released.

The ideal solution would be a complete ban on wildlife trade. It might be possible to adapt CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) to take public health risks into account. But, ideally, we need an entirely new international agreement. And now is the time, when even politicians and big businesses are suddenly taking an interest in the catastrophic imbalance surrounding our treatment and exploitation of wildlife.

China has temporarily banned the farming, trading and consumption of wild animals, and there are proposals to legalise this ban later in the year. Whether or not this will happen, or be enforced, is anyone’s guess. The fact that a list of recommended treatments for COVID-19 issued by China’s National Health Commission included traditional medicine containing bear bile doesn’t bode well. But one thing is certain – it’s no longer China’s decision alone. The whole world has a stake in what happens next. 🐼

**MARK CARWARDINE** is a frustrated and frank conservationist.

**WHAT DO YOU THINK?** If you want to support Mark in his views or shoot him down in flames, email [wildlifeletters@immediate.co.uk](mailto:wildlifeletters@immediate.co.uk)



Crocodiles are among the wild animals found at wet markets.



## MEET THE SCIENTIST

# Amy Dickman

*Director, Ruaha Carnivore Project*

Conservation biologist Amy Dickman has focused on understanding the drivers of conflict between humans and large carnivores, and how those issues can best be addressed.

In 2009, having just completed her PhD, Amy Dickman moved to a small village on the southern edge of Ruaha National Park, slap bang in the middle of Tanzania, where she established a small bush camp. Some nights, she was kept awake by local people celebrating lion kills – strange as it may sound, it was the reason Dickman was there.

Having worked on cheetah conservation in Namibia, and other big-cat projects, Dickman was drawn to the issue of why people kill carnivores – lions especially – and what can be done about it.

“During my studies, I found there was a lot of reported conflict locally, but no one admitted to doing much killing,” she recalls. “This didn’t seem right. I didn’t feel we were getting to the truth of it.”

Dickman wanted to get to know the villagers and find out what she could do to improve their lives. If she could do that, she might then also be able to persuade them to leave the lions in peace.

For months, she made no progress. It was something totally unplanned that helped her make the breakthrough. “We put up two solar panels for our laptops, and they used to turn up to charge their mobile phones,” Dickman says. “It was a slow start to a relationship.”

She knew lion killing was taking place to protect livestock, but other factors were at play, too. “Local warriors were doing it for the same

Amy got to know the locals, to help protect lions. Below: Amy has also worked on other big-cat projects.



“There was reported human-lion conflict but no one admitted to doing much killing.”

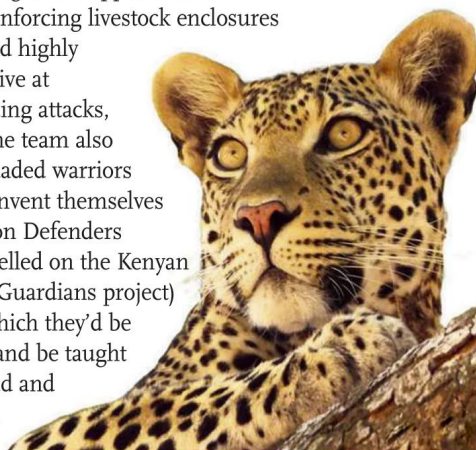
## FIND OUT MORE

Ruaha Carnivore Project website: [ruahacarnivoreproject.com](http://ruahacarnivoreproject.com)

things that drive people all over the world – money, power and sex,” she says. Young women came to local dances hoping to pair off with lion killers, as they had the highest status.

Dickman and her team had to find a way to reduce conflict levels but also to make lion killers less alluring to the opposite sex.

Reinforcing livestock enclosures proved highly effective at reducing attacks, but the team also persuaded warriors to reinvent themselves as Lion Defenders (modelled on the Kenyan Lion Guardians project) for which they’d be paid and be taught to read and write.



Suddenly, it was the men protecting lions that had a high status.

In 2011, Dickman’s team detected 25 lion kills in a small arc of village land – about 100 times higher than would be allowed under trophy hunting. She hasn’t eliminated the problem entirely, but it’s significantly smaller nearly a decade on.

Today, the project works across 16 local villages and has a budget of more than £300,000 a year. Some of the funds reach local people by way of a novel competition – the more wildlife villagers maintain on their land (as demonstrated by camera-traps), the more community benefits they receive. Carnivores result in more benefits than antelopes.

With over 70 people employed by the project, Dickman now spends more of her time in the UK, managing proceedings and fund-raising. The project is currently collaring lions (nine so far) to provide better information on where they go and how many are being killed.

Lions fascinate people, Dickman says, “They have beauty and the power to kill you. Our generation has the ability to decide if they are allowed to survive.” **James Fair**



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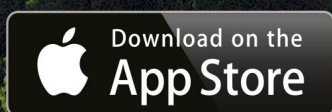
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ON TV

**SPRINGWATCH**8PM TUESDAYS TO FRIDAYS  
FROM 26 MAY TO 12 JUNEBBC  
**TWO**

**I**t was on a particularly wild and blustery day in early March that *BBC Wildlife* emerged from the Natural History Unit in Bristol. We'd spent a lovely afternoon with the *Springwatch* team, catching up on plans for the new series. We were full of ideas of how we might cover it – it was to be our grandest coverage yet.

Within a fortnight, all our plans were cast aside as the country descended into lockdown. Much like our colleagues on *Springwatch*, we stayed at home, trying to work out how to continue to bring our audiences the great natural history content they love.

An incredible amount of work goes into *Springwatch*. As presenter Iolo Williams tells us overleaf, it takes some 120 people to put the show together, making it one of the BBC's biggest annual outside broadcasts. Back on that windy day, *Springwatch* executive producer Rosemary

Edwards enthused about the huge, well-oiled machine that the show has become over its 15-year run. And here they were, just a few months from transmission, and pretty much every plug had been pulled.

Since then, it's been an uphill battle to pull the show together. The whole thing has had to be reinvented from scratch, working remotely from home. At one stage, series editor Jo Brame told me, "At the moment, they could be filming themselves on phones in their back gardens for three weeks!" And while things haven't panned out to be quite as rudimentary as that, the team has taken the restrictions as inspiration.

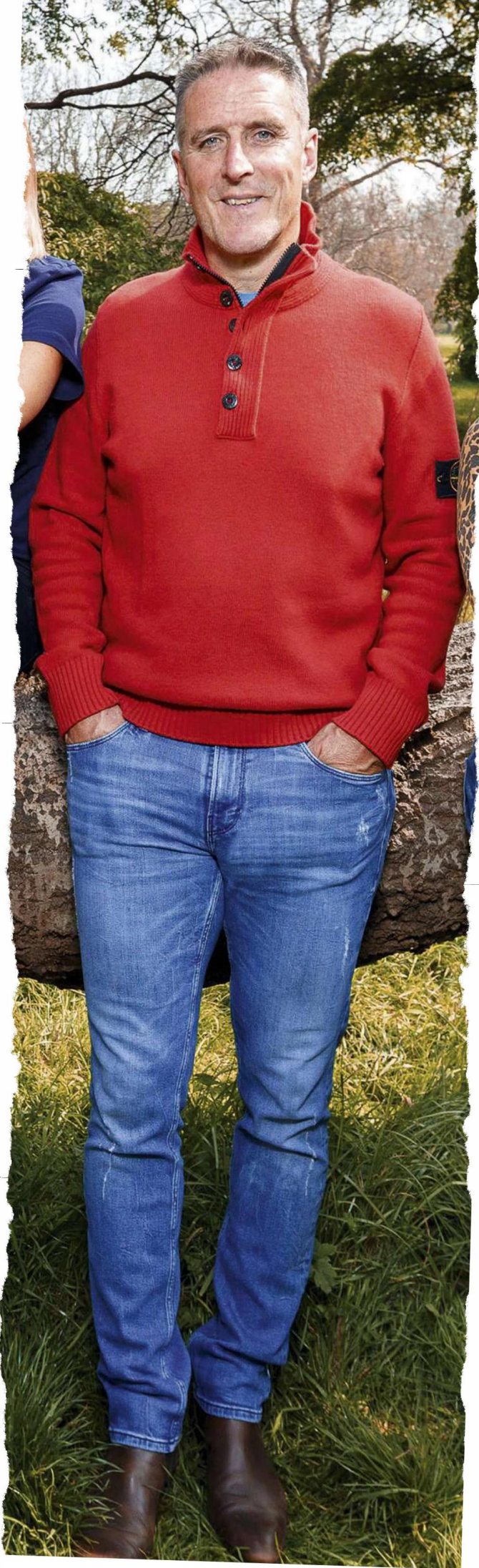
For *Springwatch*, it's not a case of what they can't do, as what they can now do even better. And so, as spring began to blossom, *BBC Wildlife* caught up with this year's three presenters, Chris, Gillian and Iolo, and asked them to tell us about their approach to *Springwatch* 2020... ▶

Jo Charlesworth/BBC

# Split Screen

Now in its 15th year, *Springwatch* will beam in from three base camps.

Planning a three-week-long outside broadcast in the middle of a pandemic is no mean feat, as *BBC Wildlife* found out...





Iolo will be based close to his home in Mid Wales.



# Iolo

**E**ach year, as the first swallows arrive back to our shores and the woodland floors turn a sea of purple with emerging bluebells, my heart beats just that little bit faster. Part of this, of course, is the inexorable advance of spring following a long, dark winter but a not insignificant part is due to the imminent approach of another *Springwatch*.

When all present and correct, around 120 people work on what is one of the BBC's biggest outside broadcasts. Every last individual, whether they be lighting technicians, riggers, researchers or producers, is very good at his or her job; there is no room for dead wood. But what makes the *Watches* unique is the fact that all 120 people are rooting for us, the presenters, because if we do our jobs well, it is a reflection of the success of the whole team. It's an uplifting and calming experience to have such an experienced crew behind you.

## Highland fling

We are very privileged in that we get to work with some of the UK's leading experts in fantastic locations. For the past 12 months, the *Watches* have been based at the Dell of Abernethy near Nethy

Bridge in the Scottish Highlands. Within walking distance, we had Caledonian pine forests, mountain plateaux, lochs, peat bogs and natural flood plains. We were also honoured to be given such a warm welcome by the local people, including some of the country's top naturalists – many of whom were very generous with their time. For me, one of the real joys of being part of *Springwatch* is that I get to spend hours in the company of these people, learning something new and fascinating on each occasion.

Meeting up with the other presenters is also something I greatly look forward to. Away from the *Watches*, we see very little of each other – not by choice but by circumstance.

Gillian is generally part of the *Springwatch* roving team but when she arrives at main base,

she always brings with her a sunny disposition, which lifts the whole team towards the end of an intensive three-week shoot.

Michaela is incredible. A dancer and performer by training, she has been presenting wildlife programmes for more than 30 years. Bubbling with energy and great ideas, she is a consummate professional. She is the glue that holds the team together and in eight years of working together, I have never seen her flustered.

What do I say about Chris that hasn't been said before? He is the main man, the font of all knowledge, the *Springwatch* 'Google'. He is also an incredibly kind individual who has time for everyone – and how he keeps up with all his campaigning commitments alongside filming the series is beyond me. I rarely argue with him, partly because he's almost never wrong, but also because he uses such long words, I have no idea what he's on about!

## Cove dive

And what of the wildlife, the real stars of the show? Some of the wildlife highlights of my life have occurred while filming for the series. I will never forget diving in Stoney Cove in Leicestershire in search of large pike. After only 10 minutes underwater, I encountered a huge female being pursued by four potential male suitors and the whole of the remainder of that dive was spent in the company of these impressive predators.

Perhaps the most memorable encounter of all was seeing orcas for the first time in my life just off the north coast of Caithness. We had been alerted to a passing pod by the local orca network while sitting down for our evening meal, but with all thoughts of eating abandoned, we jumped in the vehicle and set off in pursuit. The moment when we first encountered the pod on the pier at Gills Bay will stay with me forever, particularly the 2m-tall dorsal fin of the mature bull. I was so overawed I could barely speak – and that doesn't happen often.

This year, because of COVID-19, it will be a very different *Springwatch*. There will be no Michaela, as she is in lockdown at home in South Africa. Chris, Gillian and I will be broadcasting from our own home areas, and we will be joined by a different guest presenter each week. I will, of course, miss the contact and the banter with the rest of the team but working in isolated teams allows us to give a better geographical spread across the whole country, and to focus on a wider variety of species. Whatever happens, you can rest assured that we will have the usual array of live cameras, beautiful short films, the latest science and the very best of British wildlife. ►

**Some of the wildlife highlights of my life have occurred while filming for the series.**



Gillian's home is in the deepest West Country.

***The herring gulls are not happy about the lack of pasties and chips on our beaches.***

# Gillian

**A**t *Springwatch* HQ, the question as the inevitable lockdown went into force was: would it be complete madness to go ahead with a live wildlife TV show in the midst of a global pandemic? The public mood, along with careful research into COVID-safe working practices, suggested otherwise. 'Stay at home' was an essential response to the disease outbreak but it created a deeper longing for a connection with nature and the outdoors. The consensus is there has never been a more important time to bring nature to our screens, meaning it is full steam ahead for *Springwatch*.

So how is it going to work? Taking our cue from the natural world, we're adapting the workflow and formats in response to restriction. The crew won't be gathering as one team, but instead we will be broadcasting from our home patches with just a skeleton crew working within strict social distancing guidelines. It's *Springwatch*, but not quite as we know it.

Aside from the programme, this season itself is proving to be a unique experience and one that, for obvious reasons, I hope is never to be

repeated again. Yet there is an opportunity here. For many of us, this has been a chance to slow down and track daily the incremental but irrepressible march of this magical season.

## Cornish coast

I am lucky to call Cornwall home and, for a few years now, I have noted the arrival of about 10 pairs of fulmars that nest on a small and unassuming little cliff set to one side of our town beach. Between family life and the *Watches*, that is usually as much as I get to see, as, before I know it, they have vanished. But this year has been different, as my daily walk has taken me past these unusual sea birds. A century ago, fulmars were a rare sight on mainland Britain, with their southerly range only just skirting the very northerly islands of St Kilda and Shetland. To my mind, this, plus the fact that they are related to albatrosses, makes them incredibly exotic birds, and being able to watch their progress through the breeding season is turning out to be one of the highlights of my spring.

While the fulmars are turning out to be a real treat, I am definitely missing the ocean. If there is one environment I love to explore, it is the sea, and just off shore are the most incredible reefs, wrecks and kelp forests that are tantalisingly close but out of bounds for now. Britain has some rich and truly beautiful marine habitats, so not being able to explore this environment has been very frustrating. Even so, I remind myself that at least the wildlife has the coastal waters all to itself – though it is worth noting that the herring gulls are not happy about the distinct lack of pasties and chips on our beaches.

So for *Springwatch* 2020, as in life, the challenge will be to hold the bitter-sweet mood of the moment. There is a lot of uncertainty and worry, but many people are finding solace in nature and discovering the wonder of the wildlife in our local patches. This is also an opportunity to do things differently, accept the restrictions, but embrace the opportunity for a change for good.

Spring is the very symbol of hope, resilience and new life. Tapping into this deeper meaning can be a source of encouragement and inspiration in the face of overwhelming challenges. This is what fires me up to continue working for the environment and for people. The way I see it, if nature doesn't give up, then I don't get to give up either.

# Chris

A big blue head pops into the box and a bunch of naked little heads all rise up and wobble with their yellow mouths open. One gets a fat green caterpillar, another offers up a blob of white poo and, at the back, one gets stamped on by all the rest. It's all over in six seconds. Until five minutes later when it happens again. The birds are common as muck and we've all seen it all before. Doesn't seem to hold the potential to grip the nation with an extraordinary drama, does it? Except that it's all about life and death. Real life and real death. And we love the cast – they are our neighbours. So, you can forget the scripts on *Eastenders* and the dragons on *Game of Thrones*, none of that is real. But what happens in that little box is and, this year, it will be even more poignant than ever. Because, for the last few weeks, we've been boxed in ourselves.

My mother always said, "You've got to find the good in the bad," and this spring many have heeded those words. We have gazed from windows, peered over balconies, stood on patios and wondered on our walks at the simple beauty of nature – our nature, those species that share our communities.

## Bright and beautiful

All the humble things we've trodden over and walked past for years have suddenly shone so brightly through the dark days of lockdown. We've found solace and respite from personal and global tragedy in patches of nettles, roadside trees and shabby little ponds. Birdsong and butterflies, the tickle of tadpoles, the buzz of a bee... the scent of a wildflower has taken some of us back to our childhoods and pulled others from the pit of depression. We've reconnected with nature in a way I can never before recall, and the raw excitement of children and adults sharing their stories on social media has been making me smile every single day.

My stepdaughter Megan McCubbin and I have been broadcasting live every morning for, at the time of writing, eight weeks from our New Forest garden to followers and fans of the Self Isolation Bird Club, which we set up in March. Their response has been amazing. Hundreds of thousands of messages from all over the UK and around the world telling us – and each other – what they've seen and heard. It's been joyous.

And now it's time for them all to tune in to *Springwatch*.

And I'm looking forward to it more than ever before, because we have had to change and adapt to unusual times. We have had to evolve to meet challenges across the board, from technical to personal. It will be fresher, more responsive, more involving for our audience. We will try hard to keep the key ingredients – the birds in the box – but I'm hoping that the simple beauty of everyday wildlife will really come to the fore.

I'll be broadcasting from home. I want to kneel down, pluck a dandelion from my lawn and get the audience to see

heaven in that wildflower, because they will have one, too. Of course, we will have moments of escapism – we all need to dream – but I love the idea of going back to basics. It's good to focus on the absolute essentials, to get clarity and see the purity of life's perfections.

And this year's mission is clear: to celebrate the wildlife that survives on our doorsteps, champion its conservation successes, and bring exciting new scientific discoveries about our favourite species to the audience. There's nothing better than some juicy gossip about 'them next door' – especially when they are foxes, badgers or blackbirds. 🐾

Broadcasting from the New Forest is nothing new for Chris.

***I want to pluck a dandelion from my lawn and get people to see heaven in it.***

## FIND OUT MORE

Get the latest news and catch up:  
[bbc.co.uk/springwatch](http://bbc.co.uk/springwatch)

# Wildlife GARDENERS' QUESTION TIME

We asked *BBC Wildlife Magazine* readers to tell us what they really want to know about wildlife gardening, and put their questions to our experts.

*Edited by Jo Price*

According to the Wildlife Gardening Forum, "The key thing about wildlife gardeners is that they are aware of and interested in the creatures in their garden and they manage their gardens with wildlife in mind." So how does wildlife gardening differ from gardening? In a wildlife garden, efforts for wildlife are integrated with every other use for the garden – a wildlife gardener considers how their choices could affect nature.

Whether you have been wildlife gardening for years or have recently taken an interest in your patch due to the unprecedented crisis we are all facing, our special Q&A has picked the brains of experts to bring you the information you need to tweak or transform your green space into a haven for many species.



## Our experts



**JOEL ASHTON (JA)**  
of the Butterfly Brothers  
and co-author of *Wild  
Your Garden*



**HELEN BOSTOCK (HB)**  
senior horticultural  
advisor, RHS



**KATE BRADBURY (KB)**  
nature writer and author  
of *Wildlife Gardening: For  
Everyone and Everything*



**DAVE GOULSON (DG)**  
author of  
*The Garden Jungle*



**PAUL HETHERINGTON  
(PH)**  
director of fundraising and  
communications, Buglife



**JULES HOWARD (JH)**  
zoologist and author of *The  
Wildlife Pond Book* (The  
Wildlife Trusts)



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**FAY VASS (FV)**  
chief executive,  
British Hedgehog  
Preservation Society

Additional questions and  
answers supplied by the  
BBC Wildlife team.

Song thrushes  
are found among  
bushes in gardens  
across the UK.

# 1 | POLLINATORS



Elephant hawk  
moths feed on  
honeysuckle.

## What habitat do pollinators need?

**Penny Reed @pennyreed**

All pollinators need the right kind of flowers, but different pollinators favour different flowers. For example, long-tongued species of bumblebee, such as the garden bumblebee, love foxgloves and red clover. Short-tongued bumblebees, such as the buff-tailed bumblebee, like shallower flowers – catmint and lavender, for example. Hoverflies like flat, open

flowers, such as cosmos, helenium or angelica. Moths like scented, pale flowers such as honeysuckle. In general, a nice mix of cottage-garden flowers and native wildflowers is good. Pollinators may also need somewhere to nest. Bee hotels work well for some species of solitary bee (see p44). You can also make a hoverfly lagoon to provide breeding habitat for hoverflies that have aquatic larvae (see p42). **DG**



Peacock butterflies  
may hibernate in  
sheds and houses.

## What do butterflies need to overwinter?

**Itsjustme @luvstogarden2**

Some butterflies overwinter as adults, and need a sheltered, cool place. In nature, they might nest in a natural cavity, or amongst dense ivy on a tree. Often, they choose garden sheds. In my experience, butterfly hibernation boxes are a waste of money. Most species of butterfly spend the winter as an immature stage – an egg, caterpillar or pupa. For those, having the right foodplant is all you need to provide. **DG**

Song thrush: Roland Vogel/Alamy; elephant hawk moth: Hecker/blickwinkel/Alamy; peacock butterfly: Johan De Meester/Arterra/Alamy

Foxgloves are enjoyed by long-tongued bees, such as garden bumblebees.



## What are the best plants for bees?

Julia Goodridge, East Sussex

There are a great many to choose from. A few of my favourites include comfrey, *Aquilegia*, viper's bugloss, geranium, field scabious, giant hyssop, single-flowered dahlia and thyme. DG



## Is there a time of the year to avoid cutting back, digging up and planting when larva are emerging?

Claire Bloomfield, Hampshire

Insects are in our garden year-round, so it is best to avoid trying to be too tidy at any time. I cut back dead heads as late as possible, usually in April, when the new growth is already coming back. DG



Deadhead your garden plants as late as possible.

## What are the best plants to attract butterflies to my garden?

Lucy Cousins, Norfolk

*Buddleja* are well known for attracting butterflies, but marjoram, ice plant, ivy and goose-necked loosestrife are also all excellent. DG



### PROJECT

## How to make a hoverfly lagoon

Hoverflies are on the wing from March to October but their larvae can be found in lagoons year-round.



**1** Source a small waterproof container – a plastic milk bottle cut in half is ideal.



**2** Fill the container with water. You could let it fill naturally with rainwater, if you'd rather.



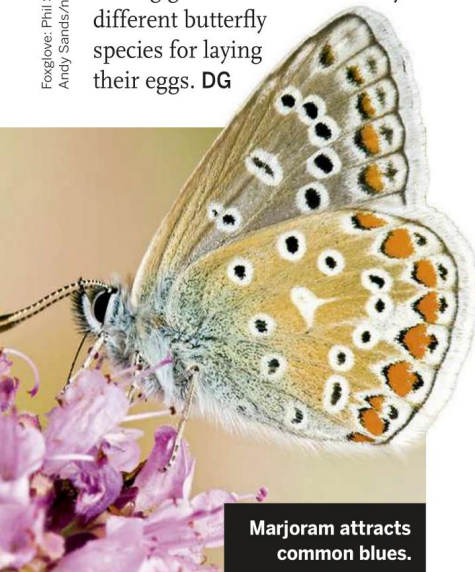
A tangle of legumes and nettles will benefit butterflies.

Illustrations: Chris Shields

## What can I do in my garden to help endangered butterflies?

@ooooooooohhhhhh

Our really rare butterflies are unlikely to turn up in a garden. However, you could try providing foodplants for some of the more widespread but declining species – nettles, lady's smock and areas of long grass are all favoured by different butterfly species for laying their eggs. DG



Marjoram attracts common blues.



**3** Add a big handful of old leaves or lawn clippings and a few twigs, so fully-grown larvae can climb out. DG

## ID GUIDE | by Dave Goulson

### Pollinators to look for in your garden

#### MORE ONLINE

For more species, visit [discoverwildlife.com/id-pollinators](http://discoverwildlife.com/id-pollinators)



#### GARDEN BUMBLEBEE

*Bombus hortorum*

One of several bumblebees with yellow stripes and a white tail. This species is most easily distinguished by its elongated, almost horse-shaped head, and long tongue – used to extract nectar from tubular flowers.



#### TREE BUMBLEBEE

*Bombus hypnorum*

A pretty and easy-to-identify bumblebee with a distinctive pattern of brown thorax, black abdomen and white tail. Tree bumblebees colonised the south of the UK in 2001 and have since become common in gardens.



#### LEAFCUTTER BEE

*Megachile willughbiella*

Leafcutters are regular occupants of bee hotels. They carefully snip semi-circles of leaves (often rose and lilac), which they stick together with silk to line their nest before stocking it with pollen and laying their eggs.



#### SOLDIER BEETLE,

*Rhagonycha fulva*

Soldier beetles are easily recognised, elongated, rust-coloured beetles with black tips to their wing cases. In addition to feeding on flowers, soldier beetles prey on small insects such as aphids, providing pest control.



#### TIGER HOVERFLY

*Helophilus pendulus*

These handsome insects are sometimes also known as 'the footballer' due to their yellow and black stripes being reminiscent of a football jersey. The adults are often seen on flowers, but the larvae are aquatic.



#### ROSE CHAFER

*Cetonia aurata*

Rose chafers are jewel-like, large and stocky metallic-green beetles streaked with white. This is not a common species in the UK but turns up regularly in gardens in scattered sites across England and South Wales.



#### CINNABAR

*Tyria jacobaeae*

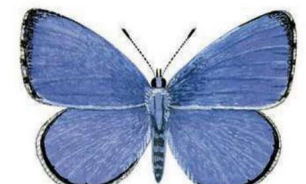
These unmistakable scarlet-and-black moths are commonly found anywhere where the foodplant ragwort grows. The adult moths sit about on flowers, and flutter away rather feebly when disturbed.



#### SMALL TORTOISESHELL

*Aglais urticae*

These butterflies have two generations per year and hibernate as adults, so providing nectar-rich flowers, such as ice plants, in late summer helps to keep them going through their long sleep.



#### HOLLY BLUE

*Celastrina argiolus*

This is the earliest blue butterfly on the wing each year. If you saw a smallish blue butterfly in April or early May, it was certainly this species. Spring adults lay their eggs on holly, while August adults lay their eggs on the buds of ivy.



Moving in: insect hotels are easy to create yourself.



Ice plant is great for species such as the carder bee.

## INSECT HOTELS

### *I have an insect hotel – should I clean it and replace the canes?*

**Itsjustme @lurvstogarden2**

At least every three years the canes need to be changed to prevent a build-up of parasites and diseases. Alternatively, they can be cleaned out with a pipe cleaner. Best practice is to remove tubes in late autumn and clean or discard any that are not in use. Store the remainder in a shed or garage to overwinter. Refill the bug home – dried river reeds are an excellent alternative to canes and are cheaper, too. In spring, allow the stored tubes to hatch and then dispose of or clean them. There is an alternative of removable paper liners that can be put in tubes then removed and changed but replacement is probably the easiest option. PH

### *I've heard that some 'homes' for insects are not effective. How do I choose a good one?*

**Debbie Ross, Scotland**

Some wildlife homes are of little value, as they have been designed to please human eyes rather than bugs. The biggest problem is in the provision of solitary bee nests (canes or drilled holes). To work best, the holes should be in the 4mm to 10mm diameter range; anything bigger or smaller will not work well. Tubes need to be a minimum of 100mm long to

function properly. Another big problem is few come with information on where they should be positioned. If you shop around, you will find homes approved by various organisations. It is best to look for those approved by an organisation that specialises in the target species. PH

### *Where should you position bee hotels?*

**Nicki Ramsay, Surrey**

Attach your bee hotel to a sunny, south-facing wall or fence, ideally 1–2m above the ground, and wait. With luck, you will see red mason bees (April to June) and leafcutter bees (June to July) moving in. Do not attach the homes to a tree, unless you'd prefer to house earwigs.

### *How can I make my own bee house?*

**Angie Rhodes, Lancashire**

There are about 250 different kinds of solitary bee in the UK, some of which will happily adopt a bee hotel as their home. All they need are horizontal holes, in a range of diameters from about 4–10mm. You can drill holes in a block of wood as deep as your longest drill bit will go, or gather together lengths of bamboo with wire and shove them into a tin can or piece of drainpipe.

● For more tips on how to create a bee-friendly garden, visit [discoverwildlife.com/bee-friendly-garden](https://discoverwildlife.com/bee-friendly-garden)

## What are the best plants for pollinators in autumn, winter and spring?

**Sarah Stewart, Dorset**

Ivy, ice plant and Michaelmas daisy are great for autumn, giving insects a sugary boost before hibernation. Early spring flowers are important for the hungry bumblebee queens coming out of hibernation; pussy willow, *Pulmonaria*, grape hyacinth, hellebore and flowering currants are all great. DG



*Rhododendron* are evergreen and bees love them.

## Are there any evergreen plants that are good for butterflies, bees, and other beasties? I can't stand it when the garden is full of twigs!

**Kimberly Diamond, North Ayrshire**

*Rhododendron* are loved by bumblebees, as are *Mahonia*, *Escallonia* and *Pieris*, plus ivy. DG

## 2 | GARDEN BIRDS

### What garden plants, shrubs and hedges do birds require?

**Donna McCarthy, West Midlands**

Look for plants that provide feeding opportunities, roosting cover or nest sites. Having some evergreen cover, such as ivy or ornamental conifers, will provide cover for the early season nests of blackbird, song thrush and robin. Greenfinches often nest in ornamental conifers later in the season. Plants that support good numbers of insects, or which produce berries or seeds – rowan, guelder-rose, elder, teasel and dandelion – are a worthwhile addition. **MT**



Teasel attracts birds, including goldfinches.

### *How do I deter starlings from eating everything I put out?*

**Ronald Harbron, Durham**

Starlings are not everyone's favourite bird, but they are one of several garden species to have been Red-Listed as Birds of Conservation Concern. If you are lucky enough to have them visiting your garden, try to welcome them. You can still provide food for the smaller birds with a feeder guardian – select one that only allows access to the smallest finches and tits. **MT**



Starlings will appreciate a helping hand.

### What does my garden need to attract birds?

Birds are looking for food, shelter and nesting opportunities, the importance of which tends to vary both with species and the time of year. In addition to a garden feeding station, with hanging feeders, bird table and water, a garden that is good for birds will also have natural food – in the form of berries, seeds and invertebrates – together with bushes, taller shrubs and trees, and hedgerow cover. The range of birds attracted

to your garden will depend on where you live and the nature of the habitat surrounding the garden. While a rural plot, situated in farmland, may be visited by yellowhammers and reed buntings during the winter, you will not be able to attract these species if you live in a city. Always begin by thinking about what you are most likely to attract, and then start to add features that will be favoured by these species. **MT**



Bird baths are a great addition for avian visitors.

## What delicacies should I offer and which should be avoided?

Nick Marchbank @awfyblether

Oil-rich seeds, such as sunflower hearts and mixed-seed, should be the staple foods provided at your garden feeding station. To these can be added peanuts (best fed in small quantities behind mesh), suet-based products and 'live' foods such as dried mealworms. A little grated cheese may be favoured by dunnock and other fine-billed species during winter. Avoid cheap seed mixes with a high grain content, kitchen scraps and meat. MT

## Should I offer bird food throughout the year or just in springtime?

Nick Marchbank @awfyblether

Advice not to feed birds during the breeding season was based on the notion that parents might provision their chicks with inappropriate

foods. However, most garden birds feed their chicks on invertebrates and rarely bring 'supplementary' food to the nest. By providing food year-round, you can support the adults during the breeding season, newly independent young in late summer and the whole population during the difficult winter months. MT

## How do I attract a variety of birds?

Since different birds vary in their requirements – think about house sparrow and

Greenfinches flock to a food station. Provide different feeding options to suit a variety of species.



Blue tits often make use of garden nestboxes.

## NESTBOXES

### *Do different species need different types of nestboxes?*

The RSPB's downloadable plan gives measurements for a small and a large box. For starlings and great spotted woodpeckers, use the dimensions for the large box; all the others need the small one: [bit.ly/rspbplan](http://bit.ly/rspbplan)

### *How do I maintain a nestbox?*

Fleas and parasites reside in the nests of most birds and remain to infest chicks that hatch the following year. When the breeding season is over, old nests can

be removed and the box cleaned out, as long as the nesting residents have stopped using the box. Bird-protection law permits the cleaning out of nests between 1 August and 31 January. If dead eggs are found in the nestbox, they must be destroyed during this period only. It is quite normal for a few eggs to fail to hatch, or for some young to die. For example, blue and great tits lay up to 14 eggs to allow for such losses. Wear surgical gloves and a dust mask when cleaning out nestboxes. Use boiling water to kill any parasites, avoid using insecticides and flea powders and let the box dry out thoroughly before replacing the lid. A handful of clean hay or wood shavings placed in the box (once dry) after cleaning may entice wood mice to hibernate there, or birds may use it as a roost site.



greenfinch, whose bigger bills enable them to tackle larger seeds, while fine-billed goldfinch and dunnock take smaller seeds – the key is to provide a range of feeding opportunities.

A mesh-feeder with peanuts might attract tits, great spotted woodpecker and nuthatch, but won't be used by dunnock or robin, which instead prefer to feed on smaller fare, provided on the ground or on bird tables. MT

### How do I attract small birds? I mostly get magpies and wood pigeons

Melvin Cave, Worcs  
Hanging feeders,

with their small perches, favour smaller birds and are difficult for magpies and wood pigeons to use. If providing food on the ground or on a bird table, consider purchasing a feeder guardian – this is a small cage that only allows access to species that are blackbird-sized or smaller. MT



## How do I keep domestic cats away from my garden and from the birds?

Dr. Reinhard Junghuber

Various deterrents are marketed to keep cats away from feeding stations, but these vary in effectiveness. A better option is to reduce the chances of a cat taking a bird. Position bird baths and feeders away from low cover, where a cat might hide. Choose nestboxes where the base of the box is well

below the entrance hole – out of reach of would-be predators. MT



A metal plate will deter squirrels.

### 4 PROTECT AGAINST PREDATORS

Fixing a metal plate around the entrance hole of your nestbox will deter woodpeckers and squirrels. Arrange barbed wire, gorse or rose clippings above and below the nestbox to provide protection against domestic cats.

### 5 CHANGE LOCATION

Factors such as the number of pairs of birds in the area, the presence of natural nest cavities nearby and the location of territory boundaries could mean that your nestbox remains vacant. If no birds use it for several years in succession, then consider changing its location or aspect.

from entering the nestbox by angling it so that it leans slightly downwards.

### 3 FASTEN SECURELY

Fix your nestbox to a tree with either a nylon bolt or galvanised wire surrounded by a piece of hose to avoid damaging the trunk. Because trees grow in girth as well as height, check the fastening every two or three years. If there are no trees in your garden, place your nestbox on the side of a shed or wall.

## Where do I place a nestbox?

JJ Allerton @AllertonJj

### 1 CHOOSE YOUR SITE CAREFULLY

Don't site nestboxes too close together, as this may cause aggressive behaviour between birds. Avoid erecting one near a birdfeeder – the activities of visiting species could disturb nesting pairs.

### 2 PROVIDE SHELTER

Ensure your nestbox is sheltered from prevailing wind and strong sunlight. It is best to face it between north and east, unless there are trees or buildings to provide shade. Prevent rain

## Which bird foods attract which species?

### 1. PEANUTS

Favoured by chaffinches, great spotted woodpeckers and nuthatches. Best fed in a mesh-feeder and in small quantities to prevent the peanuts from going off if there is a low turnover. By placing a length of plastic tube in the middle of the feeder you can reduce its volume.



### 2. NIGER SEEDS (above)

Favoured by goldfinches, robins and siskins. You'll need a special type of seed feeder, because this variety of food is so small.



### 3. SUNFLOWER HEARTS (above)

Favoured by garden finches (goldfinches, chaffinches, greenfinches), house sparrows, robins and siskins. Rich in protein and unsaturated fats that don't require the effort of removing the husks.



### 4. MEALWORMS (above)

Favoured by blue tits, song thrushes, blackbirds and robins. These live larvae are an excellent source of protein and ideal during spring to aid busy parents as they forage for a nest of hungry chicks.

### 5. SUET

A favourite blue tit feed, also loved by long-tailed tits and great spotted woodpeckers. Calorific and best for colder months.



Record garden visits from mammals such as foxes. Below: molehills are usually created by single moles.

## Are molehills created by one individual or several moles?

Moles are solitary for most of the year and occupy exclusive territories. So, molehills you see in your garden are most likely made by just one mole. You will often find more molehills after heavy rain and in winter, when invertebrate activity is closer to the soil surface. Moles are also very active in digging new tunnels during the mating season, which is usually around April. **CLM**



### 3 | MAMMALS

#### *What's the best way to record mammals in my garden?*

A great way to record the mammals you see in your garden is through our Mammal Mapper app. It is very easy to set up – you just need to provide an email address and username the first time you use it and then whenever you see a mammal (or signs of a mammal) in your garden, you can report a sighting. Your record goes to the National Biodiversity Network and

Biological Records Centre and is verified by a county recorder. The more information we can gather about mammals and where they are, the better our understanding of their distribution and how it is changing over time. **CLM**

● For more information about the Mammal Mapper app, visit [mammal.org.uk/volunteering/mammal-mapper](http://mammal.org.uk/volunteering/mammal-mapper)

## How do I identify a bat that is flying in my garden?

Bats are tricky to identify in flight, because you often get only a fleeting glimpse. A bat detector that 'translates' the high-pitched echolocation calls of bats into noises we can hear can help. However, even without a bat detector, there are clues that can help you make an educated guess.

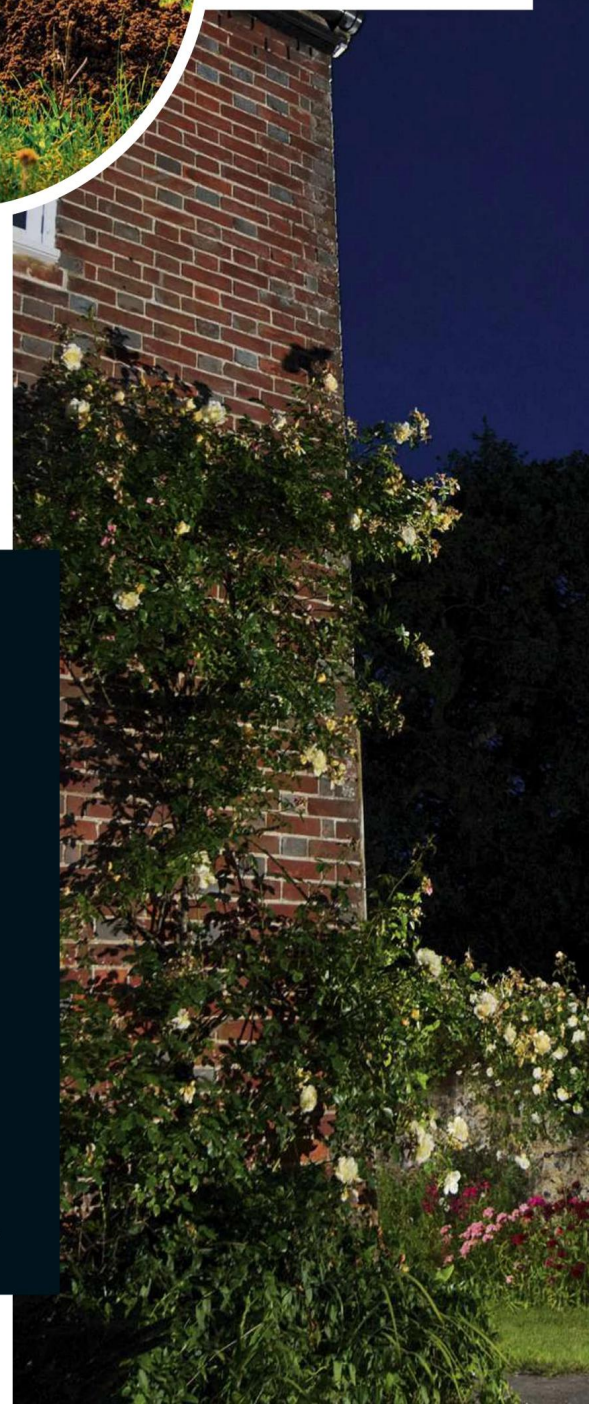
Common and soprano pipistrelle bats are by far the most abundant species in Britain, and are frequently found in gardens and around houses. So, if you see a small bat (about the size of a sparrow) flying close to sunset between head-height and treetop height, it is likely to be a pipistrelle.

Brown long-eared bats are another species commonly found in houses, and also in trees. They come out much later than pipistrelles – usually waiting until it is

almost dark. These bats are slightly larger than pipistrelles and have a manoeuvrable, slow flight – they weave in and out of trees without any difficulty. If you are very lucky, you may even see their long ears!

Much larger, and regularly seen from gardens, are noctules and serotines. These both appear to be around the size of a blackbird when they are flying. Noctules have fast flight and long, thin wings – they are usually seen high in the sky, around the height of swifts and swallows, and are sometimes seen flying at the same time as these birds.

Serotines, on the other hand, have broad wings and are often seen flying lower (treetop or below), making lots of dives and turns as they attempt to catch beetles. **CLM**





Pipistrelle bats can be seen in gardens as the sun sets and after dark.

## BAT BOXES

### *What is the most common bat species seen in UK gardens?*

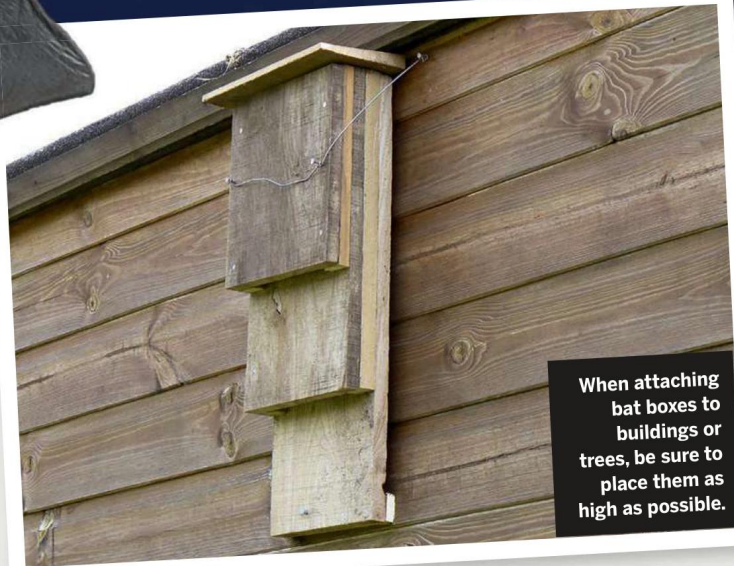
Most likely to visit are the pipistrelles. They are tiny – small enough to fit in a matchbox with wings folded, so they enjoy the minute insects that come to feed on open daisy-like flowers. Invite bats to your garden by growing flowers that attract plenty of insects. **ST**

### *What type of bat box is suitable for them?*

Pipistrelles use many places to roost throughout the year – squeezing into narrow cracks or crevices. A bat box that provides a range of such spaces is best. **ST**

### *How do you build a bat box?*

Make your own Kent Bat Box, as shown on the Bat Conservation Trust



website ([bit.ly/bat-boxes](http://bit.ly/bat-boxes)). It's easy to make and avoids disturbing the bats, as you can look up from below to see if there's anyone at home. Bats have been recorded using this design in both winter and summer. There are also lots of suppliers of bat boxes out there, but if you buy one from the WildCare Bat Conservation Trust supporters page, it will give a donation towards bat conservation: [bit.ly/wildcare-bats](http://bit.ly/wildcare-bats). **ST**

### *Where should you site a bat box?*

Bat boxes are best fixed as high as possible in a sheltered, wind-free

position. They can be placed on trees or buildings, if possible exposed to the sun for part of the day. Why not try putting up several in different locations, to see which are favoured? **ST**

### *Do you need to maintain it?*

The advantage of the Kent Bat Box design (*pictured*) is that it doesn't need maintenance, unlike closed boxes. This also means it can be placed in a much higher spot than would be convenient if regular maintenance was required. **ST**

## How do I know which rodents are living in my garden?

Watch their movement – mice are more likely to travel with bounding jumps, whereas voles will scuttle along the ground. If you don't see the mammal itself, there are still ways to decipher who your visitor might have been. If you have hazel or cob-nut trees in your garden, you will sometimes find chewed nuts. Wood mice leave tooth marks on the surface of the nut and across the edge of the hole. The hole may be either circular or ragged in shape. Bank voles create a round hole with tooth marks across the edge, but not on the surface of the nut. **CLM**



## Muntjacs get into my garden. What do they eat?

**Andrew Battle**  
Reeves' muntjac are often found close to human habitation. They feed on shoots of shrubs, woodland herbs and garden plants. Bramble and raspberry are particularly important parts of their diet. CLM



## How can I stop badgers and foxes breaking through my fence? Are there things such as badger flaps?



Garden fences are no barrier to badgers – they usually find a way around them.

**@giddings3\_g**

Foxes will usually jump over a secure gate. Badgers could break their way through, but if there is soil they can also dig under. There are commercially available badger 'gates', but they are best installed by a professional and would need to be used in conjunction with fencing buried deep into the ground – otherwise the badgers, which are one of the UK's strongest animals, will simply dig an alternative route. CLM

### How can I prevent cats eating food left for foxes?

**Frances Bennett, Nottinghamshire**

Foxes generally time their visits to coincide with when food is put out. Foxes are active later, so if you put food out about 9–10pm then foxes are more likely to get to it before cats. Also, don't put out too much – leave just enough for one animal, otherwise you'll attract lots of animals. Foxes will cache food, so you could put out something they can carry away and bury. Foxes can take an egg but they're more difficult for cats to eat. Vary the food you provide and when you provide it, so there is less chance of a cat getting there first. CLM

## HEDGEHOGS

### How do I attract and care for hedgehogs in my garden?

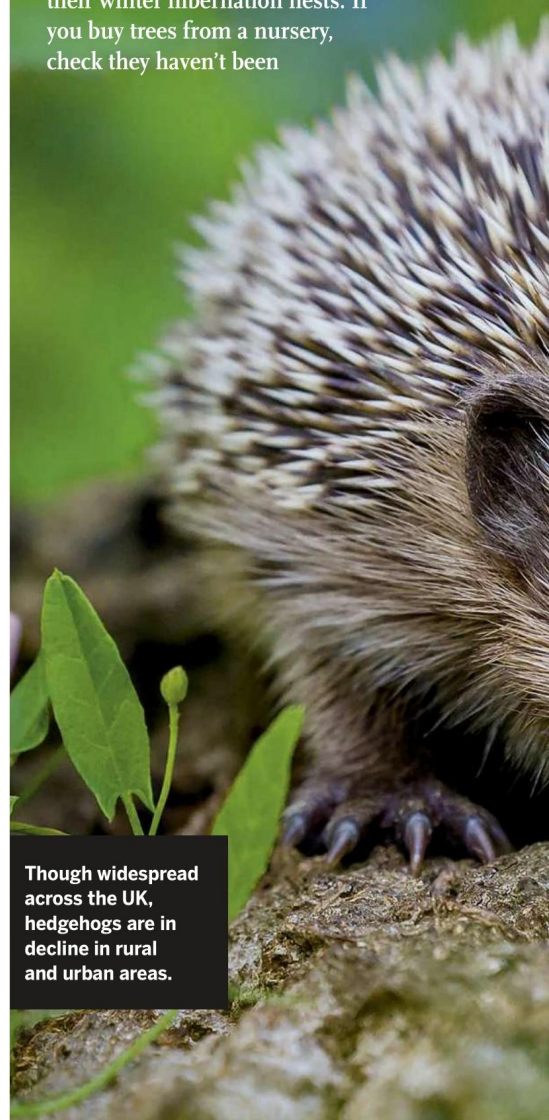
**Nicola Milligan, Hertfordshire**

#### 1. CREATE A WILD CORNER

Add a tussocky patch to your garden as a perfect daytime nesting area for hedgehogs. Allow a corner of your lawn to grow long, or sow a mix of native grasses and wildflowers, such as meadow foxtail, cock's-foot, lesser knapweed, yarrow and oxeye daisy. Leave this vegetation over winter, as it provides a crucial habitat for many invertebrates to complete their life-cycle – a garden buzzing with insects is a great garden for hedgehogs.

#### 2. PLANT A TREE

If space allows, plant an oak, beech, hornbeam or lime tree. These have the ideal leaf size for hedgehogs to make their winter hibernation nests. If you buy trees from a nursery, check they haven't been



Though widespread across the UK, hedgehogs are in decline in rural and urban areas.

Help hedgehogs by offering food and water. Below: create routes between gardens.



imported from Europe, and have been grown from British seed in the UK.

### 3. TURN VEGETABLE BEDS INTO HAVENS

Growing vegetables creates perfect 'hogitat', so long as you avoid chemicals and don't fence your plot with netting or chicken wire (try living willow instead). Speak out at allotment management meetings, too – hedgehogs make great pest controllers.

### 4. AVOID CHEMICALS

Go chemical-free. Using weedkiller on your lawn

reduces the availability of earthworms, a key hedgehog prey item. Slug pellets and pesticides can also make hedgehogs very ill or even kill them.

### 5. PROVIDE NESTING PLACES

Go natural – purpose-built 'houses' are fun and sometimes used, but a woodpile is a multi-functional, one-stop shop for hedgehogs, providing insect food together with a sheltered spot for them to start a family. Simply leaning a piece of wood against a wall or fence can help, too.

### 6. MAKE A COMPOST HEAP

Composting is better than wasting money on fertilisers and a huge help to hedgehogs. Leaf decay, and the associated bacteria and fungi, support diverse communities of insects, which in turn are food for hedgehogs. Start your mound of decaying plant matter in a spot that's accessible to hedgehogs and open to the elements – avoid covered heaps or bins.

### 7. BREAK DOWN BARRIERS

Opening up your garden is the bread and butter of being hedgehog friendly. So, if you do nothing else, cut 13x13cm holes in your fences at ground level, or make small tunnels underneath the panels. These will be too small for most pets, but big enough for grateful rotund hogs to pass through.

### 8. OFFER EXTRA FOOD AND WATER

Supplement natural foods by offering specific hedgehog food, or meat-based cat or dog food, or cat biscuits. This is most important if you spot any active hedgehogs from November to March, the usual hibernation period, when invertebrate prey is scarce. Remember to also provide fresh water, especially during dry weather or if leaving out dry food.

### 9. RESCUE HEDGEHOGS

Sick, injured, orphaned or underweight hedgehogs can be saved by expert care,

*We have a few hedgehogs. Is there anything we can do to give them a boost?*

Darleen Fowler, Norfolk

You could offer some meaty cat or dog food, or cat biscuits and some water. I would suggest feeding (especially in dry weather) in the run up to hibernation or immediately after hibernation when reserves are depleted. You could also create a simple feeding station to reduce the number of other animals that can access the food. FV

### HOW TO BUILD A FEEDING STATION

**1** Carefully cut a 13x13cm gap in one short side of a large plastic storage box. Cover any sharp edges with some insulation tape.

**2** Place the food and water at the back of the box, as far away from the entrance as possible.

**3** Place a brick or large stone on top of the box, to prevent it from being easily moved. Place another brick about 13cm away from the entrance, to stop larger mammals being able to lie down and use their paws to hook the food out of the box.

and many are released back into the wild. If you find an animal you're worried about, put it in a box indoors (with a towel for it to hide under) and contact your local hedgehog hospital or the British Hedgehog Preservation Society.

### 10. SPREAD THE WORD

Hedgehog conservation is all about collaboration. Talk to your friends, neighbours and colleagues – hedgehogs need safe neighbourhoods, not single gardens. If a neighbour's pond has steep paving sides, for example, suggest they add plants or a ramp so hogs can escape. For more about hedgehogs and how you can help them, visit [hedgehogstreet.org](http://hedgehogstreet.org).



## 4 | PONDS

### How can I get frogs to spawn in my wildlife pond? Adult frogs live in it but don't breed there

@marine\_doctor

In some ponds, the reason for this may be down to how much light the pond receives in early spring – the time of year when frogs are sniffing out suitable ponds in which to lay their eggs. Frogs like the smell of algae – the food source on which their tadpoles will depend. As a result, shaded ponds may prove less attractive for them. Predators may also play a part. Established ponds may be home to an equally loveable and charismatic amphibian, the smooth newt. This is a known predator of frog tadpoles, so frogs may avoid them. JH



Big or small, ponds are important in garden ecosystems and attract all manner of wildlife.



*I want to add a wildlife pond to my small suburban garden. Any suggestions?*

**Rob Rule, Surrey**

Many! The key thing is to consider the amount of sunlight your garden gets. Your pond needs light – the key ingredient to kick

## DRAGONFLIES & DAMSELFLIES

### What do I need to do to attract dragonflies to my garden?

To attract any species of dragonfly to your garden, you need water to entice them in. Once there, they will need food to encourage them to hang around. A good mix of plants and shrubs in and around your pond and garden will draw in insects – providing dragonflies with sustenance. Encourage patches of wild plants, such as nettles, as these will be popular with lots of insects.

Different species of dragonfly will have different

preferences or habits, so providing a variety of elements to your pond will attract a number of species. For example, lots of floating vegetation will appeal to emperor dragonflies, as the females use this to perch on while laying their eggs. Meanwhile, chaser males like to hunt from perches in and around the pond, so sticks or rigid vegetation, such as soft rush, is good for them.

Females and immature dragonflies (and damselflies) won't spend as much time by the water as the males, so dense vegetation, shrubs and trees away from the pond are ideal. AH



#### FIND OUT MORE

British Dragonfly Society – dig a pond for dragonflies: [bit.ly/dragonfly-pond](#)

### What are your top tips for building a pond for dragonflies & damselflies?

#### 1 GO LARGE

The bigger the pond, the better. The minimum size of a viable pond is about 4m<sup>2</sup>.

#### 2 INVEST IN A GOOD POND LINER

Preformed liners are fine, but using a flexible liner allows your pond to be larger and tailored to the space available. Butyl rubber usually comes with a guarantee of at least 20 years (life expectancy 50 years).

#### 3 ALLOW YOUR POND TO FILL NATURALLY

You can collect rainwater and use this in preference to tap water.

#### 4 ENSURE YOUR POND IS LEVEL

The finished pond must be exactly the same level all round, but with different depths. Aim for shallow edges and a gentle slope down to a depth of 50cm in at least one spot.

#### 5 USE NATIVE PLANTS

Stock your pond with a mix of native plants. Ensure you have emergent/marginal plants, submerged plants and floating plants from a reputable supplier in order to avoid alien species from being introduced. AH

## ID GUIDE

### MORE ONLINE

For more species, visit [discoverwildlife.com/id-pond-wildlife](https://discoverwildlife.com/id-pond-wildlife)

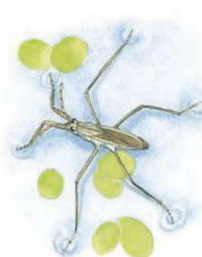
## Pond species to keep an eye out for



### COMMON BLACK DIVING BEETLE

*Agabus bipustulatus*

This 10mm-long predator has a shiny black body, and red antennae and front legs.



### POND SKATER

*Gerris lacustris*

A predator and scavenger found gliding across the surface. Flies well and rapidly colonises new ponds.



### GREAT WATER BOATMAN

*Notonecta glauca*

Also known as the backswimmer. Rows under the surface with oar-like legs.



### WATER SCORPION

*Nepa cinerea*

A predatory bug with huge pincers and a long 'sting' (a breathing siphon). Lurks in weedy margins.



### GREAT RAMSHORN SNAIL

*Planorbis cornuus*

Grazes algae and rotting matter. Its shell is 30–35mm across.



### DRAGONFLY NYMPH

various species

A predator fond of tadpoles. Its fat, stocky body is about 40mm long and lacks 'tails'.

off the pond's food-chain in its early days. Without sunshine, your potential pond will be a far less attractive stop-off for invertebrates and other animals. Once sited, it's time to get digging! Thankfully, many online guides are available for garden wildlife ponds. I recommend Froglife's: [froglife.org/info-advice/just-add-water](http://froglife.org/info-advice/just-add-water) JH



Great crested newts breed in ponds.

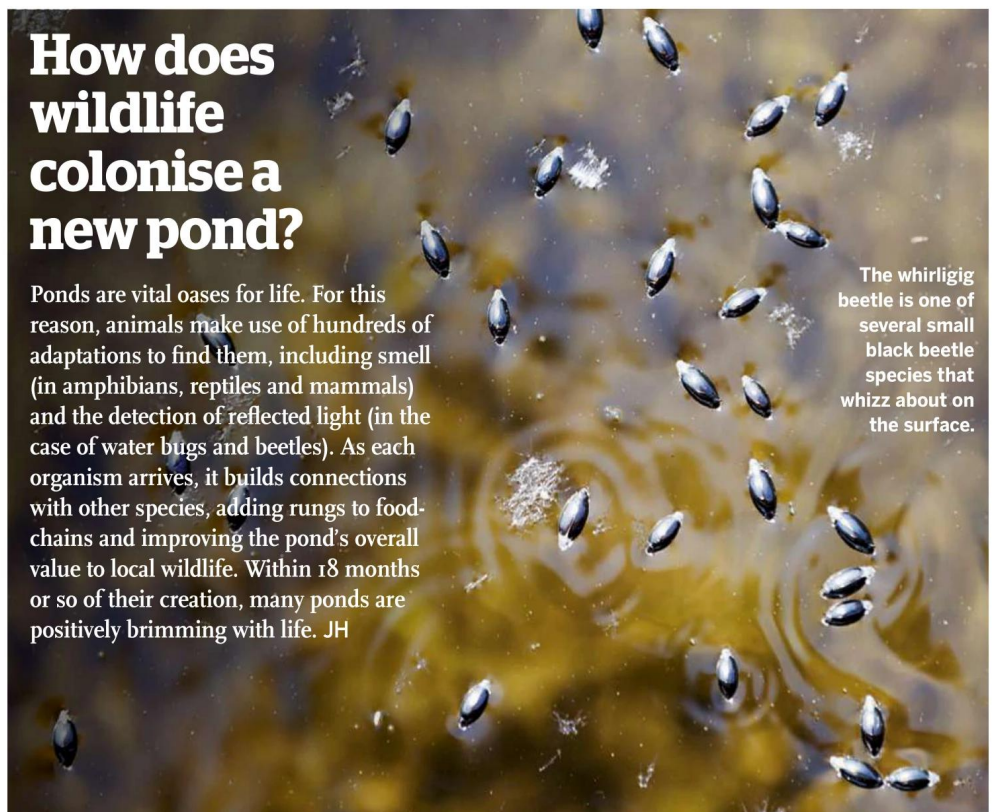
## How can I encourage newts into our pond?

**Linda Waring, Derbyshire**  
Frogs often turn up in ponds within a few months, but newts can take a little longer to find their way – sometimes years. Being less mobile than frogs, the presence of wildlife corridors – dense foliage between gardens – is important in aiding the movement of newts. Check for the presence of these amphibians at night by scanning a torch over your pond. JH

## How does wildlife colonise a new pond?

Ponds are vital oases for life. For this reason, animals make use of hundreds of adaptations to find them, including smell (in amphibians, reptiles and mammals) and the detection of reflected light (in the case of water bugs and beetles). As each organism arrives, it builds connections with other species, adding rungs to food-chains and improving the pond's overall value to local wildlife. Within 18 months or so of their creation, many ponds are positively brimming with life. JH

The whirligig beetle is one of several small black beetle species that whizz about on the surface.



Dragonfly: Matt Cole/FLPA; frog: Stephen Dalton/NPL; pond: Angela Hampton/FLPA; newt: Sandra Standridge/Getty; whirligig: Getty; illustrations: Felicity Rose Cole

## What climbers (for wildlife) can you grow in a pot?

Climbers are hungry plants and most don't thrive in containers. The most wildlife friendly climbers are ivy, honeysuckle, hop and some types of climbing rose and clematis. You can buy clematis that do well in pots but they might not be so wildlife friendly – choose those with bell-shaped flowers rather than those with large plate-like blooms. Ivy can work, and some compact forms of hops do well in pots but will need feeding regularly. KB

Climbers are great for gardens where space is tight, and can be good for wildlife, too.

## 5 | SMALL SPACES

Lungwort is happy to remain in full or partial shade.

### I only have a tiny yard and a small raised bed, what can I do to help wildlife?

Corrinne Perryman, Tyne and Wear

If you get sun, grow perennial herbs such as rosemary, chives, lavender and oregano. These require very little maintenance and their flowers are all popular with pollinators. You can harvest the leaves to use in the kitchen, too. KB

### What can I plant in my north-facing balcony tubs that will attract pollinators?

Rachel Howlett, Bedfordshire

Primrose, perennial wallflower, chives, forget-me-not, lungwort, cranesbill geraniums. Snowdrops will flower in late winter and periwinkle will provide cover and spill over the edge of the containers. You could try a trailing ivy, too. KB

Herbs provide food for pollinators as well as us humans.

*I have a very small yard that doesn't get much light – is there anything that would be suitable for this?*

Laura Bax, Dumfries and Galloway

Think of recreating a woodland setting, which attracts plenty of wildlife. Try shade-loving plants such as lungwort (*Pulmonaria*), snowdrops, hellebores, foxgloves, cranesbills and red campion. Small shrubs such as guelder rose and elder will also work here. Pile logs or twigs into a corner, if you have the space – insects will love it. KB



Ponds can add a lot to even the smallest garden.

## What are the top quick wins for a small urban garden?

**Kevin Sedgman, Devon**

The number one thing to do is add water. If you have space to, dig a pond. It doesn't have to be big – just 1.5m in diameter and 30cm deep will attract a range of wildlife. Make sure it has shallow edges so hedgehogs can walk in and out safely. Container ponds are beneficial, too. The second thing is to ensure wildlife can enter and exit your garden. Talk to your neighbours and see if you can make a hole in the fence on either side. Just 13x13cm will enable hedgehogs to travel between gardens. Other than that, grow flowers for pollinators, leave weeds to flourish at the back of the border, avoid deadheading, so birds can eat the seeds, and let leaves accumulate in corners, so insects such as beetles can take shelter. KB

## I have a small, enclosed garden. How can I attract more diverse wildlife when my garden is so inaccessible?

**Claire Bloomfield, Hampshire**

If mammals and amphibians can't access the garden, focus on birds and insects. Grow flowers for pollinators from March to November, and plant caterpillar foodplants such as primrose, foxglove, dandelion and long grass, so birds have plenty of caterpillars to feed their young in spring. KB

Plant flowers that will draw in caterpillars.



Herbs: Daria Minaeva/Alamy; lungwort: Jane Tregelles/Alamy; caterpillars: Tim Gainey/Alamy; pond: Gary K Smith/FLPA; long-tailed tit: Getty; caterpillar: Alamy; Illustrations by Enya Todd/BBC Countryfile Magazine

June 2020

## WILDLIFE GARDENING

## How do I attract wildlife to a small garden by the coast?

@sangeetam

It depends how exposed the garden is. Consider planting a hedge as a windbreak – sea buckthorn will do well, while hawthorn can survive if not too near the seafront. Shrubs such as *Buddleja* and lavender can also thrive, plus holly and ivy. You can also make log and leaf piles, compost garden waste and erect bird boxes and bee hotels. Wildlife still lives by the sea! KB

A long-tailed tit on sea buckthorn.

## PROJECT

## How to make a living roof

Jake Graham explains how you can entice more wildlife to your garden with a step-by-step guide to how to make a green roof on your garden shed.



### STEP 1

Cut water-impermeable sheeting to cover the roof, with a slight overhang. Tack it to the sides of the shed.



### STEP 2

Screw lengths of fence board around the roof, to create a frame. Drill 2cm drainage holes at the lower end.



### STEP 3

Put a small block of wood in each corner, screwing through the frame to secure them. This adds strength to the structure.



### STEP 4

Pour a layer of gravel (2–3cm deep) into the frame. This improves the drainage, which helps to aerate plants.



### STEP 5

Cut weed matting to cover the roof and the inside of the frame. Lay it over the gravel and tack it to the frame.



### STEP 6

Add soil and plants or place potted plants on the gravel instead and surround with woodchip, so it weighs less.

## 6 | PLANTING

## When planting out a wildlife garden, how do you maintain it through the seasons?

@julia.dugdale

I'd start by trying to get a good mix of annuals and perennials, deciduous and evergreen plants. This way, wildlife will have good year-round cover, including in the winter months, when some will need the protection of plant stems and foliage to help them survive until spring. Then I'd do a quick plant audit, to see if there is something providing flower, seed or berry/fruit interest in most months of the year. If not, it's time to get buying! HB



Greenfinches eat dandelion seeds.

### Is it best to plant all native plants for wildlife?

Louise King, Ceredigion

We've been looking into this at the RHS ([bit.ly/plants-for-bugs](http://bit.ly/plants-for-bugs)). It's not as clear cut as you might think. While it's important to have a strong proportion of native plants such as cowslips and common honeysuckle, plants from other regions have been found to help prolong the season, provide for certain pollinators and support a diverse number of invertebrates. HB

Can I plant to target species – eg bumblebees not Asian hornets?

Ingrid Chen, London

I'd like to move to a point where we can see the benefit of a garden ecosystem – appreciating that to have a healthy food-web we must accept the 'less desirable' elements. Think of all the caterpillars and aphids that are needed to feed a nest of blue tits, for instance. While there's nothing wrong with trying to stock our gardens with the best bird or pollinator friendly plants, and encourage natural predators such as lacewings and ladybirds, it's hard to exclude one type of wildlife while nurturing the next. Nature has a way of circumventing our plans! HB

## ID GUIDE | by Helen Bostock

### Wildlife friendly plants to grow

#### MORE ONLINE

For more plants, visit [discoverwildlife.com/pollinator-plants](http://discoverwildlife.com/pollinator-plants)



#### PRIMROSE

*Primula vulgaris*

Attracts bees, butterflies and the distinctive bee fly. Likes neutral to acid soil in part shade or full sun if moist soil.



#### ASTERS

*Symphyotrichum*

A useful late source of nectar for butterflies such as painted ladies. Likes moist, well-drained soil in full sun or part shade.



#### HEATHER

*Calluna vulgaris*

Loved by honeybees, among others. Enjoys humus-rich, acid soil in full sun and is slug resistant.



#### CHIVE

*Allium schoenoprasum*

This is an excellent plant for bees. It does well in fertile, well-drained soil in full sun.



#### FENNEL

*Foeniculum vulgare*

The flat-topped flowers are perfect for hoverflies, other flies and solitary wasps. Likes well-drained soil in full sun.



#### COSMOS

*Cosmos bipinnatus*

Single-flowered forms are good for bees and butterflies. Place in moist, but well-drained, soil in full sun.

## WILDFLOWERS

*How do I start a wildflower lawn from scratch? My lawn is very mossy, weedy and uneven.*

The first job would be to rake off most of the moss. This would then create gaps in the grass where wildflowers could be planted. As for the unevenness, you could fill the dips in with some low-grade topsoil. You would then look to plant native wildflowers such as cowslip, primrose, oxeye daisy, lesser knapweed, yarrow, bird's-foot trefoil and red clover, to name a few. Try to plant larger specimens where possible, as small plugs can be swamped by the existing grasses if the lawn is quite vigorous. In the autumn, I would suggest sowing some yellow

rattle seed to reduce the vigour and quantity of the grasses (depending on planting density). JA

*I've tried sowing wildflower seeds but they never seem to take. The soil's riddled with bramble roots - any suggestions?*

**Sarah-Jane Moll, Aberdeenshire**

As brambles are an issue, it would be useful to deal with them first before you plant. You can achieve this by digging out the brambles repeatedly for a season. It will be difficult to achieve a wildflower meadow otherwise. Alongside digging out the brambles, be sure to turn over the ground due to be a meadow two or three times

throughout the year, to ensure that any dominant weed species have been dealt with, without the use of chemicals. Once the brambles and area to be meadow are clear, sow a wildflower seed mix relevant to your location in September. Given the shade, I would suggest a woodland or hedgerow mixture from Emorsgate Seeds. JA

*Where can I buy wildflower plug plants at an affordable price?*

**Roland Mier, West Yorkshire**

I would recommend paying Naturescape (near Nottingham) a visit, if possible, as it has a large selection of wildflower plugs. Alternatively, you

could try British Wild Flower Plants in Norfolk. Both are reasonably priced and both places have online facilities. JA

*Can you suggest which wildflowers would be best for a paddock in Cornwall?*

**Julia Gudgeon, Cornwall**

When trying to create a wildflower meadow, some key species to include, in addition to those mentioned previously, would be greater knapweed, field scabious, wild carrot and marjoram. These all, of course, depend upon what type of soil the meadow is to be situated on, but most of the species are pretty versatile. JA

A natural wildflower garden lawn.

Wildflower meadows can create a riot of colour in summer.

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# MARY & BRIGHT

One resilient little cub becomes a symbol of hope for Asia's bears.

*Words Jo Price*

Giles Clark has helped to give sun bear Mary a second chance at life, in the safety of a sanctuary.

ON TV

**BEARS ABOUT THE HOUSE**THE TWO-PART SERIES  
STARTS 14 JULY 2020.BBC  
TWO

There's something about Mary. "She's got a lot against her, but she has spirit and the fact that she's got this far, she's certainly a survivor," says Giles Clark as he watches the tiny sun bear take in her strange, new surroundings. Giles is in Laos, South-East Asia, working as a technical advisor for his good friend Matt Hunt, CEO of wildlife rescue charity Free the Bears. The pair are part of a specialist team that is giving animals like Mary a second chance.

Named after Free the Bears founder Mary Hutton, this brave little cub has had a lucky escape – she was discovered starving in a rubbish-strewn cage on the back of a truck, heading for Vietnam. A poacher killed Mary's mother in the wild and it is believed she was destined for a bear bile farm, where

the creatures are held in captivity for the primary purpose of extracting their bile and/or gallbladder.

Working with the Laos government, Free the Bears is developing a sanctuary in Luang Prabang to rehabilitate and house animals like Mary that have been rescued from the illegal wildlife trade. The first few weeks after the tiny bear was discovered were critical, as she was frightened and malnourished – weighing just 4kg, she was half the size she should've been.

Giles and Matt provided round-the-clock care for the five-month-old in Matt's home, to ensure she received milk every four hours and stayed out of the 'danger zone'. In the wild, a sun bear cub is reliant on its mother until it reaches two years old.

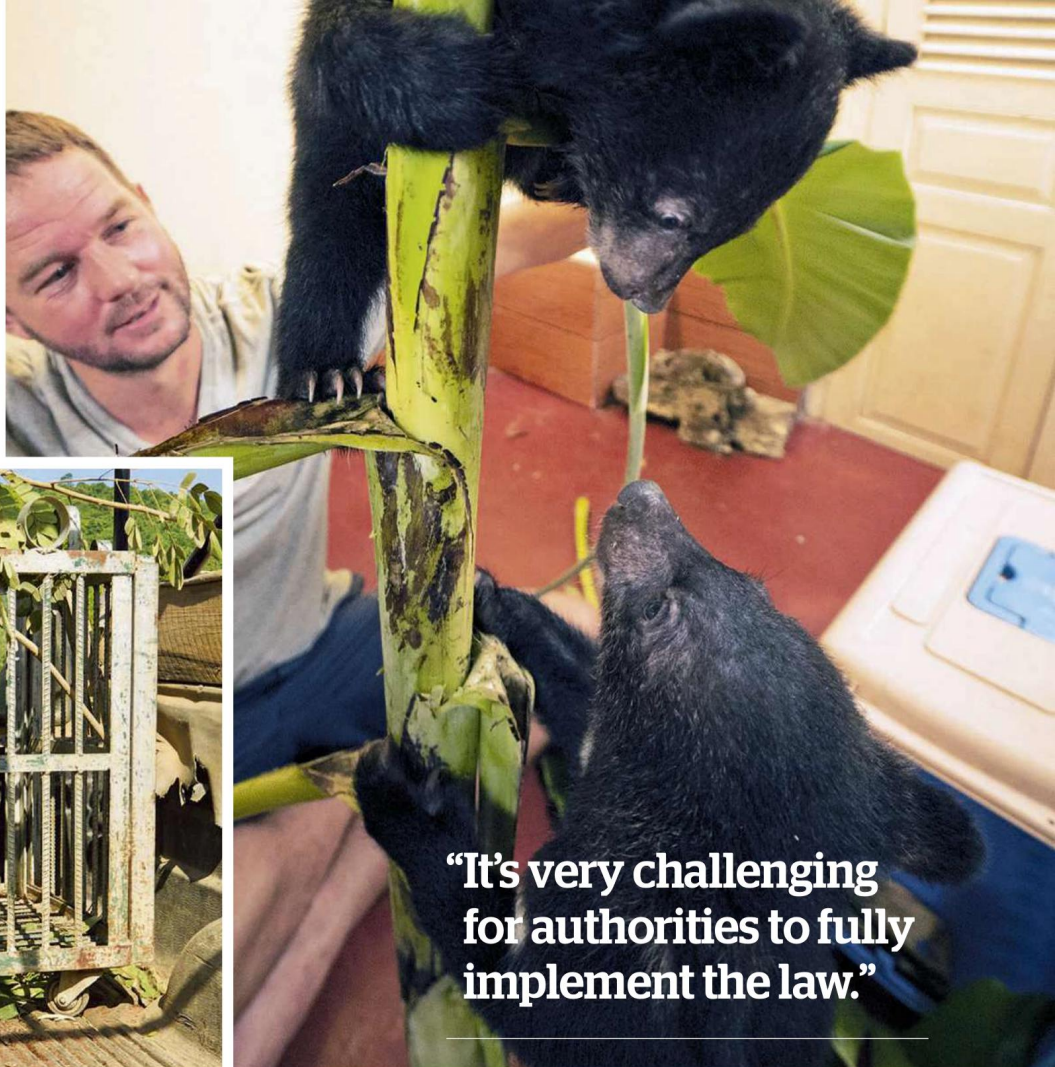
Bear bile farms operate by taking bears as cubs from the wild and keeping them in small cages so that their bile (a digestive fluid that helps break down fat) can be repeatedly extracted from their gallbladder while they are alive. Ursodeoxycholic acid (UDCA) in the bile is used in traditional Asian medicine to ►



## SUN & MOON BEARS

Below: bears are transported to the sanctuary in cages before being assessed and rehabilitated.

David and Jane are given the chance to explore and develop through play, while Giles keeps a watchful eye on the pair.



**“It’s very challenging for authorities to fully implement the law.”**



treat a range of ailments, despite synthetic alternatives being available.

In a list of recommended treatments for COVID-19, published on 4 March 2020, China’s National Health Commission promote injections of a traditional medicine treatment that contains bear bile from bears held in captivity. “The continued promotion of the use of threatened wildlife in medicine is hugely irresponsible in an era of unprecedented biodiversity loss, including illegal and unsustainable trade,” says Aron White, Environmental Investigation Agency wildlife campaigner and China specialist.

“The average life of a bear will be 30–40 years but in a bile farm, you’re looking at eight years,” says Matt. It is thought there are more than 10,000 bears captive in bile farms in China, South Korea and Myanmar, and estimates suggest fewer than 500 remain caged on farms or in private households in Vietnam. “Because there is a demand, people will exploit that and, ultimately, they don’t care about the animal,” states Giles. “It’s about profit.”

Most of the rescued bears at Luang Prabang Wildlife Sanctuary are moon bears, or Asiatic black bears. The species is most commonly found in bear bile farms (though sun bears are also targeted) because their range has the greatest intersection with the markets in which bear bile demand exists. Moon bears also produce high levels of UDCA.

### Room for improvement

As there are relatively fewer sun bears in Laos, Mary is the first to be taken to the sanctuary, after she’s outgrown Matt’s house. “She doesn’t stay in one spot for more than two seconds,” says Giles, as he watches the cub skid across Matt’s kitchen floor and clamber on his furniture. “Mary’s spent her life so far in a horrendous cage, so she’s enjoying getting out and exploring.”

In 2016, the Laos government made a commitment to put more effort into closing commercial wildlife farms, and in 2018, a Prime Minister’s Order strengthened protections against hunting and trade in bears and other wildlife in the country. Authorities are working with Free the Bears to implement the laws and close down the remaining

bear farms in Laos: there are about eight left, containing 120–130 bears.

“Our government partners had often talked of the difficulties enforcing the law without rescue centres available for wildlife,” says Sengaloun Vongsay, known as Tak, who is Laos programme manager for Free the Bears. “In 2003, they reached out to us to help them create a safe home for three bear cubs they had rescued from illegal wildlife traders.”

For years, Tat Kuang Si Bear Rescue Centre was the only official wildlife rescue centre in Laos, with a holding capacity of about 25 bears and no room for expansion, due to its location in a protected forest. When finished, the Luang Prabang Wildlife Sanctuary will cover 25ha and provide facilities for up to 150 bears and other species.

“The development of this sanctuary has led to a demonstrable increase in activity on the part of national and provincial authorities to take action against those illegally holding wildlife,” says Tak. “In 2019, a record number of 18 bears were rescued and in the past three years 41 bears have been rescued, versus 43 bears in the 14 years prior.

“Without anywhere to place confiscated wildlife, it’s very challenging for authorities to fully implement the law. The Luang Prabang Wildlife Sanctuary gives us sufficient facilities to accept bears from bile farms and end this despicable practice in Laos forever.”



**Mary uses her impressive curved claws to break up logs.**

To tackle the threat of bear bile farms, both the demand and supply need to be addressed. Matt explains: "If the demand declines significantly, the industry will collapse, as we're already seeing in Vietnam. We'd expect younger generations to naturally shift their focus away from traditional medicines to modern medicine. However, this still leaves older generations and rural residents, who can be very set in their ways."

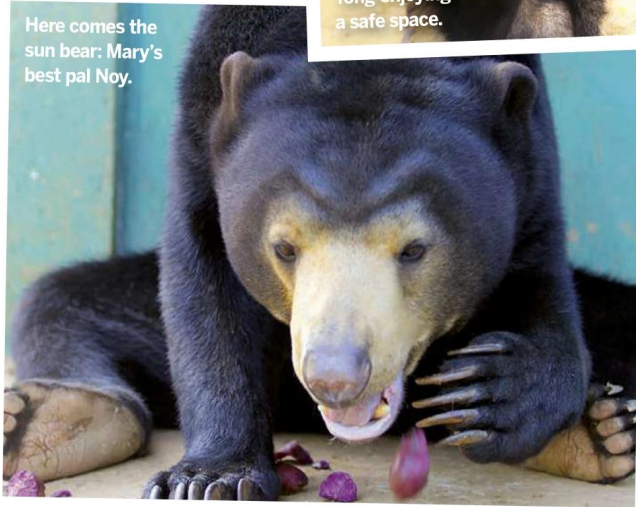
"Animals Asia Foundation has done great work – working with traditional medicine practitioners to prescribe alternatives to bear bile – and for the past five years, Free the Bears has been working with San Diego Zoo Global on developing a behaviour change campaign to reduce demand for bear products in Cambodia."

Matt admits there's still lots of room to raise awareness and educate consumers: "Many people in Laos wouldn't even know that it is illegal to kill ►



Tong enjoying a safe space.

Here comes the sun bear: Mary's best pal Noy.



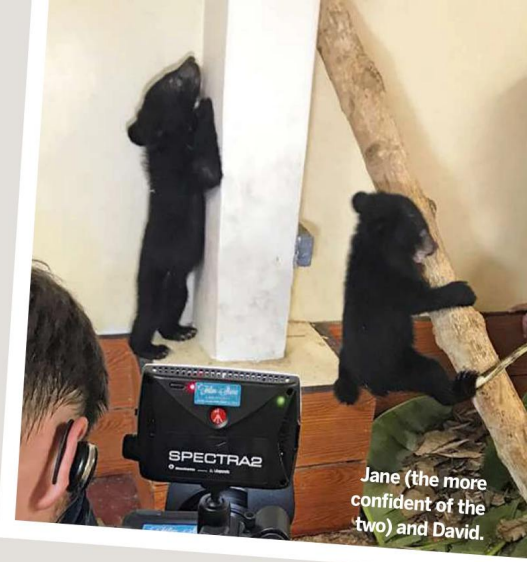
## Meet the cast

Bears About the House producer **Cherique Pohl** introduces some key characters from the BBC Two series.

### DAVID AND JANE

These moon bears were rescued in Bokèo province, a 12-hour drive north-west of Luang Prabang. They were confiscated at about five months old, from a man who was selling them – a government sting operation ensured he was arrested. The youngsters were unbelievably frightened and malnourished but taken to Matt

Hunt's house for 24-hour care, as there was no space at the sanctuary for them at the time of their rescue. It was great to see both bears exhibiting natural behaviour as they realised they didn't have to be scared.



Jane (the more confident of the two) and David.

were keeping them as pets. The bears were malnourished – people don't know what to feed them – and living in a very small enclosure. The film crew followed the siblings as they received their first vet check back at the Luang Prabang Wildlife Sanctuary and took their first steps on soil in their new 500m<sup>2</sup> enclosure. Later, they were introduced to more bears. They now look healthy and happy.

### NOY

This four-year-old sun bear lived in a cramped cage at a hotel and was used as a tourist attraction. The owner said he had kept her for at least four years, so it is highly likely that Noy would have been captured from the wild at a very young age, and her mother killed. She was rescued and taken into quarantine at Free the Bears' sanctuary for one month before being introduced to Mary – they became friends.

### TONG AND NUNGE

In February 2019, Free the Bears travelled to Pak Lai, an eight-hour drive south of Luang Prabang, to confiscate these three-year-old moon bear brothers from a family who



Tong (left) and Nunge (right) were being kept as pets until rescued.



**Left: the crew capture footage of Mary climbing trees and making the most of her new surroundings by honing her skills. Below: producer Cherique Pohl and series producer Tom Jarvis attempt to get a playful Mary to co-operate.**



or keep a bear." Given the relatively recent changes to the laws in the country, the government is trying to educate people and persuade them to hand over bears voluntarily.

When people are known to understand the law and yet continue to trade bears, arrests are made, and prosecution cases are prepared. "Though cases mostly result in fines being issued," says Tak. "We are seeing progress in terms of engaging with the judiciary and prison sentences being handed down to people caught breaking the law."

Previously, very few prosecutions were brought under the Wildlife and Aquatic Law, but since the penal code was amended to include increased penalties for wildlife trafficking, more cases are being brought to court. Matt says, "Over the past two years, these have been at district level but there are currently about six cases being prepared at a national level."

Another hurdle is that Laos lacks the facilities, such as laboratories, to determine the origin of wildlife products (including bear gallbladders), which can prevent a successful prosecution: "Once caught, traders will simply say that the products are not genuine and, without being able to definitively prove their authenticity, it is difficult to get the full fines or prison terms applied," says Matt.

He admits that, right now, there are still so many challenges: too much demand for wildlife products and not enough work being done to reduce that demand; too much hunting of wildlife; and not enough boots on the ground protecting the national parks

or intercepting wildlife traffickers. But he is also proud of the progress that has been made so far: "It fills us with hope of a brighter future for the bears and the other wildlife of Laos."

At the sanctuary, Mary is six months old and eating solids. In the wild, she'd be following her mother into the forest to learn how to forage. Instead, the cub is honing her skills in a new enclosure.

### **The importance of trees**

As the most arboreal bear species, Mary gets plenty of practice climbing banana trees. On her first accompanied walk outside the nursery, she dashes towards the tallest tree. She uses her padded feet to get a good grip. "This is a big test for Mary," says Giles. "It marks a major leap forward in her development." Seven months into her rehabilitation, she is joined by a new arrival

**"Mary is such an independent little character - people are going to fall in love with her."**

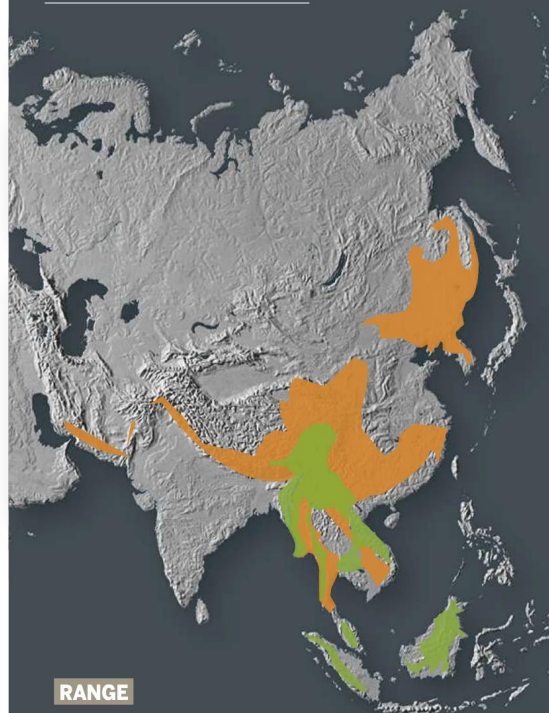
at the sanctuary, another sun bear called Noy, and continues to flourish.

Unfortunately, without protected forest for release, the sun bear companions are likely to be at the sanctuary for life. Historically, Laos was almost entirely covered in forest – even as recently as the 1950s, it was estimated that more than 70 per cent of the country was natural forest. A growing human population, mostly practicing shifting cultivation and conversion of forests to plantations, has led to a decline in the amount of bear habitat.

"We would prefer to see all bears wild in the forest, but we have to balance the best welfare interests of the animals until well-patrolled protected areas suitable for bears exist," says Matt. "Our objective is to prioritise the top sites for increasing protection of key habitats and also sites that may provide suitable habitat for sun and moon bears, but where they may have already been extirpated through anthropogenic factors, such as hunting."

For now, staff at the sanctuary will carry on responding to emergency calls – travelling

## AT A GLANCE



### RANGE

**SUN BEAR** The species occurs patchily through much of its former range in South-East Asia. It is extant in Bangladesh, Brunei, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Thailand and Vietnam.

**MOON BEAR** Over half the total range of this species is in China. It's also found in Afghanistan, Bangladesh, Bhutan, Cambodia, India, Iran, Japan, North Korea, South Korea, Laos, Myanmar, Nepal, Pakistan, Russia, Taiwan, Thailand and Vietnam.

### LENGTH

### WEIGHT

### DIET

### COLORATION

### HABITAT

### REPRODUCTION

### IUCN STATUS

### POPULATION



## SUN BEAR

*Helarctos malayanus*

120–150cm (average)

Smallest bear species in the world. Males weigh 27–70kg, females 27–50kg.

Generalist omnivores, feeding primarily on termites, ants, beetle larvae, stingless bee larvae and honey, and a large variety of fruit species. They have massive jaw muscles and large canines to bite through the bark/stem of hardwood trees, long tongues to extract insects from crevices, and long, sharp claws to dig and break into rotting logs.

Short black-to-dark-brown fur with a golden crescent on the chest.

Forest dependent species with an affinity for primary and mature forests.

Females use cavities of large hollow trees as birthing sites. Largely solitary, except when with offspring. Studies suggest they are aseasonal breeders, usually producing a single cub.

Vulnerable – threatened by deforestation and commercial hunting; active trade in wild sun bears and their parts; commercial poaching for their gallbladders (bile used in traditional Chinese medicine) and paws (expensive delicacy); snares; loss and fragmentation of forest can result in bears raiding crops and human-bear conflict.

Decreasing in 8 of 10 current range countries (Brunei and Bangladesh trends are unknown). Few reliable estimates of population size and few studies have quantified population trends.



## MOON BEAR

*Ursus thibetanus*

120cm–200cm (average)

On average, males weigh 90–200kg, females 65–125kg.

Generalist omnivores, feeding on vegetation, insects, fruits and nuts. In some areas, their diet includes meat, which they either kill or scavenge.

Commonly black, with a white or cream/yellow 'crescent moon' on the chest.

Within South-East Asia, preferred habitat is tropical and seasonal montane forest in areas with high densities of fruiting trees. In other parts of its range, habitats include a variety of forested environments, from near sea level to an elevation of 4,300m.

Breed during June and July, giving birth from November to March. They normally produce litters of one or two cubs every other year.

Vulnerable – it is the most highly valued species for consumers of bear parts, and seizures of bear parts in South-East Asia are mainly from moon bears.

Decreasing, likely declining in most parts of its range. The four countries with the largest populations derived rough population estimates: China (28,000), Japan (12,000–19,000), India (5,000–7,000) and Russia (5,000–7,000).

hundreds of kilometres to confiscate bears and provide them with the best possible care. "We will continue to build on the knowledge required to successfully rehabilitate and release the bears back into the forest where they belong – very few attempts have been made so far but this would be our ultimate goal," says Matt.

"Mary has had the most traumatic start in life and has turned that around," says Giles. "She is such an independent, robust little character and, in the BBC Two series *Bears About the House*, people are going to fall in love with her. Mary is going to raise awareness of what is going on in this part of the world, and is the ultimate ambassador for bear conservation." 🐾

**JO PRICE** is deputy editor of BBC Wildlife.

**FIND OUT MORE** [freethebears.org](http://freethebears.org)

**MORE @ [discoverwildlife.com](http://discoverwildlife.com)** Read our exclusive interviews with *Bears About the House* producer Cherique Pohl and wildlife technical advisor Giles Clark.

# CLEVER CREATURES





The world's finest human minds have struggled to pin down exactly what intelligence is. No one is quite sure how to define it (though it's probably something along the lines of an ability to absorb and apply knowledge) or measure it (even IQ tests might simply assess a person's ability to perform in IQ tests). And if it's an elusive concept in humans, what chance have we got when it comes to probing the intellectual worlds of other species? Happily, we tend to know it when we see it. So, here's our survey of the brightest of the bunch.

### CLEANER WRASSES

An ability to recognise oneself in a mirror has long been regarded as an indication of self-awareness. It's an easy one to test, too – surreptitiously make a mark on an animal's face, place the creature in front of a mirror and see if it tries to remove the blemish from its actual face. It's something that humans get the hang of at about 18 months. Chimps, elephants, dolphins and corvids can do it, too. More surprisingly, perhaps, so can cleaner wrasses – those small, tropical reef fish most famous for removing parasites from other marine life. A 2019 study, the first to show self-recognition in any fish, has raised many sceptical eyebrows among biologists. Either we have seriously

Meet a spectrum of species whose mental agility and problem-solving skills will put some humans to shame.

By Stuart Blackman

Illustrations by Quinton Winter

underestimated how clever fish can be or recognising yourself in a mirror is not such a big deal.

### SLIME MOULDS

Intelligence doesn't necessarily require a brain or even a nervous system. Slime moulds have neither, and yet put one of these blobby fungus-like organisms at one end of a maze and some food at the other and it will find the shortest route to the bounty. First, it sends out filaments to penetrate all the maze's twists and turns. It then retreats from the blind alleys and

inefficient detours, leaving a direct trail to the food. It's an unconventional way of solving complex problems, but it's effective.

### RATS

It's hard enough being in touch with one's own emotions let alone anyone else's. But such mind-reading skills are not unique to humans. In a series of rather uncomfortable experiments, scientists trained rats to pull a lever to access a tasty treat. Once the animals had got the hang of that, the lever was re-wired to simultaneously deliver an electric shock to another rat. At which point, the empathetic rodents stopped pressing the lever, sparing their friends (or even complete strangers) an unpleasant experience, even though it meant missing out on the reward. ►

**Slime moulds don't have brains, but put one at one end of a maze and some food at the other and it will find the shortest route to the bounty.**



## KEAS

Any animal that can swear like a trooper and dance in time to Motörhead has clearly got something going on between the ears. But there's one species of parrot that's more mathematically minded. Train a kea to associate black (but not orange) wooden tokens with a food reward and then give it a choice between a token taken randomly from a glass jar containing a high proportion of black tokens and one from a jar containing a high proportion of orange – both offered in a closed fist – and it will sensibly choose the former, regardless of the actual number of black tokens in each jar. This is more than just counting – it shows an appreciation of probabilities. Who's a clever boy then?

## PIGEONS

It's no accident that pigeons have been stalwarts of animal behaviour studies for many decades. Aside from their famous navigational and homing abilities, they are fast learners, have a meticulous eye for detail and, it turns out, are particularly adept at assigning objects into categories. Bizarrely, they can be taught to distinguish paintings by Monet and Picasso and then attribute previously unseen works to the

correct artist. They can even group together paintings belonging to the same artistic movement – Cubism or Impressionism, say.

## BEEES

Bees' brains may be little but they can think big. Despite being endowed with only a hundred-thousandth as much grey matter as a human, these industrious insects can perform intellectual feats otherwise known only among vertebrates. New research, for example, shows that bumblebees are wired up to store mental models of objects that can be accessed by their various senses. This allows them to look at something and

then recognise it in the dark just by feeling it, and vice versa.

## AFRICAN ELEPHANTS

Famed for their memories, it might be their philosophical sophistication that really marks elephants out. There are numerous detailed accounts of these largest of land animals showing keen interest in the bodies of their dead. They gather around carcasses, often in an apparently agitated state, and will sniff, touch and attempt to lift the remains or cover them with soil or vegetation. They may continue to revisit the bones long after the flesh has decayed. Some experts believe it all points to something akin to mourning and that elephants may have an understanding of their own mortality.

## CHIMPANZEES

The other great apes may not be equipped with the vocal apparatus required to speak, but they can certainly learn to communicate with us using human words, albeit via sign language. Some of the animals involved in this fascinating, if controversial, line of research, such as Washoe the chimp or Koko the gorilla, have become celebrities of sorts. Washoe in particular was able to

**Famed for their memories, it might be their philosophical sophistication that really marks elephants out.**



combine words to convey novel concepts. “Open food drink” meant she wanted to get into the fridge, for instance. Is it language? Probably not. But it’s surely smart.

## CROWS

The crows of New Caledonia in the southwest Pacific are top-notch tool-users. Not only are they able to manufacture a range of hooked implements from twigs and leaves and use them to prize insects from nooks and crannies, but they can make bespoke implements for specific tasks. They might produce a particularly long probe, for example, by pushing the end of one stick into another, hollow one. This is a skill that requires imagination as well as dexterity. And what’s more, they do it all without thumbs, let alone opposable ones.

## MOURNING CUTTLEFISH

Cephalopods are surely the geniuses of the molluscan world, and probably the invertebrate one. They might even give the brightest of vertebrates a run for their money. One of the many areas in which they excel is juggling social relationships. Cuttlefish communicate by changing the colour and texture of their skin. Remarkably, they can signal different messages to

## Scrub jays can keep track of hundreds of stored items - not only the location of each, but also their state of decay and ‘best-before date’.

different recipients by producing different displays on each side of their body. In this way, a male can court a female and appease a love rival simultaneously.

## ROUGH-TOOTHED DOLPHINS

At a Hawaiian sea-life park in the 1960s, trainers were running out of ideas for new tricks to teach their rough-toothed dolphins, so they wondered whether the animals possessed a natural creativity that could be harnessed to generate new ones. They started rewarding two animals, Malia and Hou, only for manoeuvres that

had not been seen before. This resulted in aerial acrobatics so varied and complex that the trainers struggled to catalogue them. Similar experiments have since been performed on humans – it took the two species about the same length of time to work out what was expected of them.

## SCRUB JAYS

From the point of view of a species prone to forget what it entered a room for, the memory feats performed by America’s scrub jays are something to behold. Scrub jays are scatter hoarders. They stash nuts, fruit, seeds and insects in hiding places around their territory for future consumption. They can keep track of hundreds of stored items – not only the location of each, but also their state of decay and ‘best-before date’, so they can optimise the order in which they eat them. There’s no excuse for letting that hummus go off at the back of the fridge. 🐾



**STUART BLACKMAN** is a science writer based in Scotland, who can’t remember how to do long division.

**FIND OUT MORE** Uncover amazing animal facts on our website: [discoverwildlife.com](http://discoverwildlife.com)

Photographer **Karine Aigner**

# Island Owls

On Marco Island, Florida, burrowing owls are thriving in a landscape of million-dollar homes and high-rise hotels – thanks to a community that has taken them under its wing.

**Photo  
story**



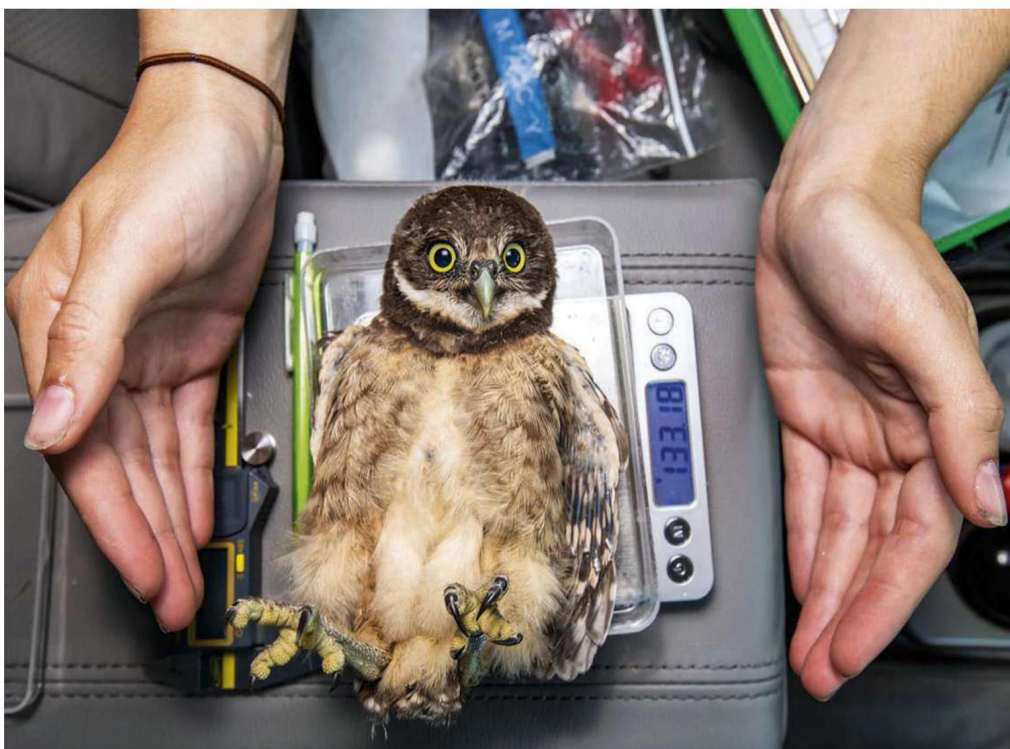


Burrowing owls aren't your average owls. They live underground, for starters, and are active during the day. The Florida burrowing owl – one of North America's two subspecies – is even more exceptional. Edged out of its natural habitat as savanna becomes suburbia, this pint-sized predator is carving out an unlikely niche on the built-up resort island of Marco, off the south-west coast.

Once a sparsely populated tangle of mangrove and scrub, Marco was cleared for development in the 1960s. The open areas left in the bulldozer's wake proved ideal for these tenacious little birds – today, 252 pairs live here, mostly on vacant plots.

## PHOTO STORY BURROWING OWLS

**BELOW** Burrowing owls are naturally adaptable, but those on Marco owe their success to their human neighbours. Biologist Alli Smith is project manager for Owl Watch, an 83-strong volunteer organisation, overseen by Audubon Western Everglades, that serves to protect the birds. Owl Watch was founded in 2016, but its foundations had already been laid in two decades of work by a small band of owl champions (*bottom right*). "The burrowing owl is a force, and the island community its forcefield," says photographer Karine. "The people here are astounding in what they are doing for these birds."



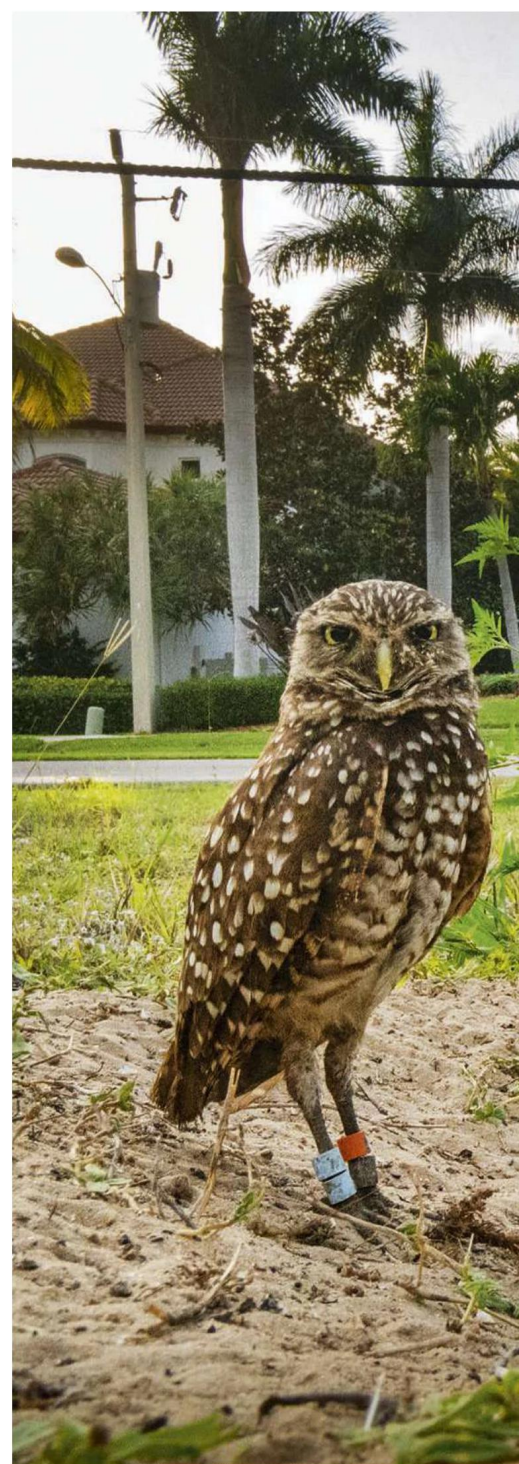
**LEFT** Alli divides her time between field research, outreach and education. Birds are weighed and measured, and banded to gather data on survival and reproduction rates. Chicks are also banded to find out where they go when they leave the family burrow. Most settle in the vicinity of their parents, but some have itchier feet – one youngster flew 200km to Miami. With 386 burrows at the last count – two-thirds of which are occupied – the contribution of the volunteers is essential. From March to July, participants observe 10–15 sites every other week.



**ABOVE** As well as nest sites and abundant prey, Marco provides its owls with daily showers for bathing. “The ‘raindance’ – when the birds plump their feathers and shake their bodies – is so entertaining, particularly when the chicks lose their balance and fall over,” says Karine. “These are the most cheeky, charismatic birds I’ve ever met.”

**LEFT** Owl Watch is rooted in the work of Nancy Richie (*second right*), who – along with Eva Schliesser (*third right*) and others – started roping off burrows back in 2000. Jean Hall (*far right*), another long-term volunteer, ran Owl Watch until Alli took over. “Four generations of women are keeping this going,” says Karine. “They are all completely bad-ass, and just exude energy.”

**RIGHT** Burrow sites are equipped with perching posts and are regularly trimmed, because owls will abandon their nests if the grass grows tall. Burrows are fragile, extending up to 4m underground, so are also roped off to prevent them from being collapsed by lawnmowers. Both birds and burrows are protected by law – permits are required to remove or relocate them, and fines are incurred for damage.





**ABOVE LEFT** A pair has nested in the play area of the Marco Lutheran Church. As the church is unwilling to pay the \$2,900 fee to relocate them (\$1,900 of this would be waived if a starter burrow was installed), the birds have the swings to themselves.

**BOTTOM LEFT** Second Graders (Year Two) at Tommie Barfield Elementary School monitor a pair living beside their playground, submitting the weekly data to Owl Watch. Fluffy, the female, has since disappeared, but the male, Mr Hoot, has a new mate.

**ABOVE** The owls nest in spring, either digging a new burrow or using an existing one. After mating, the male stands sentry outside, alert for predators, while his mate sits on the eggs below. With the majority of burrows on land earmarked for development, the coming years will see a squeeze on nest-sites. In response, Owl Watch has launched a 'starter burrow' scheme for homeowners. A 30cm hole is dug in their front lawn to encourage owls to nest. If it's occupied for one season, they can claim a \$250 grant. So far this year, 50 starter burrows have been installed. According to Alli, the main driver is not the money, but a love for the birds.



**ABOVE** Some owls carve out homes on the wide, flat verges of grass between roads and pavements. This family of two adults (the male was known to Karine as 'Umberto Bench') and five chicks was a popular tourist attraction in spring 2019 as, on the roadside outside a luxury waterfront complex, they "went about their business being owls". During the day, burrowing owls take naps, tend to their chicks, guard their nests and pounce on nearby insects or lizards. Activity levels increase at sunset, when they leave their burrows to hunt.



**KARINE AIGNER** is an associate fellow with the International League of Conservation Photographers and a member of the North American Nature Photography Association.

She was Highly Commended in the Wildlife Photographer of the Year 2018 contest. [karineaigner.com](http://karineaigner.com)



**ABOVE** Other owls prefer a sea view – three pairs nest in the grassy dunes of Marco Beach. Marco's owls are far more habituated to humans than they are in their natural savanna habitat, with those on the beach among the most confiding of them all. If the birds were less tolerant, they wouldn't survive in this unfamiliar environment.

**LEFT** The Owl Watch volunteer brigade spans all ages, and includes three families. Calvin and Tosca Grifoni often join their parents on owl patrol. "If kids grow up with a love for the natural world and the creatures in it, the birds will have a future," says Karine. "This story is a perfect example of what people can accomplish when they commit to saving something."



“Not only have the deer long been part of the scenery, they’ve also had a hand in shaping it.”

## Fallows in the shallows

by **MATTHEW CATTELL**

2018

Native to Asia, fallow deer arrived with the Normans 1,000 years ago and have taken to parkland like ducks to water.



**MATTHEW CATTELL**

Matthew is an outdoor photographer. See more of his work at [matthewcattellphotography.com](http://matthewcattellphotography.com)

Bushy Park hosts a range of wildlife, including herons, kingfishers and raptors. But as one of London's three deer parks, its star attraction comes with antlers and roams in herds.

Introduced to the park for the hunting enjoyment of Henry VIII in 1529, fallow (and native red) deer have for centuries roamed the patchwork of meadows, copses and ancient trees that characterise this green oasis.

Not only have the deer long been part of the scenery, they have also had a hand in shaping it. As grazers, they preserve plant diversity in the swathe of open acid grassland (a priority site for conservation); as browsers, they prevent seedlings from taking hold.

### Deer diary

"Fallow deer are habitual creatures, making them easy to find," says Matthew. "Outside of rutting season, they tend to separate into groups of males and one large group of females with calves and juveniles. They often use the park's pools to cool down, and are surprisingly good swimmers."

Living in a managed park that is frequented by the public, Bushy's wild residents are accustomed to sharing their space with bicycle-riding, dog-walking, sandwich-eating humans. This plays to a photographer's advantage, but such proximity throws up issues about how people and wildlife can co-exist.

"The park tries to encourage people to stay more than 50m away from the deer, and to refrain from feeding them – particularly during the calving and rutting seasons – but visitors don't always adhere to the rules," says Matthew. "In recent years, the animals have started changing their behaviour – approaching people for easy meals, becoming more aggressive and even charging. It shows what can happen when we lose respect for the wild." 🦌



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# Q&A

This month's panel



**STUART BLACKMAN**  
Science writer



**ED DREWITT**  
Naturalist



**BEN HOARE**  
Editorial consultant



**ELLEN HUSAIN**  
Film-maker



**ALEX MORSS**  
Botanist



**HELEN PILCHER**  
Science writer



**HELEN SCALES**  
Marine biologist



**LYDIA WILLIAMS**  
Science writer

## BOTANY

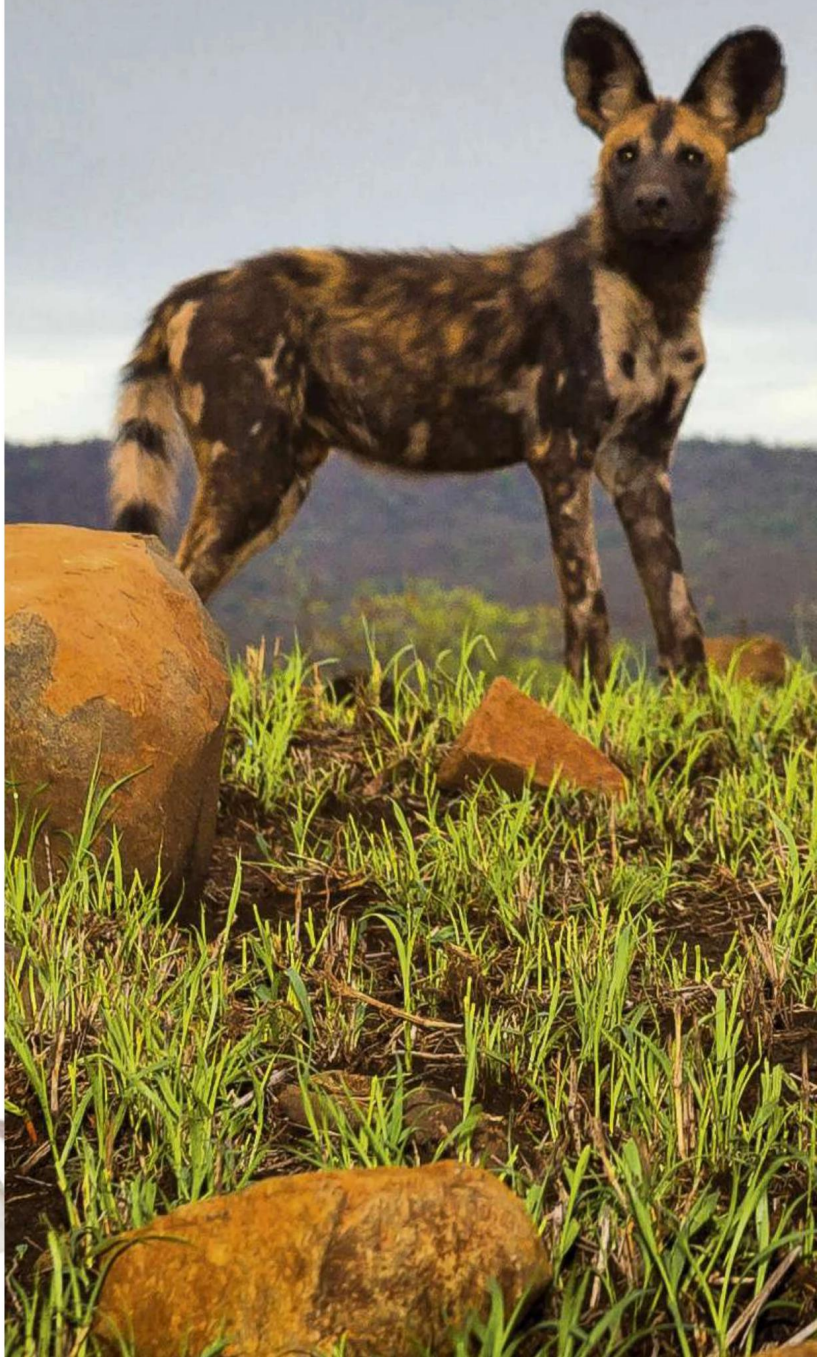
### Why do parts of a tree flower at different times?

**B**lossom often appears unevenly and on one side of a tree first. Several things control when buds wake from dormancy in spring, including day length, air temperature and orientation to the sun. But other variable factors are at play, too – such as the prevailing wind, nightly light pollution, uneven shade, browsing by animals, water stress, late frosts and insufficient winter chill. All these can cause blossom to be uneven. One tree's flowers will be a

different temperature from those of neighbouring kin, with pollination success being influenced by their orientation. A sunny flower with warmer, better nectar is favoured by many pollinators, such as bees that love basking on crab-apple, plum, cherry or blackthorn trees. In addition, to avoid self-fertilisation, some trees have separate male and female flower parts that don't mature at the same time. Yew and ash take this further, with separate sexes appearing only on some branches.

Alex Morss

Several factors influence where and when a tree bursts into bloom.



## DISEASE

# Can humans spread disease to wildlife?

**T**he coronavirus pandemic shows what can happen when diseases (known as zoonoses) spill over from animals to humans. It is a two-way street, though records of us spreading viruses to animals are rare. Being closely related, great apes are most at risk, which is why mountain gorilla ecotourism was suspended earlier this year. Fifteen years ago, a fatal outbreak of respiratory disease in Tanzania's chimpanzees is thought to have come from the tourists who visited them. But

other species, including livestock and pets, can also catch our viral, bacterial, parasitic and fungal diseases. In April, a tiger at New York's Bronx Zoo tested positive for COVID-19, having caught it from an infected zookeeper. Similarly in 2009, captive cheetahs in California caught the human flu known as H1N1. Meanwhile, in Namibia, African painted dogs often carry the diarrhoea-causing parasitic micro-organism *Giardia duodenalis*, which they pick up from human faeces. Helen Pilcher



As African painted dogs have experienced, humans are capable of passing on diseases to other species.

## REPRODUCTION

## Starting with a male and female rabbit on 1 January, how many could you end up with by 31 December?

**T**he reproductive potential of these fecund mammals preoccupied the Italian mathematician Fibonacci as far back as 1201. Pondering the problem in his *Book of Calculations*, he came up with the Fibonacci Sequence, still used today. His answer was 466. However, as he was more mathematician than naturalist, his assumptions were not all squarely rooted in biology. So, *BBC Wildlife* decided to ask statistical modeller Tom Fiddaman of Ventana Systems. Assuming European rabbits produce an average litter of five kits, the offspring are sexually active at three months,

mature females produce a litter a month, litters alternate between three females/two males and three males/two females, and none die... there will be 1,182 bunnies by New Year's Eve. If that seems like a lot, there would be 345,000 at the end of year two! In reality, disease, predation and variable food supplies keep numbers down.

Ellen Husain



Rabbits have a tendency to go forth and multiply.



Purely wild honeybees nest in trees.

## BEES

## Are there still wild honeybees?

**I**n a sense, the honeybees kept in hives are wild. They come and go as they please, and are dependent on the surrounding environment for sustenance – 'feral' might be a better word. They are descended from a truly wild species that colonised Africa, Asia and Europe under its own steam, building its own nests in tree cavities. Remarkably little is known about the range or abundance of these wild honeybee colonies, which is reflected in the species' Data Deficient status. Truly wild colonies were long suspected to be extinct in Europe, until a recent survey identified nests in Poland and Germany. The study estimated there could be up to 80,000 wild colonies across Europe. **Stuart Blackman**

Clockwise from top right: Photo Researchers/FLPA; Mark Hamblin/ispd-images.com; Philip Murgidge/Alamy; Marc Pliet/MVNP/NPL; Markus Vareswo/NPL; Getty; Ben Hall/NPL; Maslowski/FLPA.

## DIET

## Do animals get drunk?

**W**e started brewing alcohol 9,000 years ago, but nature has been doing it much longer, via yeast fermentation in rotting fruits and other sugary substances. The (aptly named) bohemian waxwing may gorge on so many fermented rowan berries in winter that it's unable to fly or even walk in a straight line. But one of the keenest mammalian boozers is a tiny Malaysian tree shrew, whose nectar diet is 3.8 per cent alcohol by volume, akin to drinking beer all day. **EH**

The bohemian waxwing – tired and emotional.

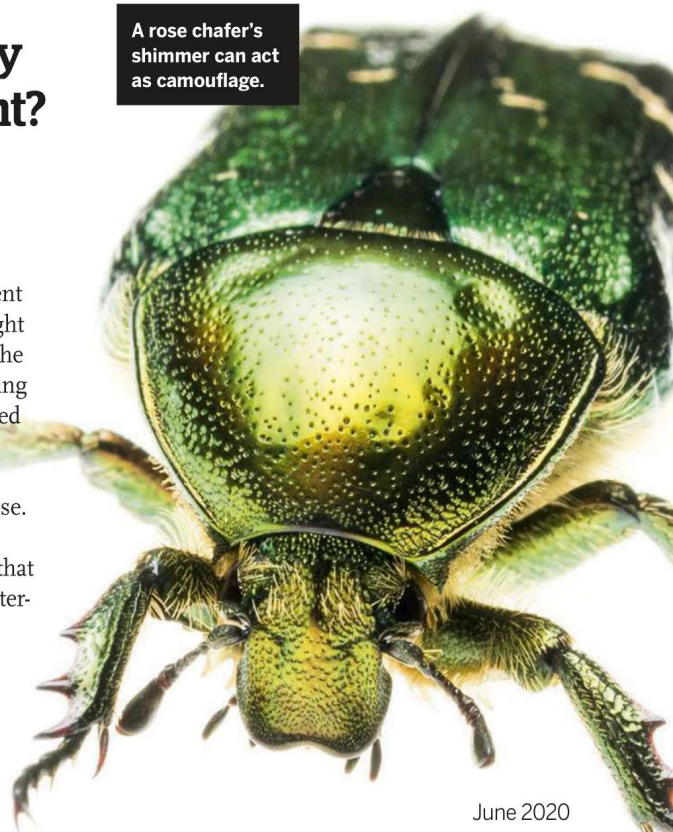


## ENTOMOLOGY

## Why are so many insects iridescent?

**F**rom glittering greenbottles to the shiny-bodied rose chafers, mint beetles and rosemary beetles common in British gardens, many insects possess spectacular iridescent colours. Until recently, it was thought that this bold coloration, in which the shade changes dramatically according to the light and viewing angle, served two functions. Namely, to ward off predators and attract mates. But iridescence may have a third purpose. New research by the University of Bristol's Camo Lab has discovered that it can also act as camouflage. Counter-intuitively, iridescence may help hide an insect among vegetation, especially in dappled lighting conditions, making it harder for a hungry bird to spot. **Ben Hoare**

A rose chafer's shimmer can act as camouflage.



Günther's boafish are found hundreds of metres below the surface.

#### MARINE BIOLOGY

## Why don't deep-sea animals implode?

**F**ish, squid, jellyfish and many other animals live in the abyss, thousands of metres below the surface, where the pressure is at least 150 times higher than inside a car tyre. These animals don't implode, but bring one to the surface and it may melt in your hand. Their cell membranes are high in unsaturated fatty acids, making them less like butter and more like olive oil, keeping them flexible under pressure and less liable to crack. Most deep-sea fish don't have gas-filled swim

bladders, which are difficult to inflate at great depth. Instead, their bodies are filled with jelly, boosting their buoyancy while avoiding implosion. Abyssal animals also load their bodies with trimethylamine-oxide (TMAO), which prevents water from squashing into their enzymes. TMAO happens to be what makes fish smell fishy. The concentration increases with depth. Snailfish – the world's deepest-dwelling vertebrates – presumably smell worst of all. Helen Scales

#### 3 questions on

## Job-swapping species

### 1 WHAT EXACTLY IS THIS BEHAVIOUR?

Throughout the animal kingdom, certain insects, amphibians, fish and birds practise something called 'sex role reversal'. The male takes on the role of caring for eggs and young, while the (often) more colourful female competes for males. Though rare in birds, role reversal is found in some wading species that buck the trend. The females lay eggs and head off to find a new partner, leaving the males to tend the eggs and young.



The dotterel and red-necked phalarope (top).

### 2 WHICH BRITISH BIRDS DO IT?

The dotterel and red-necked phalarope. The slightly larger, subtly more colourful females arrive earlier than males on their nesting grounds. Female dotterels congregate at mating arenas high in Scottish mountains to wait for the males' arrival. Females guard their mate from rivals, lay their eggs, then move on to find other available males, an arrangement known as sequential polyandry. Elsewhere in the world, other role-reversing birds include the spotted sandpiper and Kentish plover.



### 3 BUT WHAT'S IN IT FOR THESE SPECIES?

Role reversal enables a female to produce more offspring during a single nesting season. It happens in species where one sex, often the female, is less common. Because the male sires fewer young, he ensures his paternity by closely guarding his mate and copulating with her just before she lays. If a male red-necked phalarope loses a clutch of eggs to a predator, he will try to pair up with the same female again, as she is less likely to have sperm from other males.

Ed Drewitt

## PRIMATES

## Why are primates still sold as pets?

**I**t's legal in Britain, but viewers of BBC Two's *Baby Chimp Rescue* (catch up on iPlayer) will be in no doubt that primates have complex needs that can't easily be met in a domestic setting. They require lots of space, mental stimulation and specialist diets – as pets, they often suffer from diseases such as rickets due to inadequate nutrition. Many of the UK's 5,000 pet primates are marmosets, which in the wild live in co-operative societies up to 30 strong. On their own, these monkeys are unable to express social behaviour such as grooming and play, yet there's nothing stopping pet shops from selling them singly – and many do. This is despite the fact that monkeys are long-lived and become aggressive as they mature. Leoma Williams

Unlike animals domesticated over millennia, monkeys such as this common marmoset do not make suitable pets.

## The Explainer

### Auto-mimicry



Butterfly fish keep a false eye out for predators.

Mimicry usually involves one organism copying features of another – a harmless hoverfly, say, adopting the warning colours of a wasp. But some creatures mimic themselves, or rather, they mimic one part of their body with another. The eyespots at the tail-end of a butterfly fish, for example, draw predators' attention away from the vulnerable head. Some species of pygmy owl have false eyes on the back of their head, giving assailants approaching from the rear the impression that they've already been spotted.

Stuart Blackman

## BOTANY

## How can a forest grow underground?

**S**ubterranean forests are not a figment of a science-fiction writer's imagination, but actually exist. The Hayward Gallery's 'Among the Trees' exhibition (now closed, but there's an accompanying book available) included a remarkable photograph of a 13,000-year-old tree growing beneath the red sandy soil of South Africa's savannah. Or rather, it showed the uppermost crown, the only part of the tree in view. The

appearance is of a small, ground-hugging shrub, rather than the full-sized tree it really is. Sometimes these strange trees cluster together – a veritable underground forest. Botanists have a theory that their extraordinary growth pattern, seen in several species of savannah tree, is a strategy to avoid wildfires. With the trunk and most branches below the surface, they survive the flames. Ben Hoare



Just the tip of the iceberg... or the top of the tree.



## What is it?

### LESSER FLAMINGOS

Pretty in pink, flocks of flamingos create beautiful abstract patterns when seen from the air. They are part of a huge nomadic population of up to 2.5 million birds that shuttles between the shallow salt lakes of East Africa's Great Rift Valley. The algae-rich waterbody pictured is Lake Logipi in Kenya, though Lakes Natron and Bogoria are perhaps better known with wildlife photographers and other ecotourists. The lakebed is perfectly flat, but appears to have a slope, due to the different shades of its algae and sodium compounds.

**Ben Hoare**

BBC

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# At home

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A spider monkey's muscular tail comes in handy as a fifth limb – perfect for life in the canopy.

## It's time for some monkey business

Primates' family lives, survival strategies and more are explored in a new series.

TV  
choice

### PRIMATES

BBC IPLAYER, STREAMING NOW

Watching lar gibbons travelling at breakneck speed through the treetops, backflipping off branches and leaping distances that make for heart-in-mouth moments, not only left me in complete awe of these animals but also the nifty camerawork needed to capture such footage (all is revealed in the behind-the-scenes section at the end of episode two).

But, as we discover, these daredevil, parkour-style skills are not innate and need to be learnt and honed from an early age. "Trial and error is risky. Few gibbons escape without broken bones," says narrator Chris Packham, as we witness a youngster's less-than-steady progress.

This is just one of the many impressive primates packed into this three-part series – with hundreds of species around the world, there are plenty of diverse characters for us to meet. Focussing on everything from little-known drills to wide-eyed bushbabies, *Primates* flits across the globe, stopping off in Brazil, China, Madagascar and myriad other locations – albeit fleetingly in some cases.

We may be used to seeing certain species in the limelight more often than others – mountain gorillas have graced our screens on numerous occasions – but the behaviour highlighted here might be new or even surprising to some viewers. Silverback alpha males, often portrayed as aggressively defending their claim to the top spot, are shown to be gentle,

tolerant parents – juveniles think nothing of using one such silverback as a climbing frame and trampoline. "The latest research shows that...caring fathers raise up to five times as many infants," says Chris, explaining that their softer side can make them irresistible to females.

Interesting behaviour and group dynamics, new discoveries and fascinating biology are brought to light within each episode – did you know a spider monkey has a palm-like pad on its prehensile tail, to help it gain a decent grip?

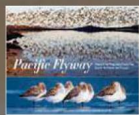
But personally, it's still the gibbons, with their comical Stretch Armstrong limbs and the gleeful abandon they seem to possess as they hurl themselves around their habitat, that really steal the show.

Angharad Moran

BOOK

## Pacific Flyway

BY AUDREY DELELLA BENEDICT, GEOFFREY A. HAMMERSON AND ROBERT W. BUTLER, SASQUATCH, £25



What a wonderful read! A treat for bird lovers, no matter where you are in the world. My favourite thing about this book is that it reminds me just how amazing these creatures are

and how much of an honour it is to share the planet with them. Adding the migration hot spots along the Pacific Flyway (a major north-south route for birds in America) by name and location is a nice way of engaging the reader.

It's very informative and makes you truly appreciate the wonders of bird migration. Captions can be an underrated aspect at times, but I love the way this title vividly seizes the context of each snapshot in action.

The images themselves are absolutely breathtaking, especially in chapter five – *Migrants in a Dangerous World*. This is a great way to plug in some of the dangers that migratory birds face – it is extremely important to educate people on the positives as well as the negatives.

I didn't spot a single error in the text or the illustrations. It's a 10 out of 10, in my opinion.

Jeffrey Ward Naturalist and science communicator



Western grebes travel the Pacific Flyway to their breeding sites.

## WILD STREAM

DOCUMENTARY

### Walking with Elephants

Explorer Levison Wood sets off to follow (on foot) the world's largest migration of elephants.

All 4, until June 2020

DOCUMENTARY

### Extinct

The stories of lost species, and how they might have met their demise.

All 4, streaming now

YOUTUBE SHORT

### Through the Lens

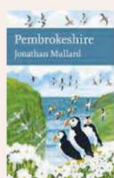
Wildlife photographer Donald Boyd shares his thoughts and experiences of working in the field and raising awareness of conservation issues.

[youtu.be/cJt1Wn5UDMA](https://youtu.be/cJt1Wn5UDMA)

BOOK

## Pembrokeshire

BY JONATHAN MULLARD, COLLINS, £65



The *Pembrokeshire* edition in the *New Naturalist* series does not disappoint! This is an area known for its wildlife and beauty. The book delves deeper into the history of the place but also the people who helped to shape locations such as Skokholm and its wildlife. The detail and personality within the text take you on a journey of each find and creation but we also get to meet the people who have long since been forgotten to many.

Pairing the storytelling ways of Mullard with the beautiful and stunning images and artwork found throughout the book truly does make this a must for any natural history lover. and a welcome addition to the *New Naturalist* series.

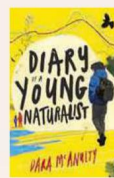
Dan Rouse Ornithologist and presenter

➤ Turn to p88 for a chance to win a copy.

BOOK

## Diary of a Young Naturalist

BY DARA MCANULTY, LITTLE TOLLER, £16



I was anxious when I opened Dara McAnulty's diary. It isn't fair to expect greatness from a 15-year-old – let alone from one known to be painfully self-deprecating and burdened with eco-anxiety and existential angst. The book covers an ordinary, extraordinary year in which the autistic young campaigner (now 16) lingers on the brink of adulthood – still as likely to skip and clap as he is to belt out a rousing oration to thousands of people. Dara writes of his family in Northern Ireland and the nature he loves with passion, humour and eloquence. It made me laugh, cry, cringe and sigh, and reminded me startlingly of who I once was and who I once wanted (deep down still want) to be.

Amy-Jane Beer Nature writer

## APP Wildeverse

INTERNET OF ELEPHANTS, FREE

Enter an augmented reality with this new mobile wildlife game. Look through the virtual forests to find and learn about four species of ape, all of which are based on real individuals in the wild – Fio (Bornean orangutan), Chili (white-bearded gibbon), Buka (western lowland gorilla) and Aida (chimpanzee). Working with scientists, you'll help to conserve the apes through various missions, such as looking for tracks and poo, and finding out what food the apes have been eating.

Working with scientists from real wildlife organisations – Goulougo Triangle Ape Project and Borneo Nature Foundation – the developers had planned for users to play the game outdoors, but with the outbreak and spread of coronavirus, they worked to adapt it for playing indoors. **Megan Shersby**



## OUT IN THE GARDEN

### DAMP PATCH

As the latest generation of amphibians start to branch out from ponds, pile logs in a shady spot to give the creatures a cool, damp place to use as shelter.

### PUT UP WITH PESTS

Birds are busy looking for insects to feed their chicks, so avoid using pesticides to get rid of aphids or the like. If desperate, you can wash pests from plants by spraying water mixed with washing-up liquid.

### LET THE GRASS GROW

With lawn-mowing starting in earnest, try to leave a section to grow unruly. Flowering 'weeds' and long grass will attract all manner of insects.

Grebes: Carol Grenier



## YOUNGER READERS

# The Big Book of Blooms

BY YUVAL ZOMMER, THAMES & HUDSON, £12.95



From the off, it's clear that this is an impressive book. Gorgeous illustrations flood every page, and short, accessible chunks of copy offer an incredibly full introduction to botany. We begin at the beginning with an overview of flower families, anatomy and pollinators, before delving deeper. Why are roses red and

violets blue? What are flowers actually for? How do seeds disperse? Can plants defend themselves? And so on. Beyond science, we learn about flowers in different cultures, and how and why we might grow them ourselves.

As with all the best children's reference books, this title comes highly recommended for grown-ups, too. Every time my son gleaned some nugget from the book and turned to me asking "Is that true, Daddy?" I was conscious not only of the wonder of nature blooming in him, but also getting a refresher of the miracle of plant life for myself.

**Paul McGuinness**

## BOOK

# Birds: An Anthology

EDITED BY JAQUELINE MITCHELL,  
BODLEIAN LIBRARIES, £16.99



Filled with poems, journal entries and book extracts, this anthology amounts to a collective love letter to birds. Whether it is Dorothy Wordsworth describing young bullfinches, which "bustle about among the blossoms, and poise themselves like wire-dancers", or John Milton praising the "liquid notes" of the nightingale, each writer offers such beautifully articulated observations as to capture something of the sublime.

Jaqueline Mitchell presents literary gems that stretch from current times as far back as Ancient Greece. This book stands as testimony to our ongoing love affair with birds – it seems impossible that we could ever exist without them.

**Catherine Smalley** Nature writer

## PODCAST

# The Bearded Tit's Podcast

BEARDEDTIT.PODBEAN.COM

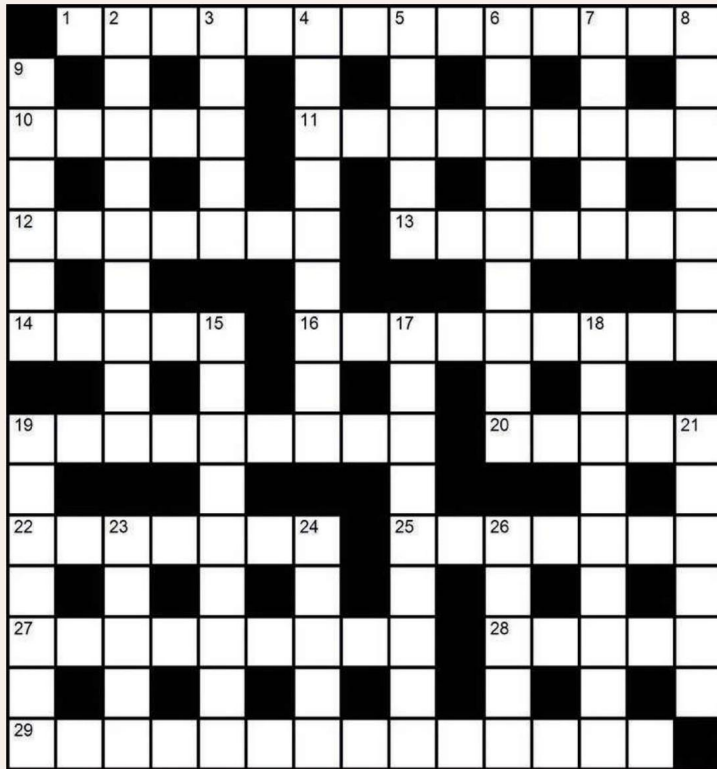


Following the COVID-19 lockdown, wildlife photographer Jack Perks decided to take advantage of his new-found abundance of free time by starting a podcast, to "give me something to do and stop me murdering my family," he jests. With his peers dialling in for a chat, Jack covers an eclectic mix of topics and issues, such as underwater and eco photography, rewilding and the reasons why everyone should love frogs, to name a few.

Conversations contain details of personal experiences and wildlife encounters (as well as some colourful language unsuitable for younger ears), and provide plenty of interesting insights and professional tips for those with a passion for photography. **AM**

# PUZZLES

Win a prize with our crossword, and test your wildlife knowledge.



## ACROSS

- 1 Flycatcher of New Guinea (7, 7)
- 10 Genus to which the grey heron belongs (5)
- 11 North American plant in the genus *Trifolium* (3, 6)
- 12 City in which the BBC Natural History Unit is based (7)
- 13 Myrtle genus named after Prince Eugene of Savoy (7)
- 14 Greenfly genus (5)
- 16 Wild pigs (9)
- 19 Fungus genus, so called because it appears to have a belly-button (9)
- 20 Pore in a leaf or stem (5)
- 22 Specialised stem of a climbing plant (7)
- 25 William \_\_\_, botanist who gave his name to a yellow-flowering shrub (7)
- 27 Long-legged wading bird that might be Javan or rufous-bellied (4, 5)

- 28 Offspring; juveniles (5)
- 29 BBC television special in which penguins were filmed covertly (3, 2, 3, 6)

## DOWN

- 2 Gregarious African songbird (3, 6)
- 3 Smallest – like the \_\_\_ weasel or \_\_\_ grebe (5)
- 4 Gum trees (9)
- 5 Deciduous tree such as the sycamore (5)
- 6 Moisture-loving African plant, grown as pasture (4, 5)
- 7 Large corvid of upland habitats (5)
- 8 Books describing plants (7)
- 9 Country of southern Africa, home to Rhodesian giraffe and Kafue lechwe (6)
- 15 Spiny ocean creature (3, 6)
- 17 Songbird common in the UK, the

- males of which have a blue-grey crown (9)
- 18 Arctic seabird with white plumage (5, 4)
- 19 Eight-limbed mollusc (7)
- 21 Deep-rooted plant also known as camelthorn (6)
- 23 Female goat (5)
- 24 Deciduous conifer in the genus *Larix* (5)
- 26 Blue-\_\_\_ limpet, kelp-feeding mollusc (5)

Answers  
in our  
August 2020  
issue

## SPRING'S ANSWERS

**ACROSS:** 1 bristly bedstraw, 9 animal, 10 reindeer, 11 peacocks, 14 islets, 17 slender-spined, 20 ocean currents, 23 nepeta, 25 hawkmoth, 28 songbird, 29 dyckia, 30 lovely fairywren.

**DOWN:** 2 ringed, 3 sumac, 4 lilac, 5 birds, 6 daisies, 7 tidal, 8 wire sedge, 12 ocean, 13 kudzu, 15 ernes, 16 groundsel, 17 sheep, 18 rorua, 19 pink, 21 charity, 22 stripe, 24 eagle, 25 hydra, 26 wader, 27 macaw.

## SPRING'S WINNER

**P Martin** Essex

## Wild quiz



Frank Teigler/Alamy

**1) Which small hedgerow tree does this leaf belong to?**

- A** Hazel
- B** Field maple
- C** Ash

**2) Which of these species owns the world's largest brain?**

- A** Sperm whale
- B** Blue whale
- C** African elephant

**3) What is a grass snake's favourite food?**

- A** Mice
- B** Frogs
- C** Baby birds

**4) A grasshopper's ears can be found on its...?**

- A** Wings
- B** Knees
- C** Abdomen

**5) Which nature writer made a BBC Four film about wind?**

- A** Robert Macfarlane
- B** Helen Macdonald
- C** Tim Dee

**6) Bump into a green shield bug in your garden, and it might release a smell like...**

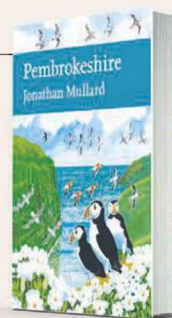
- A** Marzipan
- B** Coffee
- C** Mint

Crossword compiled by **RICHARD SMYTH**, quiz set by **BEN HOARE**

## WIN A COPY OF PEMBROKESHIRE

**HOW TO ENTER** This competition is only open to residents of the UK (including the Channel Islands). Post entries to **BBC Wildlife Magazine, June 2020 Crossword, PO Box 501, Leicester, LE94 0AA** or email the answers to [june2020@wildlifecomps.co.uk](mailto:june2020@wildlifecomps.co.uk) by 5pm on **1 July 2020**. Entrants must supply name, address and telephone number. The winner will be the first correct entry drawn at random after the closing time. The name of the winner will appear in the August 2020 issue. By entering, participants agree to be bound by the general competition terms and conditions shown on this page.

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Enter for the chance to win a hardback copy of *Pembrokeshire*, a New Naturalist Library series book, written by Jonathan Mullard and worth £60. [harpercollins.co.uk](http://harpercollins.co.uk)

Find out  
the answers  
on p93

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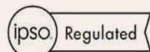
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# DON'T MISS NEXT ISSUE



Alejandro Prieto

- » 'He who kills with one leap': on the trail of Mexico's elusive jaguar
- » The 120-million-year story of bees
- » Dive into the world of Scotland's basking sharks
- » Wallace: follow in the footsteps of Darwin's rival

JULY ISSUE ON SALE **2 JULY**

# Your photos

Amazing images  
taken by our readers

Enter our Your Photos  
competition at [discoverwildlife.  
com/submit-your-photos](https://discoverwildlife.com/submit-your-photos)



Star  
photo

## Welcome to the jungle cat

I have always been fascinated by the wild world of felines. After doing some research, I came to know about a place named Bardhaman, where there is a good population of jungle cats. After setting up a hide and waiting for numerous days, I was finally able to capture the image of this feline, fulfilling my long-held wish.

*Saurabh Chakraborty, West Bengal, India*

## ENTER TO WIN A WATERPROOF PARAMO JACKET

This month, our star photo will win either a men's Paramo Halcon jacket or a women's Paramo Alondra jacket (RRP £350 and £325, respectively). Both garments use Nikwax Analogy waterproof fabric, making them ideal for being out in nature. [paramo-clothing.com](https://paramo-clothing.com)





### 1 Eager elephant

Addo Elephant National Park is close to my hometown and I visit there often to take photos. I saw this young elephant reaching for the nipple and decided to capture that moment.  
*Antionette morkel, Port Elizabeth, South Africa*

### 2 A splash of red

Foxes are exceptionally smart. With their amazing hearing, they pinpoint the location of prey, deep under the snow. This red fox in Grand Teton National Park caught at least four mice that day.  
*Goutham Ganesh Sivanandam, North Carolina, USA*



### 3 Fish supper

I went to Hungary for a photography trip in January. It was amazing to observe grey herons hunting for fish. They are often seen standing stock still in the shallow waters, patiently waiting for the fish that flit about below the surface.  
*Tony Zhang, London*

### 4 Following the herd

Thousands of wildebeest crossing the Mara River, heading to fresh grazing areas, follow one another in a kind of insanity. I was lucky to see that spectacle this year – it was unforgettable.  
*Tomasz Szpila, Bulowice, Poland*



### 5 Seeing double

I was in a hide next to a pool in Hawes, Yorkshire Dales. This squirrel was eating a nut and created a great reflection. I have never been this close to a red squirrel before, so it was a great experience.  
*David Bennion, Lancashire*

# Feedback


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**WRITE TO US**

 BBC Wildlife, Eagle House,  
Colston Avenue, Bristol, BS1 4ST

**Star letter**

## Playing games

I was interested in the news article (Teaching new dogs old tricks, April 2020) about the wolf cubs playing fetch. About 10 years ago I had four fox cubs from the wildlife hospital where I volunteered, which I released into the wild when older. One of them regularly visited our garden after release.

I never tamed the cubs, but she was always more friendly than the others – probably because she'd been hand reared. I tried playing ball with her one evening, and was surprised how readily she raced

after it, but would only pick it up in her mouth and then drop it – making me go and pick up the ball to repeat the exercise.

One day, the ball went into our neighbour's garden. The fox dived under the fence and shot after it and, as usual, picked it up but then dropped it where she'd found it. I told her to bring it back, as I couldn't throw it again, otherwise. Of course, she didn't understand what I was saying but, after a few minutes of staring at me, she seemed to realise what she was meant to do and picked up the ball, came back under the fence and ran after me with it, as I was returning to the house.

From then on, each time we played ball, she'd bring it closer to me. Maybe we underestimate our wild friends when it comes to the degrees of their intelligence.

Rosy Jones, Surrey



A fetching fox: these intelligent creatures are quick to learn.



Leftovers can be a clue to a garden visitor's identity.

animal that stole it). A fox would be the number one suspect in a case like this – they carry and cache their prizes long distances from source. The holes may be coincidental – it could be the work of a bird. Ravens, crows and the like will carry eggs away as well.

## It's great outdoors

As a primary school teacher, I was intrigued but ultimately disappointed with Louise Tickle's article on outdoor education (Wild wisdom, March 2020). The idea of teaching outdoors is hugely exciting and preferable to many teachers I know, but the article spends very little time dealing with the challenges this would present to an urban or inner-city primary school. For change to occur, it has to come at government level. At present, for me to take my children out, it involves taking all of the teaching assistants across Key Stage 2, which isn't feasible on

## Feeling the heat

Mark Carwardine's article gave strong reasons why sky lanterns are hazardous to our environment (My way of thinking, March 2020). They can hit anyone, even an innocent soul in a garden who knows nothing about them.

However, you 'shot me down in flames' by calling for their ban. The beauty they offer in celebrations can still be maintained by advocating to manufacturers to produce eco-friendly lanterns.

Saratu Dankama, via email

This costs money and perhaps lives, since the odd animal isn't considered important enough.

Lynn Hammersley, via email

All I can say with reference to the sky lanterns article, is that I cannot believe that they are not already banned. I've always believed that they are dangerous and just another source of litter. I see absolutely no reason whatsoever that they should still be allowed.

Debbie Sansum, via email

## Cracking the case

Over a period of four days, in the third week of March, three hen eggs appeared in our garden. Each looked as if they had been pecked open and the contents consumed, with no evidence of yolk or white, and with most of the shell intact.

I have asked various local friends and they do not know

of anyone keeping hens within about a half-mile radius of our house. Which animal could be involved? What could carry them without major damage and open them in what is a rather delicate manner?

I know we get the occasional badger in the garden – could they really be the culprits?

Roger Hart, Gloucestershire

**Nick Baker replies:** It's difficult to tell from a photo, but the egg on the right appears to have two neat holes – canine teeth, perhaps?

The distance between these can give you a clue as to the size of the jaw, and therefore the creature that consumed the egg (which is not necessarily the



Could educating children outdoors really work?

a daily or even weekly basis. It would be interesting to see a response from the Department for Education and any plans it has to enable schools to work outdoors regularly but, sadly, I think this is something that has not been thought about in any detail at that level.

Andy Rhodes, Leeds

**Louise Tickle replies:** Persuading politicians and civil servants that outdoor learning is of enough value to change the way teaching and learning happens is certainly something that a consortium led by The Wildlife Trusts is aiming to achieve – through their Nature Friendly Schools project, with more than 300 schools involved across the country.

I was interested to read about the Outdoor Learning in Primary Education degree and fully support this. I've recently completed the PGCE in Outdoor Activities at Bangor University, and the areas mentioned were very common when discussed with other teachers. However, many just don't have the confidence in running activities outdoors for worry of ratios, risk assessments and the lessons being perceived as just 'play'.

Whilst I agree outdoor play should be a legal requirement in primary, why not secondary as well? Statistics show they spend even less time in parks, etc. They're a generation that will help encourage the next far quicker than the current primary-aged children.

Joanne Parker, via email

**Louise Tickle replies:** I agree that children in both primary and secondary school would benefit from more of their learning being done outdoors. But it won't just need more teachers who are trained to feel confident to deliver their teaching differently – it will require more senior leaders who are willing to think creatively, and who will let them.

## QUIZ ANSWERS (see p88)

1B, 2A, 3B, 4C, 5C, 6A

## TALES FROM THE BUSH

# A long way from home

Swapping UK woodland for the cloud forests of Ecuador saw Kate MacRae encountering a little-known species.

Native to the Americas, the tayra is part of the weasel family.



Have a wild tale to tell? Email a brief synopsis to [sarah.mcperson@immediate.co.uk](mailto:sarah.mcperson@immediate.co.uk)

Kate MacRae

I couldn't wait to see what was on the trailcam SD card. I was sitting on a wooden deck in the Mindo Cloud Forest, Ecuador – a change from my local woodland in Staffordshire. The birdsong that surrounded me was as unfamiliar as the mammals I was recording – and this was making the experience all the more incredible.

I inserted the SD card into my laptop and waited for the files to load. Then, a sudden movement caught my attention.

About 10m away, a male tayra had climbed up to the lodge's feeding platform. Moving with skill and strength, this huge mustelid effortlessly scaled the vertical trunk, pausing to scan the landscape. I froze, laptop on my knees and my DSLR just a few centimetres from my side. The tayra locked eyes with me before continuing his ascent. Gathering myself, I gently placed my laptop to one side and lifted my camera. My heart was racing as I depressed the shutter and the image sprung into focus.

The tayra is a fabulous creature. Thick-set and muscular, rather like an Arnold Schwarzenegger version of our own pine marten, this mammal is well adapted to life in the forest. It can weigh up to 7Kg, has a

**“Thick-set and muscular, the tayra is like an Arnie version of our pine marten.”**

body length of around 60–70cm, not including the tail, and is omnivorous – eating fruits, insects and small invertebrates as well as eggs and carrion.

I knew the species was here at El Septimo Paraiso Lodge, as the owner, Ana, told me about them when we first met at Birdfair in August. Back

then, I had not even heard of a tayra, let alone seen one. Now I was just metres away from a male – and had a trailcam card full of footage, too. Ana had asked me to spend a week there with my cameras and kit, to help them understand the diversity of species visiting the lodge, but this far exceeded anything I thought I would encounter.

Little is known about the tayra. Much of my work involves rigging cameras in nestboxes and dens in the UK, but I now had a new mission: to return to Mindo and create a tayra box, fully wired with cameras, that I could monitor from home. How mind-blowing would it be to be the first to film the private life of this elusive mustelid? Mission accepted. ☑



**KATE MACRAE** is a wildlife consultant. Tune in to her feeding platform at [wildlifekate-alfrescowild.co.uk](http://wildlifekate-alfrescowild.co.uk)

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## PRODUCTS

# Do it Yourself – a first-timer's guide to building a flatpack tractor

Helen Noble finds out how



One Monday morning the Managing Director of Siromer tractors walks into the office with a smile and hands me a pair of red overalls. Louise Howard declares that it is time that I built my first tractor. I am more practised in handling the busy stream of phone calls than building a compact tractor, but I accepted the challenge. The tractor in question is a 254, 25hp 3 cylinder tractor.

I was encouraged by the fact that no one has ever not been able to build a Siromer flatpack tractor. I have been on the receiving end of many victorious phone calls from Siromer customers who have completed the task and are keen to let us know about their experience and their completion time. Farmer Fred Sharman of Repps in Norfolk currently holds the record at an impressive 4 and a half hours.

Knowing the team of mechanics that would be helping me also made the whole process feel more manageable, but I was amazed at how easy the build was. I have heard many times the sale line of 'You can see it, build it, repair it and service it' and it was great to see how accurate this is.

The estimated build time for a Siromer compact tractor is 10 hours and 10 steps, but with the practised hands and knowledge of the mechanics we knew it would be much quicker. A comprehensive manual is supplied to all Siromer customers along with a basic tool box. The chaps in the workshop work fast as you'd imagine with all the experience they have, but slowed down to explain the parts and the processes they fly through ordinarily. They regularly build the crated tractors for the customers that would rather the tractor be built in our workshops and delivered ready to use.

The first step was to unpack the crate



and lay out the 30 different components including the main skid, exhaust, wheels, battery, roll bar. With it all laid out it was hard to imagine that in a few hours this would be a shiny new tractor that I could drive out of the workshop. The main skid was lifted out of the crate using a forklift but trolley jacks and axle stands can handle this task. It is worth remembering that the tractors have already been assembled once in the factory north of Shanghai, run, tested and then disassembled and crated for shipment to Siromer HQ. Once the wheels have been bolted on the rolling chassis is lowered down to the floor, it is already starting to look like the tractors I know.

We then got to work with the body work, the rear mud guards, the roll bar, the bonnet and engine cowlings are all then fitted. I can see how logical the assembly is, each part fitted seems to lead to the next and although the guys on the team have had lots of practise I can see how, with the help of the construction manual and an extra pair of hands a novice like myself can put this together. With the tractor really taking shape now it was time for a break where I saw that Siromer tractors are built on fuel made from bacon sandwiches and cups of tea!

The electrics are tackled after a short break, attaching the rear lights and then the 8 electrical cables, the mechanics showed me the diagrams of these and again, a logical visual is given to help with the process. The three-point linkage is the last of the main construction elements. This is the point when I will get an occasional call in the office from a customer mid build. They are always able to speak with a mechanic and talk through any queries. The tractor is now ready to be greased. Lubricants and coolants are added, and the diesel tank is filled up. The mechanics then tighten every nut and bolt, especially the ones I had fitted!

Once the battery is connected and the injection pump primed the mechanics graciously gave me the keys for the first start up. Such a sense of achievement hearing the tractor that began life in a crate roar into action! After all the pre-delivery inspection checks were carried out and the paperwork completed for me to take back to the office I was able to drive the tractor out of the workshop.

I can see why so many people choose to build their own tractor, it gives you such a great working knowledge of the machine and this is surely why Siromer have made it company policy for all staff members to get the chance to complete a build. But also, the task of construction and the achievement of putting a tractor to work that you built yourself is incredibly enjoyable. The challenge to construct this durable and versatile tractor is there for you if you wish, but our competent mechanics are on hand if you would rather receive the tractor fully built, offering the best of both worlds. ■

For more information on the complete range of tractors and equipment visit [www.siromer.co.uk](http://www.siromer.co.uk) or call 01253 799029

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## WILDLIFE CHAMPION

## DR AMIR KHAN

In our series about people with a passion for a species, we ask GP and presenter Dr Amir Khan why he loves the **hummingbird hawkmoth**.

Interview by Ben Hoare

### Why is the hummingbird hawkmoth special to you?

I saw my first a couple of years ago, feeding on some *Verbena* beside my road. To begin with, I genuinely thought it was a hummingbird, but then I took a video and watched it back in slow motion. I could hardly believe such a creature existed in the UK!

### Ever had one in your garden?

Yes! I immediately planted some *Verbena bonariensis* at home – it's great for all kinds of butterflies and moths – and, sure enough, the following year 'hummers' visited my garden. My favourite thing to do is sit there in the middle of summer and watch them.

### How did you get into wildlife?

We never had much outside space where I grew up. But when I was nine, I set about going on evening nature walks to the local woods, and would come back and tell Dad all about the creatures I spotted. He has passed away now, but it's still one of my fondest memories of him, sitting there listening to me talk about the bats I'd seen.

### Where do you like to enjoy nature?

My garden, of course – I've worked hard to make it as good for wildlife as possible. There are lots of



**"Lockdown has made people realise just how important the natural world is."**

bird feeders, insect friendly plants and a pond. During this coronavirus crisis, I simply have to spend time in the garden at the end of each shift at work. It helps clear my mind.

### Tells us about the Insect A&E campaign

Our insect pollinators are facing a crisis, so when Butterfly Conservation and the Bumblebee Conservation Trust jointly launched this project [[butterfly-conservation.org/insectae](https://butterfly-conservation.org/insectae)], I wanted to help. The idea is to get people planting insect-friendly flowers. From experience, I know how proud it makes you feel that you're doing your bit.

### Any top tips for attracting garden pollinators?

Sowing a mix of British wildflower seeds is all you need to

get started – it could be in a pot or window box, there's no area too small. *Buddleja* is also brilliant at attracting butterflies and moths, and I already mentioned *Verbena*. You don't have to have a massive garden or be an expert gardener. The more you garden, the more you learn.

### In stressful times, does nature help your patients?

Absolutely. Lockdown and social distancing have made people realise just how important the natural world is. I recommend taking daily walks in nature to a lot of my patients. Everyone needs time away from the news and the stress, and nature is a great way to get away from it all.

### Should there be more 'green' prescriptions?

I'm a big fan and advise patients to spend time with nature as part of their treatment. The best thing is, you don't have to be doctor to give out a green prescription. People who recognise the health benefits of the great outdoors can recommend it to friends and family. It's the 'Natural Health Service'. 🌿

**DR AMIR KHAN** is a GP in Bradford who presents Channel 5's hit series *GPs: Behind Closed Doors*.

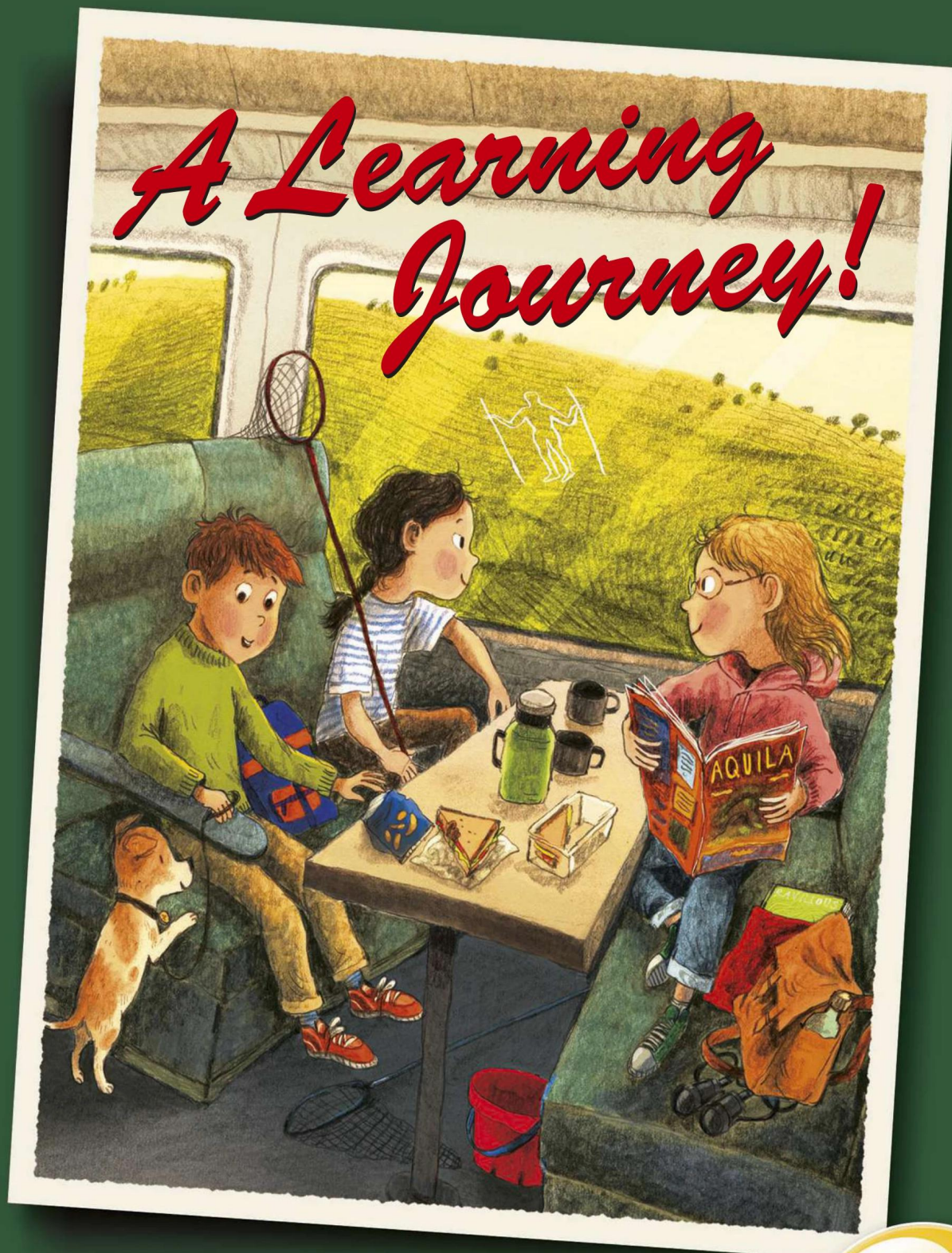
### The expert view



Hummingbird hawkmoths come to our shores from the Mediterranean and even as far away as North Africa. They are temporary residents, found across the UK but most widely in England and Wales, being more numerous in the south. Arrivals of this magnificent moth occur between April and December, though numbers usually peak in August and September. In recent decades, adults have successfully overwintered here.

**Dr Zoë Randle**, Butterfly Conservation

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