WWF
FOR YOUR WORLD

Action

THE MAGAZINE FOR WWF MEMBER[illegible] AUTUMN 2020

WIN
A SIGNED COPY OF ATTENBOROUGH'S NEW BOOK
PAGE 30

REEFS OF HOPE

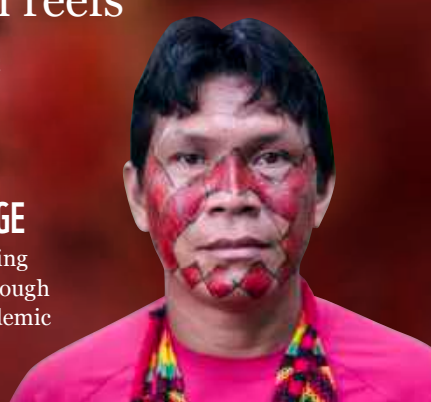
How you're helping protect unique coral reefs that could survive climate change

HEALING NATURE

Forests are good for our health and for our planet – so we're fighting to keep a trillion trees standing

RISING TO THE CHALLENGE

Thanks to you, we're supporting communities and wildlife through the worst impacts of the pandemic



"LIFE-CHANGING EVENTS SUCH AS THE PANDEMIC CAN GIVE US TIME TO RETHINK AND RESET"

NURTURING A GREEN RECOVERY

The Covid-19 crisis has reminded us how closely people and nature are interlinked. Unless we act now, the destruction of habitats and exploitation of wildlife will increase the risk of future pandemics, with serious consequences for our health, economies and ecosystems.

As we emerge from this crisis, we have an opportunity to heal humanity's broken relationship with nature. Our recent report, *Covid-19: Urgent call to protect people and nature*, demanded rapid global action to tackle the causes of pandemics. We must curb the trade and consumption of threatened wildlife, halt deforestation and land conversion, and find more sustainable ways to produce food to reduce the risk of diseases passing from animals to people.

A better future starts with the decisions people, governments and companies around the world make today. So we're urging world leaders to embrace a just, healthy and green recovery where people and the planet thrive and pandemics are less likely.

The fight for our world has never been more important. We need to work in partnership with nature, rather than against it.

Forests cover almost a third of the Earth's land, but we're losing them at an alarming rate. This threatens the prosperity of people and wildlife. So we're working for a world where one trillion trees are regrown, saved from loss and better protected around the world by 2050

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MEET THIS ISSUE'S GUEST CONTRIBUTORS

CAROL PHUA is WWF's global Coral Reef Rescue Initiative manager. She says: "If we can protect reefs that are less vulnerable to climate change, they'll bring life back to our oceans and help other reefs."

STUART DAINTON, head of Trillion Trees, says: "With the challenge of biodiversity loss and climate change, it's critical we protect forests and put back trees in our landscapes to restore the balance with nature."

DAVID CURNICK leads the fieldwork for our coral reef monitoring project in Fiji on behalf of the Zoological Society of London. "Our coral reefs have reached a tipping point. We urgently need innovative solutions to save them," he says.

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TOGETHER, WE DID IT!

Thanks to your membership, we can help protect wildlife and wild places. Here are some of the great things supporters like you have helped achieve

"THE SOLUTIONS FOR NATURE RECOVERY ALREADY EXIST – NOW WE NEED TO EMBRACE THEM. THIS CAN START WITH JUST ONE OR TWO SIMPLE ACTIONS"
KATIE WHITE, EXECUTIVE DIRECTOR OF ADVOCACY AND CAMPAIGNS

Polar bears are vulnerable while they're in their dens. So mapping den locations helps us push for greater protection of these areas

© ALAMY

1 AMAZON

YOU HELPED GAIN INSIGHTS INTO JAGUARS

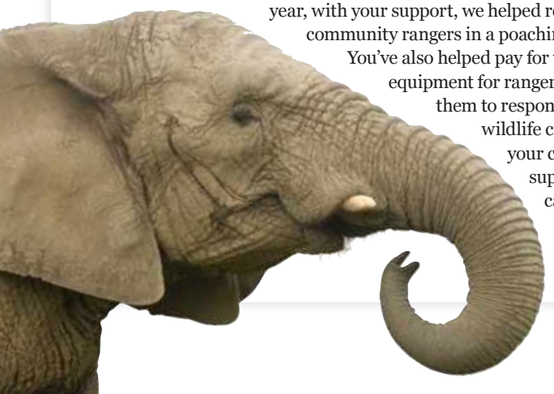
With your help, we've been able to show just how important effective conservation areas are for jaguars in a key part of the Amazon. A two-year project found around 2,000 jaguars living in a wildlife corridor that links a protected area in Peru with one in Ecuador and an indigenous territory in Colombia. This impressive number demonstrates that these largely undisturbed habitats are healthy. That's important for top predators such as jaguars, which need large territories and plenty of prey, such as tapirs. A total of 129 camera traps captured 64,700 photos, from which researchers identified individual jaguars from the unique patterns of spots, or 'rosettes', on their fur. Our goal is to create an interconnected network of jaguar-friendly landscapes across Latin America by 2030, to ensure the survival of the region's largest cat, as well as the countless other species that share its habitat.

© GETTY

2 KENYA

YOU'RE HELPING DRIVE DOWN ELEPHANT POACHING

Because of supporters like you, elephant poaching has been falling in one of Africa's most iconic landscapes. Historically, more than 60 elephants were killed by poachers each year in the Mau-Mara-Serengeti landscape that links Kenya and Tanzania. But for each of the past five years, numbers have been down to single digits. A vital part of that success is our work with communities, who are the guardians of their lands and who play a crucial role in protecting wildlife. Last year, with your support, we helped recruit 15 community rangers in a poaching hotspot. You've also helped pay for training and equipment for rangers, enabling them to respond rapidly to wildlife crimes. With your continued support, we can reach our goal of zero poaching in the region.



© GETTY

3 CAMBODIA

YOU HELPED STOP NEW DAMS ON THE MEKONG

With your support, plans to dam the world's largest free-flowing river have been put on hold. Following years of campaigning by WWF and others, Cambodia has called a 10-year halt to the development of new hydropower dams on the mainstream of the Mekong river. The dams would have caused irreversible damage to unique ecosystems and freshwater species, including the world's largest population of Irrawaddy river dolphins. It would also have harmed the livelihoods of millions of people who depend on the Mekong's fish for food and the fertile soils of its delta in Vietnam. Now we'll focus on supporting Cambodia to develop alternative sources of clean electricity such as solar power, and continue to monitor and protect endangered Irrawaddy river dolphins. In more good news, a newborn dolphin was recently seen in the Mekong river – the fourth this year.

© GETTY

4 INDIA

YOU HELPED SNIFF OUT WILDLIFE CRIME

Thanks to your support, two sniffer dog squads will help detect illegal wildlife items being smuggled by rail in India. Over the past few years, we've worked with TRAFFIC, the wildlife crime monitoring network, to help train more than 60 teams of 'super sniffers' across India. The dogs have helped catch poachers and seize illegal wildlife products such as tiger bones and elephant tusks. This is the first time dogs will be deployed by the Railway Protection Force on India's busy rail network in critical locations used to smuggle wildlife contraband, both within the country and up to the borders where it's trafficked into neighbouring countries.

© TRAFFIC INDIA

9 'Super sniffer' dogs and their handlers undergo a rigorous nine-month training regime to develop specialist skills and a deep bond. The pairs must pass an exam to qualify

5 ANTARCTICA

YOU'RE HELPING PROTECT PENGUINS

Thanks to you, we're one step closer to securing long-term protection for crucial penguin habitats in the Southern Ocean. As Antarctica experiences rapid climate change, it's vital that key wildlife feeding areas are protected from current and future threats. But identifying these places in such a vast, remote region is challenging. That's why we took part in a massive research study, partly funded by our penguin adopters and other supporters, which used satellite and electronic tracking data to discover where predator species go to find food in Antarctica. Over several years, more than 70 scientists from 12 nations tracked over 4,000 individual animals from 17 species, including five species of penguins as well as whales, seals and other seabirds. The results will enable us to identify the important places that need greater protection, and support efforts to create the world's largest network of marine protected areas in the waters surrounding Antarctica.

PENGUIN © GETTY

6 CANADIAN ARCTIC

YOU HELPED MAP POLAR BEAR DENS

Thanks to you, we've compiled a map of more than 1,500 polar bear dens across Canada. Researchers drew on years of monitoring data, including from field programmes funded by our polar bear adopters and other supporters, and the knowledge of indigenous communities, to record sites where female bears are known to make their dens and give birth. This information will help us learn more about how polar bears are adapting to their changing climate and improve protection for these crucial areas as the warming Arctic opens up to more development. Importantly, that includes preserving marine areas too – most dens are 20 miles or fewer from the coast, and bears spend a great deal of their time on sea ice. We recently launched a project called ArcNet to create a network of marine protected areas across the Arctic, working closely with governments and marine stakeholders. This will help both people and wildlife to adapt to rapidly increasing pressures in the region.

WWF IN ACTION

How we're building a better world for wildlife and people

BRING NATURE BACK

WWF's *Living Planet Report 2020* shows that nature is declining faster than ever. But we can help it recover if we all work together

For many people, nature is a source of calm, and this has certainly been the case during the pandemic. In fact, nature is essential to everyone's existence, providing us with clean air, fresh water and food, and regulating our climate. But it's under more pressure than ever before.

Since the Industrial Revolution, human activities have destroyed and degraded forests, grasslands, wetlands and other vital habitats. Our world has been transformed and we're now overusing natural resources at an unprecedented and unsustainable rate.

The impact on wildlife has been devastating. We use the Living Planet Index to record the abundance of almost 21,000 wildlife populations, which helps us measure the health of our planet's ecosystems. The 2020 report shows an average 68% fall in monitored populations of amphibians, birds, fish, mammals and reptiles since 1970. The results clearly show that nature is in serious decline and is being destroyed by humans at a rate unseen before in history.

No one understands this more than WWF ambassador Sir David Attenborough. In his 94 years, he has visited every continent on the globe, documenting life in all its variety and wonder. In his new film, *David Attenborough: A Life On Our Planet*, produced by Silverback Films and WWF (and now streaming on Netflix), he gives a powerful first-hand account of humanity's impact on nature.

Sir David has a message of hope for how we can redress the balance through a shared appreciation for nature. "The problems may seem daunting, but together we can change course," he says. "From everyday choices about what we eat or how we use our money, to the very big decisions about how we do business or govern ourselves, the recovery of nature could be at the heart of humanity's mission in the 21st century. Because after all, we are nature."

As we build back from the current health crisis, we must shift towards a more resilient and sustainable society. We're putting pressure on the UK government to create tough new laws that safeguard nature, both here on our doorsteps and in fragile landscapes overseas.

You can help by adding your name to the campaign and helping to spread the word.

Our planet's natural systems are fundamental to our society. Yet almost six billion tonnes of fish and other seafood have been taken from the world's oceans since 1950

© GETTY | © WWF/CONOR MCDONNELL

HELP US RESTORE THE BALANCE OF NATURE

It's not too late to reverse the decline of nature and create a more sustainable society that benefits people and wildlife. Here's how you can get involved

1. SIGN THE PETITION

Help us put pressure on the UK government to introduce tougher laws that safeguard nature on our doorsteps and overseas: **wwf.org.uk/naturelaw**

2. BE NATURE-FRIENDLY

Download our new **MyFootprint app** to try some simple lifestyle changes that benefit nature – and track your progress: **wwf.org.uk/myfootprint**

3. SHARE THE FILM

If you haven't already seen it, watch *David Attenborough: A Life On Our Planet* on Netflix and encourage your friends and family to watch it too: **attenboroughfilm.com**

4. READ OUR LIVING PLANET REPORT 2020

Our pioneering report monitors the health of our planet and proves that we can restore nature while feeding a growing human population: **wwf.org.uk/lpr2020**

NEWS IN BRIEF

© DAVID BEBBER/WWF-UK

UK'S OVERSEAS FOOTPRINT GROWS

The UK uses an area overseas that's nearly as big as England, Wales, Scotland and Northern Ireland combined to satisfy our annual demand for products such as palm oil, timber, soy and cocoa, according to new research. *Riskier Business*, which we recently published in partnership with the RSPB, reveals this area has grown by 15% since our previous study published in 2017. Some 28% of the land used is in countries where there's a high risk of deforestation among other issues, including Brazil, Indonesia and the Ivory Coast, increasing the risk of extinction for over 2,800 species.

NEWS IN NUMBERS

79 The number of endangered Irrawaddy river dolphins in their namesake river in Myanmar has reached its highest level for a decade, increasing from 72 last year to 79. But there's much to do before the risks to this species are eliminated. We're working to tackle threats such as unsustainable fishing, which affects the availability of prey.

14,000 More than 14,000 people, including WWF supporters, made history in June by signing up for the first ever virtual lobby, organised by us and The Climate Coalition. Together, we asked over 200 MPs in the UK to support a fair and green recovery from the health crisis – creating jobs and tackling climate change.

NEWS IN BRIEF

© ALEX MUSTARD / NATUREPL.COM / WWF

TURNING THE TIDE

On World Oceans Day in June, we joined other ocean conservation organisations in England to launch a rallying cry to save our seas. The Ocean Recovery Manifesto calls for at least 30% of English waters to be fully protected by 2030. Though we already have a network of marine protected areas around our coast, few of these offer any real protection to wildlife. Through our partnership with Sky Ocean Rescue, we'll be calling on UK governments to improve sustainability of fisheries, recognise the role restored seas can play in a green recovery, and restore our coastal habitats.

© EMILIO WHITE

JAGUARS ON THE UP

Jaguars are making a comeback in South America's Atlantic Forest, with the latest data suggesting that numbers in the south-west of the region have doubled over the past 15 years. When monitoring work began in 2005 the population in this area was estimated at 30 to 54 individuals. But it's been steadily growing. The latest figures suggest there are between 84 and 125 jaguars here now, out of a total population of 150–200 across the whole of the Atlantic Forest. Researchers analysed more than 440,000 camera trap photos to reach this estimate.

BLACK RHINO NUMBERS INCREASE

We're celebrating fantastic news from Africa, where the number of wild black rhinos has increased to 5,630. The latest figures show the population has been growing at a rate of 2.5% per year, despite the ever-present threat of poaching

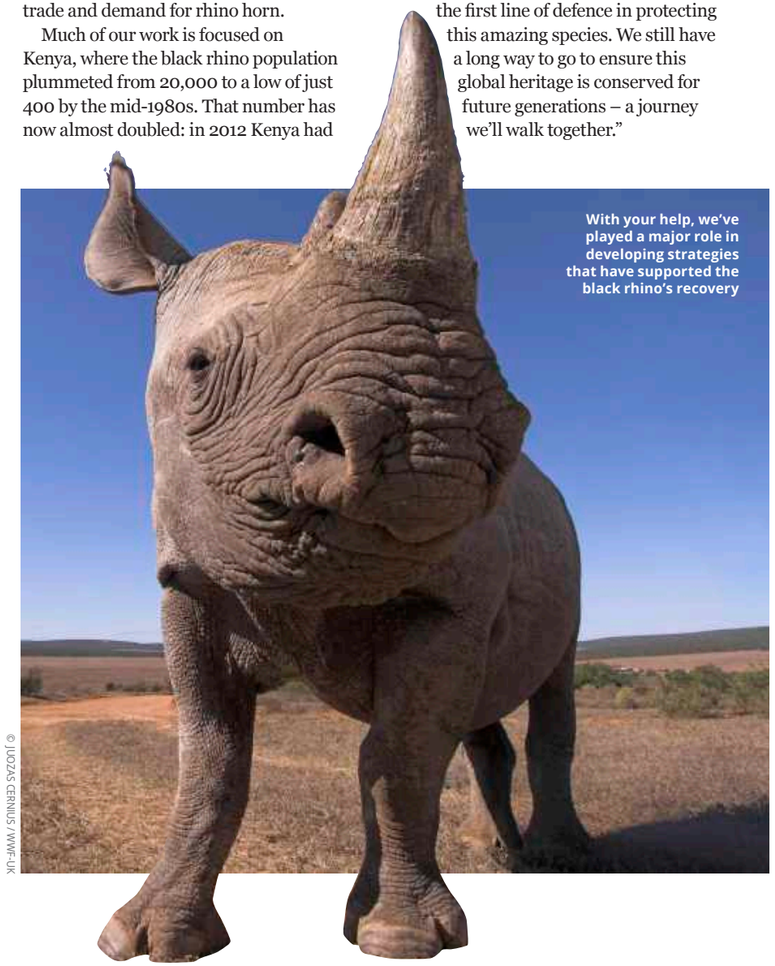
Black rhinos were once the most numerous rhino species in the world. It's estimated that close to 100,000 roamed southern and eastern Africa at the start of the 20th century. But hunting and habitat loss drove them to the brink of extinction, with fewer than 2,500 surviving by the century's end. While black rhinos remain critically endangered, the upward trend is a cause for celebration.

We've been working with partners in a range of ways to help black rhinos recover – from establishing sanctuaries and moving rhinos to start new populations, to supporting efforts to stop poaching, illegal trade and demand for rhino horn.

Much of our work is focused on Kenya, where the black rhino population plummeted from 20,000 to a low of just 400 by the mid-1980s. That number has now almost doubled: in 2012 Kenya had 631 black rhinos, and by the end of 2019 there were 784. Our goal is to increase the population to 2,000.

Demand for rhino horn in Asian countries such as Vietnam means poaching is a constant threat, but our anti-poaching measures are paying off. You've helped by funding vital equipment and support for rhino monitoring, including GPS systems, vehicles and cameras as well as mosquito nets, boots and rations for rangers and community teams on patrol. Encouragingly, only one black rhino was killed by poachers last year, down from four the year before.

Dr Martin Mulama, our rhino programme coordinator in east Africa, is optimistic about the future of black rhinos in Kenya and across Africa. He paid tribute to our supporters, particularly our rhino adopters: "Thanks to them, we have improved the welfare of rangers, who are the first line of defence in protecting this amazing species. We still have a long way to go to ensure this global heritage is conserved for future generations – a journey we'll walk together."



With your help, we've played a major role in developing strategies that have supported the black rhino's recovery

© JUOZAS CERNIUS / WWF-UK

In the spectacular video footage, the lynx creeps down the steep rocky cliffs of Chitral Valley, Pakistan, as it closes in on its prey

THE LYNX EFFECT

Stunning new footage from Pakistan shows a Himalayan lynx hunting a Kashmir markhor – an event that's never been caught on camera before

The lynx is an elusive predator that normally hunts at night, and is hardly ever seen by people. So WWF-Pakistan photographer Nyal Mueenuddin and members of Khyber Pakhtunkhwa Wildlife Department could barely believe their eyes when they spotted this cat while filming a herd of Kashmir markhor – a type of large goat with spiral horns – grazing in the Tooshi-Shasha Wildlife Conservancy.

The lynx was almost perfectly camouflaged, crouching behind a rock. What followed was a dramatic hunt few people have ever witnessed. The lynx stalked the markhor herd down the rocky mountainside before pouncing on a yearling, killing it swiftly.

Like snow leopards, which we've been working to protect in Pakistan for many years, the lynx is a top predator that plays a crucial role in maintaining the balance of the Himalayan ecosystem. A few decades ago, its wild prey – markhor – were close to extinction. The cats were forced to survive on livestock instead, causing some farmers to retaliate.

With the help of our partners and local communities, we've rebuilt the population of markhor so the lynx are now less likely to attack livestock. With the rise in numbers of wild prey, we hope the lynx population has increased too.

© NYAL MUEENUDDIN / WWF-PAKISTAN / KHYBER PAKHTUNKHWA WILDLIFE DEPARTMENT

SILENCE OF THE SNARES

Wild tiger populations are increasing in five countries thanks to conservation efforts. Sadly, this is not the case in south-east Asia, where snares are contributing to a wildlife extinction crisis

This year marks 10 years since the governments of 13 tiger range countries agreed the goal of doubling the number of tigers in the wild. At that time, the global tiger population was at an all-time low of as few as 3,200. But thanks to conservation measures, tigers are making a comeback in Bhutan, China, India, Nepal and Russia, and the global population now stands at around 3,900.

Despite this historic achievement, tigers remain threatened by poaching for the illegal wildlife trade, habitat destruction and fragmentation. This has reached critical levels in south-east Asia, where a snaring crisis is decimating wildlife, including tigers and their prey.

Commercial poachers set large numbers of snares – deadly traps made from cable or wire – to catch wild animals, often illegally. They sell the meat to urban middle-class consumers in east and south-east Asia, where it's increasingly regarded as a delicacy. Our *Silence of the Snares* report estimates there are 12.3 million snares threatening wildlife in protected areas in Cambodia, Lao PDR and Vietnam. This is a big reason why tigers are now presumed extinct in these countries. And the loss of wildlife from remote and rural areas threatens indigenous communities who rely on natural resources.

We celebrated Global Tiger Day in July with good news for tigers

© NITISH MADAN / WWF-INTERNATIONAL

We're urging governments in south-east Asia to better support protected areas with enforcement and patrolling, strengthen legislation, end the illegal wildlife trade, and start projects to reduce demand. These efforts must engage communities as leaders and partners. If taken holistically, these measures could help halt and reverse the snaring crisis and ensure the tigers' survival.

REEF RESCUE

With your support, we've identified resilient coral reefs that could survive climate change and help regenerate our oceans. It's an important breakthrough, as these vital habitats are being lost on an unprecedented scale

A whitetip reef shark cruises over a vibrant coral reef in Beqa Lagoon, Fiji. Shark-diving tourism is estimated to have contributed US$42 million to the Fijian economy in 2010, of which US$4 million was paid directly to local communities

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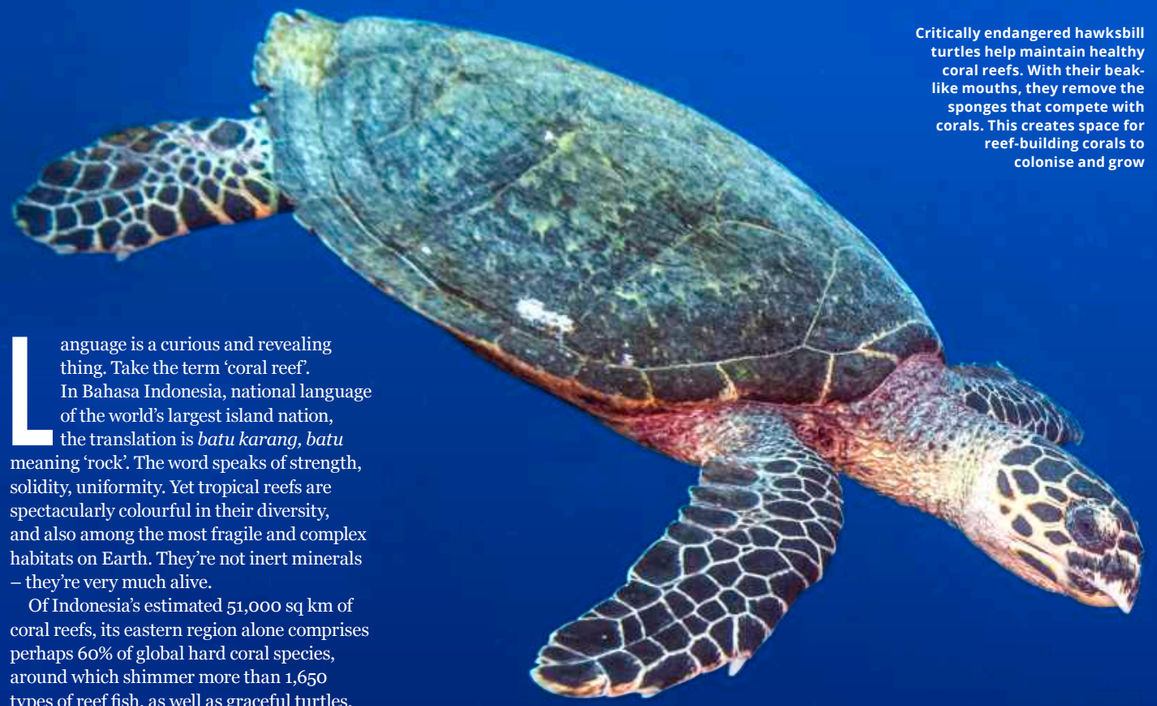


Critically endangered hawksbill turtles help maintain healthy coral reefs. With their beak-like mouths, they remove the sponges that compete with corals. This creates space for reef-building corals to colonise and grow

Language is a curious and revealing thing. Take the term 'coral reef'. In Bahasa Indonesia, national language of the world's largest island nation, the translation is *batu karang, batu* meaning 'rock'. The word speaks of strength, solidity, uniformity. Yet tropical reefs are spectacularly colourful in their diversity, and also among the most fragile and complex habitats on Earth. They're not inert minerals – they're very much alive.

Of Indonesia's estimated 51,000 sq km of coral reefs, its eastern region alone comprises perhaps 60% of global hard coral species, around which shimmer more than 1,650 types of reef fish, as well as graceful turtles, lithe eels, tiny seahorses and shy octopuses. This incredible biodiversity is replicated globally. Coral reefs occupy less than 1% of the ocean floor, but provide habitat for around 25% of marine life – an estimated one million species. A coral reef isn't just pretty.

CORAL CATASTROPHE

Today, though, coral reefs are under threat. Since 1980, around 50% of tropical corals have been lost as a result of human activity and a crucial, too-familiar factor: climate change. Large-scale coral bleaching events, caused by extended periods of elevated sea temperatures, were first recorded in the early 1980s. They have since increased in intensity, extent, duration and frequency.

The first *global* bleaching event recorded, in 1998, devastated 16% of the world's coral reefs. Between 2014 and 2017, three-quarters of tropical coral reefs experienced heat stress severe enough to trigger bleaching. Climate models project that, even if the average global temperature rise is limited to 1.5°C (a core long-term goal of the 2015 Paris Agreement), perhaps 70–90% of tropical coral reefs could be lost by 2100. If temperatures rise 2°C or more, less than 1% are likely to survive.

This isn't just a tragedy for wildlife – it's a disaster for us all. We're increasingly coming to understand the value of the so-called blue economy: annual fishing revenues from coral reefs alone are estimated at US$6 billion. But the real cost will be borne by the people who depend on the habitat for food, coastal protection and income.

"SINCE 1980, AROUND 50% OF TROPICAL CORALS HAVE BEEN LOST AS A RESULT OF HUMAN ACTIVITY"

Corals are colonies of polyps – tiny, sac-like invertebrates related to sea anemones. Reef-building species, which typically inhabit shallow tropical waters, secrete calcium carbonate to create hard exoskeletons. But it's a slow process: some reefs grow less than 1mm each year. These species obtain much of their energy – and colour – from algae commonly called zooxanthellae, which live within their cells in a symbiotic relationship: the coral provides dissolved carbon and nitrogen to the guest algae, which 'fixes' it into organic compounds via photosynthesis to 'feed' its host. When sea temperatures rise (by as little as 1°C), this relationship breaks down, prompting the coral to expel the algae. The coral loses its pigmentation – hence the description of 'bleaching' – and may die.

REEFS OF HOPE

The good news is that some healthy coral reefs can resist bleaching. Corals can survive in this state for a short period, and are able to recover if water temperatures subside, obtaining new zooxanthellae from the water. Bleached reef structures can be recolonised by larvae produced by coral elsewhere. And not all reefs, nor all coral species within a reef, are equally exposed to the effects of climate change.

A 2018 study identified the areas of coral reef worldwide that are most likely to survive projected climate change, and that have the greatest capacity to regenerate degraded reefs. Some 70% of them are in seven countries in south-east Asia, the west Pacific, east Africa and the Caribbean. Through the Coral Reef Rescue Initiative (CRRI), in partnership with Wildlife Conservation Society, Rare, CARE International, Blue Ventures, the University of Queensland, Vulcan Inc and national governments, we're aiming to protect so-called 'regeneration reefs' so that they can seed others elsewhere – a kind of submarine Noah's Ark. And that means tackling a range of local problems.

"It's a delicate balance: lots of things need to align for coral to remain healthy," explains Carol Phua, our global CRRI manager. "Water quality is critical, and often dependent on land vegetation. When coastal mangroves or rainforests are cleared – to make way for oil palm plantations, for example – rain washes soil downstream and into the ocean, where it settles as sediment on the reef and suffocates the corals.

"Illegal logging inland can cause mudslides that inundate reefs," Carol continues. "And untreated sewage smothers coral with bacteria. Then there's overfishing, which can tip the balance of species in the reef ecosystem, and bottom-trawling or fishing with explosives or cyanide, which can damage the reef structure."

That's a lot of challenges. But, together with the rest of our CRRI partners, we're determined to overcome them and make the most of the chance to develop a blue economy. Securing local, regional and national support is crucial. So we're talking to politicians and authorities in the seven countries to help shape the legislation needed to protect the reefs, and evolve land and marine planning and management. This will also help inspire the investment needed.

SAFEGUARDING REEFS TOGETHER

Crucially, we're also working with local communities to share their knowledge and understand their needs. "Our vision is not only to build and maintain the resilience of these reefs, but also the resilience of coastal communities who are dependent on these reefs," explains Carol. "So we're targeting health and education. Climate change disproportionately affects women and children, so we're particularly focusing on family planning, financial budgeting and education for women and children."

Many communities living close to coral reefs struggle to overcome poverty. The reefs often provide their primary source of protein and income from fishing and tourism, but the lack of alternative livelihood opportunities can force them to rely too heavily on coastal resources. "If your only way of making a living is fishing, or if you can only cut down mangroves to make charcoal, there isn't a lot of resilience in your lifestyle," explains Carol.

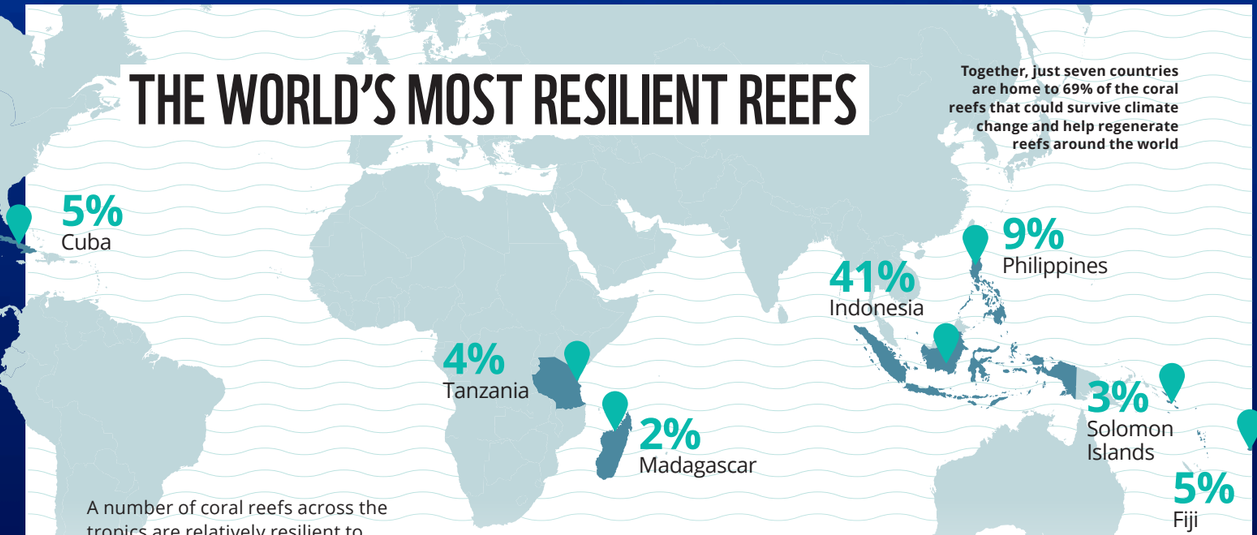
"If something goes wrong with the reef system, or when the mangroves are all gone, what else can you do? So creating other livelihood options is critical, for example through micro-financing small businesses in ecotourism or organic farming. And these need to be options that are wanted, not what we think we should offer: communities need to be owners of their own resources."

One of the first sites that the CRRI is supporting is Fiji, home of the Great Sea Reef, known locally as *Cakaulevu*. At over 200km, it's the third-longest barrier reef in the world. This marine biodiversity hotspot harbours around 40% of the known marine flora and fauna in Fiji, and supplies as much as 80% of the fish caught for the domestic fisheries industry. The communities here hold traditional rights known as *qoliqoli* to manage their local fishing grounds, including creating protected areas.

"For every Fijian brought up by the ocean, the first thing they see as they grow up is ▶

THE WORLD'S MOST RESILIENT REEFS

Together, just seven countries are home to 69% of the coral reefs that could survive climate change and help regenerate reefs around the world



A number of coral reefs across the tropics are relatively resilient to bleaching events caused by climate change, perhaps because local rises in sea temperature are less severe or typically coincide with cyclone seasons when exposure to sunlight (a contributing factor) is reduced.

In 2018, a study identified these resilient reefs and places where other, bleached coral reefs could be recolonised. Nearly 70% of these resilient reefs are found in just seven countries: Indonesia (41%), Philippines (9%), Cuba (5%), Fiji (5%), Tanzania (4%), Solomon Islands (3%) and Madagascar (2%). Within these countries, the study identified 12 large reef sites covering 500 sq km or more, which have both a level of resistance to climate change and are connected to other reefs by ocean currents. Working with partners and local people in chosen areas within those sites, we'll develop strategies for each location that support communities in safeguarding their reefs and livelihoods, in the hope of reseeding the coral reefs of tomorrow.

WHAT DO CORAL REEFS DO FOR US?

These beautiful ecosystems contain some of the greatest diversity of life on the planet. They also provide a host of essential services for people

FOOD

An estimated 275 million people live within 30km of reefs, with 500 million depending heavily on populations of reef fish as their source of protein and income.

PROTECTION

Coral reefs are natural barriers that protect nearly 200 million people from storm surges and tsunamis. They also protect seagrass beds and mangroves from being uprooted.

TOURISM

Coral reefs and their rich marine life are a big draw for international tourists, attracted by activities such as diving and snorkelling, who spend an estimated US$36 billion a year in destinations near to reefs.

MEDICINES

Corals are yielding compounds used to develop medicines that could treat conditions including cancer, arthritis, Alzheimer's, heart disease, and viral and bacterial infections.

CULTURAL IDENTITY

Many communities living by coral reefs value them highly. Not only do the reefs provide food and livelihoods, they are considered a vital element of their natural heritage and cultural identity.

The vast, deep stretch of nutrient-rich sea between Fiji's two main islands is alive with colourful coral gardens and large schools of reef fish

"WE HAVE A UNIQUE OPPORTUNITY TO BUILD A FUTURE FOR THESE 'REGENERATION REEFS' IN FIJI AND ELSEWHERE"

We surveyed the Great Sea Reef, which is home to 75% of Fiji's coral species and an estimated 80% of all of its reef fish

the reef," explains Tui Macuata Ratu Wilia Katonivere, traditional leader of the province of Matuata on Vanua Levu. "To me, the Great Sea Reef is not only alive, it's a source of sanctuary for us, the fish and the marine life."

Yet, despite such reverence, Fiji's reefs are threatened by climate change, pollution and overfishing. "Fiji is dependent on monoculture sugar-cane farming, which relies heavily on pesticides and fertilisers," explains Carol. "The run-off causes damage to the reefs. So we're hoping to encourage investment in organic farming and a shift to other crops, or even agroforestry." Meanwhile, some parts of the Great Sea Reef are commercially exploited for live reef fish, and illegal fishing has contributed to dwindling fish populations.

To understand the impact of these threats, we're supporting an initiative to assess the health of the Great Sea Reef, as well as other critical habitats for wildlife and people that face similar threats in Kenya, Nepal and Borneo. "The Biome Health Project aims to develop a field-based study system that provides insights into how nature responds to human pressures, and how conservation efforts can help reduce the effects of these pressures," says David Curnick, a postdoctoral research associate at the Zoological Society of London, who leads the Biome Health Project marine work.

REEF UNDER PRESSURE

Last year, the project team, along with WWF colleagues in Fiji and the US, surveyed the Great Sea Reef. They used underwater photography and stereo dive-operated video cameras to build up an image of the underwater environment and assess the general health of the ecosystem, based on three critical parts of the reef: seabed (coral, algae, sponges), fish, and invertebrates such as sea cucumbers, giant clams and crown-of-thorns starfish.

The results reveal the percentage of coral cover, the coral species present, and the prevalence of factors such as bleaching or disease. We also trialled acoustic sound traps to record the noises made by ocean invertebrates. The more complex and intense the sounds, the more diverse the life on the reef is likely to be.

The team is still analysing the video footage gathered, but it's already clear that fish abundance and diversity are highly variable across the reef. Though there is some evidence of coral bleaching, the Great Sea Reef has not experienced the mass bleaching events that have destroyed corals elsewhere. Next year, we aim to run further surveys and take a more detailed look at fishing methods in the area to measure their impact on the reef. The results will provide a 'baseline' to record the future health of the reef.

We'll also develop a long-term reef-monitoring programme to help determine if the conservation activities being implemented are effective. And we'll support the Fijian government with meeting its commitment to establish a network of marine protected areas to cover 30% of the country's waters. This is critical to ensure a healthy reef, as David observes: "Overfishing removes fish and invertebrates from the reef, which can enable fast-growing algae to take hold and outcompete coral."

We have a unique opportunity to build a future for these 'regeneration reefs' in Fiji and elsewhere. But we need to act quickly. "Realistically, we have five years," says Carol. "If we don't secure these reefs within that time by sufficiently reducing the threats, there won't be enough reef left for us to rescue."

HELP US RESTORE REEFS

You're supporting our work to protect the world's most resilient coral reefs, securing the future of wildlife and people who depend on these vital ecosystems. But the Biome Health Project needs extra funding to continue surveying Fiji's Great Sea Reef. Here's how you can help:

- **£10** could pay for a fish ID guide
- **£20** could help with the cost of renting a boat for the survey
- **£50** could help us purchase a GoPro camera to survey the reef
- **£100** could help pay for software to analyse the video images

Donate: **wwf.org.uk/reefrescue**

REEF RESIDENTS

Countless creatures depend on coral reefs for food, shelter and reproduction. Many of them also contribute to the health of the ecosystem

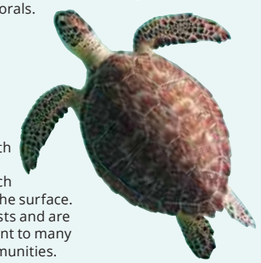
SHARKS

Several species of sharks live entirely or largely on and around coral reefs. They help maintain the health of the reef habitat and seagrass beds as apex predators controlling fish populations, through faecal deposits of nutrients and other factors.

PYGMY SEAHORSES

Tiny but hugely charismatic, several species of these curious fish live mostly or solely on soft corals.

HAWKSBILL TURTLES



These graceful reptiles help maintain the health of coral reefs by removing prey such as sponges from the surface. They attract tourists and are culturally important to many local coastal communities.

PARROTFISH

These colourful fish help to shape reefs, munching dead coral but also feeding on algae that can otherwise outcompete coral. They also excrete much of the white sand found on tropical beaches!

SEA SNAKES

Sea snakes and kraits are almost entirely dependent on coral reefs, diving down to hunt fish sheltering in small holes in the reef.

The sovereign of the woods, the English oak holds a special place in our culture, history and hearts. It supports more life than any other native tree species in the UK, from red squirrels to stag beetles, and noctule bats to purple hairstreak butterflies

THE NATURE OF HAPPINESS

Forests are vital to our health and our planet, but over 10 billion trees are felled every year. So with your help, we're working to protect and restore one trillion trees by 2050

The coronavirus pandemic changed our daily existence suddenly and dramatically this year. Lives that had been spent transitioning seamlessly and automatically from computer to car to shopping centre came to an abrupt halt. Instead, we took to our feet, following government exhortations to take exercise in the park or countryside close to our homes.

The pandemic has had terrible impacts, but many people experienced moments of delight that lingered for days. They had discovered something that scientists have now proven: that nature is good for our health. And among the organisms giving gifts to our minds and bodies, there is one that stands especially tall.

It feels as if we've known forever that trees are good for wildlife. How many of us were taught that our much-loved oak could sustain up to 350 species of invertebrate? That its leaves provided food for bugs that were eaten by other bugs that were eaten by birds that made their nests in those same trees?

But this was an underestimation. A study last year discovered the true number of invertebrates that owe their lives to the oak is more than three times that figure. And that oaks could support more than 2,300 species of birds, mammals, fungi, invertebrates, lichens and mosses and liverworts in total.

Such arboreal bounty spreads all over a planet where one third of the land surface is ▶

WORDS BY DEREK NIEMANN; ILLUSTRATION © DANNY ALLISON

The purple hairstreak butterfly may be found wherever there are oak trees in the south – even a single tree may support a colony

covered by forest, sustaining more than three quarters of bird species, not to mention all the animals wholly dependent on the forests – from lemurs in Madagascar, to gorillas in the Congo and jaguars in the Amazon. And the statistics about the wild riches of a habitat we're still only beginning to unfurl as fast as leaves: between 2010 and 2013, more than 400 'new' species were found in the Amazon alone.

Less than one human generation ago, scientists discovered that trees operate a complex system of mutual support. Trees in the forest are social; they communicate with each other, exchanging messages and nutrients through a vast underground network, using their root systems and connected fungi. A mother tree passes nutrients to her saplings. An acacia being browsed by a giraffe sends a warning to neighbouring acacias that it's under attack and so they produce toxins to repel the invader. We have come to name this astonishing network the wood-wide web.

FIGHTING FOR FORESTS

We delight in trees, we find joy in forests. We relish the changing seasons: the flush of spring, the colours of autumn, gnarly ancient trees, the intricacies of branches. But beauty cannot protect itself and a tree's bark is no defence against a chainsaw.

We are losing trees as fast as we learn about them. Once there were six trillion trees on the planet, now there are half that number. And 10 billion trees are being destroyed every year. We are living through a catastrophe for nature, for people, for the planet. There is one thing that could play a crucial role in reversing that decline. It's not what we could do for trees; it's what they're doing for us.

WWF's Stuart Dainton offers a hint into a different kind of future. "The rich biodiversity of our forests is understood," he says. "What's less known are the trees' benefits to us and our health and wellbeing." Stuart heads up our joint venture with BirdLife International and Wildlife Conservation Society called Trillion Trees. Its vision is one where the world's tree cover is expanding, not shrinking, with one trillion trees regrown, saved from loss and better protected around the world by 2050.

Trillion Trees has a three-pronged focus to end deforestation, improve protection and advance restoration by creating rich, diverse forests. It's a venture that delivers for our forests, helping partners and organisations around the world to take action for trees. And it might just have a leafy ace up its sleeve.

Looking at the big picture, the evidence of trees acting as a bastion against disaster, especially from climate change, is huge. They act as deep repositories of carbon, they stem the erosion of soils and hold back flooding in a world of increasingly erratic weather patterns, and they help drive inland water cycles. They provide us with building materials, with wood increasingly becoming a benign substitute for the carbon-spewing production of steel and concrete. And, of course, they perform the miracle of converting carbon dioxide into oxygen. They are the lungs of the planet.

But at an individual level, we've only just started to realise how much trees can help every one of us. Stuart calls their magic formula "the aroma of the forest".

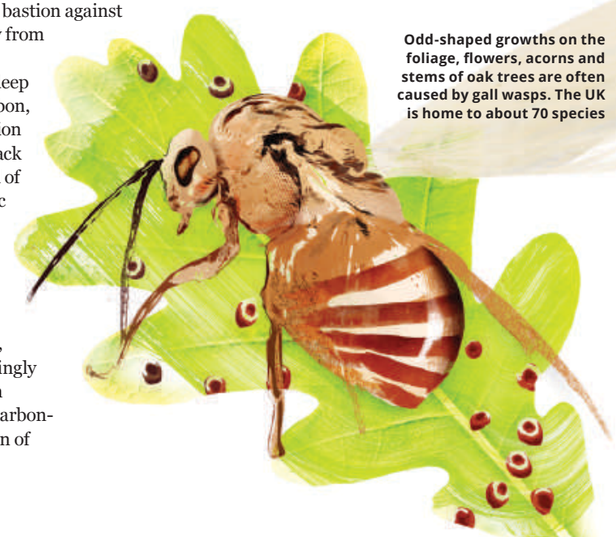
What many people had understood intuitively gained a scientific foundation in the 1980s. We already knew wildlife experiences gave us a boost. As Stuart says: "You see something great in nature and it gives you a huge dopamine hit." A brilliant butterfly or a nuthatch shinning up a trunk delivers an immediate high. But there's something about being with trees that is deeper and longer lasting.

MOOD-BOOSTING BRANCHES

Around 30 years ago, Japanese behavioural scientists studying workers stressed by the impact of a technology boom found that immersion in nature using all of their senses had a positive effect on their mental health. Four hours in a forest would bring maximum effects, but any exposure would be beneficial. So began *shirin-yoku*, or 'forest bathing'. And within the past few years, the research has been given a chemical explanation.

The secret lies in phytoncides, natural oils that trees and plants release to protect themselves from attack by insects, bacteria or harmful fungi – the Latin name translates as 'killed by a plant'. Such chemicals may be bad news for potential predators, but they provide enormous benefits for humans.

A Japanese study that began in 2005 found phytoncides reduce stress hormones, improve our sleep patterns and significantly increase the activity of our own natural killer (NK) cells, a type of white blood cell that enhances the activity of anti-cancer proteins. It showed that the beneficial effects of taking a walk in the woods could last more than 30 days.



Odd-shaped growths on the foliage, flowers, acorns and stems of oak trees are often caused by gall wasps. The UK is home to about 70 species

Acorns grow more quickly away from the oak they fell from, as the tree blocks the sun. Red squirrels help by burying acorns far from the tree and then failing to come back for them

We've seen a rapid surge in the medical profession embracing variations on forest bathing. In 2006, Dutch health scientist Dr Peter Groenewegan and his colleagues coined 'vitamin G', a memorable name that acknowledged the medicinal influence of green space. Medical practitioners now offer green space among what they would call 'social prescriptions', urging patients to go for outdoor therapy. Its role as a route to tackling mental health issues such as stress, and helping patient wellbeing, is becoming generally accepted.

Trillion Trees is a project that requires immediate action for long-term results. "Given the chance, nature can return quickly. Restoring forests can bring early benefits, but in terms of carbon sequestration we won't see those benefits until much further down the line," explains Stuart. "So it's essential we keep our existing forests standing, where they are now, to keep all their benefits.

"Life-changing events such as the pandemic can give us the time to rethink and reset things. The challenge now is to act on what we learn so that we can protect both our own health and wellbeing, and the future of the planet." So visit your favourite wood this autumn – or take part in our Big Winter Wander in January (see page 28) – and take a deep breath. And know that what you're taking in is doing you good.

FIND OUT MORE

To read more about our ambitious plans to protect and restore the world's forests, visit **trilliontrees.org**

FOUR WAYS TO CONNECT WITH TREES

1 Go forest bathing
Spending time in woodlands lowers stress and increases wellbeing. To enjoy the full benefits, walk slowly through the trees and clear your mind of everything except what you can see, feel or smell. Notice the sunlight dappling the ground, the rustling of leaves, and the sensations of different surfaces. Avoid judgement, just observe what's real. This will help you feel more removed from your thoughts and enjoy more peaceful reflection.

2 Take a sniff
Inhale the scents of the forest to enhance your mood and experience physical benefits. By deeply inhaling a smell, you slow your breathing, which decreases physical stress responses. Sniffing pine and fir decreases cortisol levels and boosts immune system activity. Inhaling the green-leaf volatile oils emitted by crushed vegetation reduces stress and improves memory. So breathe deeply.

3 Listen to the trees
Abandon your inhibitions, press your ear against a tree trunk and on a windy day you'll hear the trees making a magical, conversational, mellifluous sound as their branches sway in the wind.

4 Get to know a tree
Test your memory with a family member in the forest. One of you should wear a blindfold, while the other acts as a guide. Take your blindfolded partner on a winding walk before choosing a tree. The blindfolded person must get to know that tree using all their senses except sight. When ready, lead your partner back to the starting point. Then remove the blindfold and see if that person can find 'their' tree again. Swap roles and do it again.

For more ideas, download our free *Thriving With Nature* guide, produced in partnership with the Mental Health Foundation, at **wwf.org.uk/thrivingwithnature**

STUDYING SEALS FROM SPACE

Thanks to new technology, seals may hold the secret to monitoring the health of the Antarctic ecosystem and how it's being affected by climate change

Massive and mysterious habitats, icebergs are dynamic kingdoms that support a wealth of marine life. As they drift and rotate at the whim of polar currents, melting icebergs release critical nutrients in their wake. The fertile waters create blooms of phytoplankton that attract krill – the favourite food of crabeater seals.

This spectacular image was a winner in the 2020 BigPicture Natural World Photography Competition. During an expedition to the Antarctic Peninsula, French photographer Greg Lecoeur braved the frigid waters to catch a rare glimpse of life below the surface. Here, he encountered a crew of crabeater seals that had taken up residence on a drifting iceberg.

Clumsy and slow on land, crabeater seals are elegant and agile in the water. They spend their entire lives in the dynamic and barely accessible sea-ice zone that surrounds the frozen continent. Historically, this has made studying them almost impossible. But as one of the largest consumers of krill, ice seals can help us identify changes in the health of the Antarctic.

We're supporting research involving monitoring seal populations from space. Using high-resolution satellite imagery, we can gain a greater understanding of their habitat preferences and population trends. Through this, we can learn more about the areas with the most abundant krill, a vital source of food for many Antarctic species, and how they're being affected by climate change. This will help us to identify which areas need greater protection to give species time to adapt.

Find out more at **wwf.org.uk/sealsfromspace** and see more great images at **bigpicturecompetition.org**

In the Amazon, the Covid-19 crisis has threatened the health of indigenous communities and increased the risk of land grabbing. So we're stepping up our efforts to help

STANDING TOGETHER

Covid-19 has severely impacted many of the communities we work with, their local habitats and the animals found there. But you're helping us support the wildlife protectors and tackle the causes of pandemics

IMPACTS OF PANDEMICS

DEFORESTATION ACCELERATES

Data from Global Land Analysis and Discovery suggests deforestation has increased more than 50% across Asia, Africa and Latin America during the pandemic.

WILDLIFE AT RISK

Endangered primates including gorillas died during Ebola outbreaks in Gabon and the Democratic Republic of the Congo between 1997 and 2004, with mortality rates of up to 97%.

INDIGENOUS PEOPLES DEVASTATED

More than 29,000 members of indigenous communities in Brazil have been diagnosed with coronavirus so far.

LOCAL INCOMES PLUMMET

Bookings with over 90% of African safari tour operators declined by more than 75% following the outbreak of Covid-19. Many lost all bookings, devastating local employment.

PEOPLE SUPPORT CHANGE

65% of respondents to a poll in 14 countries supported a 'green' economic recovery, where looking after the environment and tackling climate change are the priorities.

As if a reminder were needed of just how inextricably intertwined the human and natural worlds are, the recent pandemic has provided it all too dramatically. A virus that almost certainly emerged in a wild animal and jumped to humans is devastating lives and livelihoods around the globe, demonstrating clearly that our health and that of our planet are directly connected.

This isn't a one-way street but a vicious circle. In many areas, the outbreak is having a palpable impact on habitats and wildlife, which may in turn increase the risk of more pandemics. So while our work is continuing to protect our planet's precious wild places, we're also addressing the human cost of Covid-19, and pushing for action to avert further outbreaks.

And that starts with local communities who have been severely impacted.

In Khata corridor, within the Terai Arc region of Nepal, community-led anti-poaching units include many female members, who protect the forest and its wildlife

GUARDIANS OF NATURE

Many indigenous peoples are critical guardians of wildlife and habitats, as their ways of life and cultures are often intrinsically connected to nature. However, they are often excluded and marginalised, lacking access to basic services such as healthcare or clean water. They are, therefore, disproportionately affected by diseases and other health problems.

With fewer law-enforcement officials able to access forests during the pandemic, there has also been an increased risk of land invasions and encroachment on indigenous lands. And there have been severe economic impacts, particularly for communities who rely on ecotourism for their livelihoods.

"Ecotourism makes a huge contribution to local and national economies and it literally collapsed overnight," says Damian Fleming, our director of conservation programmes. "People working in and around the sector are suffering – from guides and scouts and artists who sell handicrafts to tourists, to communities who earn their income from accommodation and conservancy levies." An estimate in 2019 valued global wildlife tourism at US$120 billion, generating 21.8 million jobs – livelihoods now ravaged by the pandemic.

The virus is affecting wildlife too, both directly and indirectly. Chimpanzees and gorillas are highly susceptible to respiratory viruses, so are likely to be vulnerable to the pathogen causing Covid-19. But the human cost also has consequences for wildlife.

In many areas, human populations are shifting: people who've lost jobs in cities return home to villages, putting pressure on rural healthcare systems and natural resources – with repercussions for conservation. "This elevates the risk of human-wildlife conflict, and increases the likelihood of hunting for wild meat and other pressures on resources, such as illegal clearing of protected areas for firewood or farming," says Damian. "It's about survival."

> "INDIGENOUS PEOPLES ARE VITAL GUARDIANS OF WILDLIFE AND HABITATS"

Anecdotal evidence suggests that incidents of poaching for wild meat have risen in parts of Africa and Asia. At the same time, resources for livelihood support, policing and preventing illegal hunting and deforestation have shrunk. Government funds have been diverted away from conservation to help coronavirus relief, reducing staffing levels while virus-related safety measures create logistical challenges. And some governments are weakening environmental or land-ownership legislation for political reasons or to allow fast-tracking of infrastructure projects to kickstart economies.

Yet the need to address issues such as deforestation and the illegal trade in wildlife is more important than ever – not least to reduce the risk of future pandemics. Covid-19 is just the latest in a series of outbreaks that have proliferated as habitat destruction, deforestation and intensive farming bring populations of wild animals, livestock and people closer together, creating ideal conditions for virus transmission.

TACKLING THE CAUSES

Over the past 30 years, some 60–70% of new human diseases have had a zoonotic origin. And the frequency of such outbreaks is increasing. To tackle this, we need to protect and restore forests, to build a more sustainable food system, and to stop illegal and unregulated wildlife trade. And we must focus on a sustainable, green economy, which improves people's economic situation, health and wellbeing.

Clearly, the current crisis adds to the challenges we face in reaching these goals – but it also creates opportunities to reshape policy at home and around the world. For example, as the UK seeks to strike new international trade deals, we have the chance to lead the world with our food and environmental standards of imports, helping reverse habitat destruction and move to sustainable farming globally.

So we're calling on the government to enshrine in law a requirement to eliminate deforestation from the UK's imports. "We must be a voice for change," says Damian. "Otherwise we'll face more pandemics." ▶

HOW YOU'RE HELPING

Since the outbreak of the pandemic, requests for WWF's support have increased significantly. With your help, we're continuing to work with our conservation partners around the world to protect our most precious wildlife, forests and natural environments, and support the people who depend on these habitats for their livelihoods. We're also helping the most vulnerable to respond to the crisis and its varied impacts. Thanks to you, local communities in the hardest-hit areas now have access to emergency relief. You've helped ensure the safety of rangers in protected areas, to enable them to continue monitoring wildlife, and you've supported communities to diversify their livelihoods.

"I WANT TO SEND HEARTFELT THANKS TO WWF'S MEMBERS FOR CONTINUING TO SUPPORT US DURING THESE DIFFICULT TIMES. YOUR SUPPORT IS NOW MORE CRITICAL THAN EVER. THANK YOU"

DAMIAN FLEMING

AMAZON & CERRADO, BRAZIL

Indigenous peoples and local communities in Brazil are facing twin threats. Not only are their homes and lands at increased risk from illegal deforestation, but they're also particularly vulnerable to the new virus. In Brazil, Covid-19 has affected at least 150 indigenous groups, many of whom have no access to health facilities, and are disproportionately impacted by lockdowns and travel restrictions.

In Brazil's Amazon and Cerrado regions, we're connecting local communities with the resources they need. Thanks to your support, more than 30,000 people now have access to food, hygiene products, personal protective equipment and other materials.

One recipient is Bitate Uru-eu-wau-wau (pictured). President of the indigenous association Jupaú and a leader of the Uru-eu-wau-wau Indigenous Land in Rondônia state, Brazil, his community receives donations from WWF through the Kanindé Ethno-Environmental Defense Association. "The food and hygiene products we've been given help us to stay in isolation in our villages. They save us from having to risk going to the city to buy food," he explains. "Right now, no one here is infected and we hope it will stay that way. But our main concern is the invasion of indigenous lands that has increased in our region during the pandemic."

"Deforestation has increased again in 2020, at an even faster pace than 2019," confirms Mauricio Voivodic, executive director of WWF-Brazil. Protection of critical areas has been weakened during the pandemic: funding to IBAMA (the Brazilian Environmental Agency) has been cut, and at least one-third of IBAMA's field operatives, considered particularly vulnerable to Covid-19, are not currently engaged in enforcement operations.

In response, we're increasing our legal, campaigning and advocacy work, in Brazil and the UK, to fight legislation that weakens protection of Brazil's precious forests and indigenous peoples' rights.

"We simply can't afford to lose the Amazon – it's too important," adds Damian. "And we cannot sit by and allow this pandemic to provide a cover for deforestation and extermination of indigenous peoples."

MARA ECOSYSTEM, KENYA

Ecotourism plays a vital role in Kenyan conservation, raising funds to help protect key areas and ensuring local communities benefit from the wildlife they safeguard. The conservancy system of community-based conservation areas provides income to local families through a share in tourism revenues. One example, the Mara Siana Conservancy, which is adjacent to the Maasai Mara National Reserve, provides 1,200 individual landowners with an income from land leases and accommodation.

With the collapse of tourism, it's estimated the community will lose US$160,000 in revenue this year. So we're exploring ways of reducing the reliance on ecotourism to increase resilience in local communities.

"It's crucial we help create economic opportunities for local people – and that means diversifying livelihoods," explains Damian. "Covid-19 and the crash of tourism has hit Africa hard, so we need to respond at different levels. The first is the emergency response: getting personal protective equipment to staff, rangers and communities, and raising funds to help those impacted by declines in tourism revenue.

"The second is building back better. In May, Kenya's government announced a fiscal stimulus package of over 53 billion shillings [nearly £400 million], some of which is destined for the tourism industry and communities. We'll try to influence the distribution of those funds to make sure they help achieve the best possible outcomes for wildlife and communities.

"The third is working with communities to find the best and most appropriate ways to support them. This includes considering how food and agriculture systems can sustainably generate more income, such as helping local growers sell their products to new markets."

You helped provide modern beehives for this female-led beekeeping enterprise in the Oloisukut Conservancy in Kenya's Mara ecosystem

TERAI ARC, INDIA & NEPAL

Tiger habitats in the Terai region of northern India and Nepal have come under increasing pressure from a raft of factors related to the pandemic. Tourism is vital here, particularly in Nepal where it generates 95% of national park revenues, up to 50% of which is granted to communities living in buffer zones around reserves. Since lockdown, these revenues have plummeted, along with income from family-run homestays, farming enterprises and other small businesses.

At the same time, thousands of migrant workers have returned to Nepal's Terai Arc, increasing pressure on natural resources, such as firewood, in rural areas. Cuts in government funding may also reduce capacity to monitor protected areas. The first month of lockdown in Nepal saw more cases of illegal extraction of forest resources in protected areas than the preceding 11 months combined.

Doma Poudel is a member of a community-led anti-poaching team, which runs daily patrols of the Miragunj buffer zone near Chitwan National Park. "People's dependency on the forest has increased," she explains. "Communities living in areas close to the national park were already poor, and if they can't buy gas, they'll collect firewood and grass. There's also been a rise in illegal fishing and the threat of poaching is ever-present."

Despite the challenges brought about by Covid-19, Doma remains optimistic. "We're all playing our part here in Chitwan," she explains. "If communities, young people, government agencies and NGOs unite, we can overcome the threats to nature."

"We're helping communities through the crisis," says Damian, "and working with governments to ensure environmental protection stays a priority."

TESTIMONY TO NATURE

Chernobyl today is proof of nature's amazing ability to bounce back. In the 30 years since the nuclear disaster, the Exclusion Zone – which extends 19 miles around the power plant – has become a haven for wildlife

© GETTY

We chat to WWF executive producer **Colin Butfield** about our remarkable new film *David Attenborough: A Life On Our Planet*

Where did the idea for this film come from?
When we were making the *Our Planet* series we realised that the greatest changes to the natural world have mainly occurred during Sir David's lifetime. He's probably seen more of the world than anyone else who has ever lived. This film is his witness statement about one of the most important periods in human natural history.

Was Sir David involved in its making?
He's been very involved – it's his life story, told through his eyes. We enjoyed days talking with him and picking out the most important tales. He's very happy with the film, though he's also a modest person and not used to being such a focus of a film!

How does the film build on* Our Planet*?
The film expands on the themes raised in *Our Planet* by looking at how much the planet has changed over a longer time frame – the past 70 years. It's a relatively short period compared with the Earth's long geological history, but things have changed quickly and dramatically. The film focuses on human impacts and some of the greatest areas of change across the planet – from tropical forests to oceans and ice caps. It explores why we must urgently restore the balance of nature.

What are your highlights from the film?
I love the opening shot of Sir David walking through Chernobyl. It's so poignant when, at the end of the film, he walks out into the forest that has sprung up around the ruins. Some of my favourite lines from the whole film are spoken at this point. I also like that the solutions explored in the film are rooted in natural processes. This is David's area of expertise and his passion.

What is the take-away message of the film?
I think viewers will be shocked by just how much the world has changed – and how little time we have left to sort things out. It's easy not to notice things altering day by day, but when you stop and revisit key moments in our history through the eyes of someone like Sir David, it's shocking to see how much everything has changed. I hope the film shows that we need nature – it's not just nice to have, it's fundamental to our existence. And our solutions inspire a sense of optimism that we can actually do this, as well as a desire to take action.

How can world leaders act on the solutions proposed in the film?
The film explains that the scale of change required is possible, but it can only happen with swift action at a global level. WWF will be working to ensure this message reaches the highest levels of government and business. I hope the public response to the film will encourage world leaders to listen to the science and give them the courage to make big decisions in the important climate and biodiversity meetings taking place next year.

How can we ensure a sustainable future for a growing global population?
The challenge is to ensure everyone has access to education, healthcare and jobs. This can only happen if we restore nature, stabilise the climate and invest in helping people lift themselves out of poverty. We have to tackle these things together and in a sustainable way, or the effects won't last.

How can we all help nature recover?
We all need to speak up and tell governments and businesses we want them to take action. Within the next decade, we have to halve global emissions (at least!) and start restoring nature on a huge scale. Nature is one of our greatest allies in tackling climate change – we can't survive without it. We can all play a part in bringing back nature, whether it's gardening for wildlife or cleaning a river. Making small changes in our everyday lives can lead to big progress.

If you didn't manage to see *David Attenborough: A Life On Our Planet* in cinemas last month, you can still view it on Netflix. Find out more at attenboroughfilm.com

FIGHT FOR YOUR WORLD

At a time when the whole world is fighting one of the most challenging health issues of our generation, the need to unite and make our voices heard for the planet has never been greater. **#FightForYourWorld**

1 GIVE FOR YOUR WORLD

Kick-start next year by organising a sponsored walk for WWF with family and friends

THE BIG WINTER WANDER

We're coming to the end of 2020 – and what a challenging year it's been. Nature has been there to offer us comfort during these difficult times, so why not give back and do something amazing to protect the world's forests, oceans and wildlife?

The Big Winter Wander is WWF's sponsored walk event, on Sunday 24 January. It's free to register and all you need to do is organise your own sponsored walk with family and friends* on that day, and pledge to raise at least £100. You can choose where you walk, who with and how far you go. This event is designed to be fun for everyone, and it's a great way to get out and enjoy your local green spaces. If you're not free on the day, you can plan your sponsored walk for another date in January.

Once you've signed up, you'll receive a fundraising pack with lots of handy tips and tools to help make your sponsored walk a success. And our Big Winter Wander team will be happy to answer any questions. Just don't forget to let us know how you get on!

To find out more and to register, visit wwf.org.uk/events/winter-wander

The Big Winter Wander is the perfect opportunity to spend time in nature with friends and family

"THIS EVENT IS DESIGNED TO BE FUN FOR EVERYONE, AND IS A GREAT WAY TO ENJOY GREEN SPACES"

* Please ensure you follow government guidelines on social distancing.

2 BE THE CHANGE

Find out how you can have a pension that makes you proud

INVEST IN A BETTER FUTURE

It's a shocking fact that most of the UK's £3 trillion pensions pot is invested in funds that include harmful industries such as fossil fuels, tobacco and arms. Most people are unaware their pensions are funding damaging activities that accelerate global warming and the loss of biodiversity.

The Arctic has been warming at more than twice the global average, yet the UK has £279 billion invested in companies that are active there, 88% of which are in oil and gas. UK pension funds are also invested broadly in food and beverage companies, many of which are sourcing unsustainable soy and palm oil linked to deforestation.

If you're a member of a company pension scheme, your employer or a pension fund manager usually decides where this is invested. Unless you've opted out, it's likely your pension is invested in companies that may not reflect your values. But there are simple steps you can take to ensure your pension is securing a better world.

Ask your employer for details of where your funds are invested and if a sustainable investment option is available. If not, ask your provider how your portfolio performs against environmental, social and governance criteria, and how they plan to help achieve the government's target of net zero emissions by 2050.

Sustainable pensions are showing their resilience, even in the current economic crisis. And switching your pension could be 27 times more effective at reducing your carbon footprint than other sustainable choices, such as eating less meat.

To help tackle the climate crisis, we're asking employers and fund managers to consider impacts and risk from climate change in their investments. We're working with Make My Money Matter, a campaign driven by Richard Curtis, to highlight the role of our pensions in creating a sustainable future.

Find out more at makemymoneymatter.co.uk

Could your pension fund be contributing to the warming of the Arctic? Explore alternative, ethical investments

"YOUR PENSION MIGHT NOT REFLECT YOUR VALUES"

2030 CIRCLE

The 2030 Circle is a new way to pledge your philanthropic support to WWF and tackle the challenges facing our planet: **wwf.org.uk/2030circle**

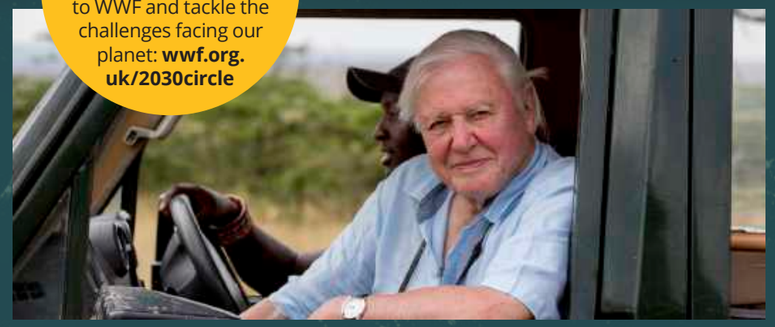
3 BUILD A MOVEMENT

Use your voice to protect nature by sharing our film *David Attenborough: A Life On Our Planet*

THE POWER OF OUR COLLECTIVE VOICE

Together we can make a big impact. By sharing Sir David's crucial story, you'll be part of a global movement calling for a better future for people and nature.

Our new film, *David Attenborough: A Life On Our Planet*, reflects on humanity's momentous impact on nature, and shares a powerful message of hope for the future, delivered by the respected naturalist. The film is Sir David's witness statement, but what happens next is up to you.



STEP 1: WATCH THE FILM

David Attenborough: A Life On Our Planet is now streaming globally on Netflix. If you haven't already seen it, get watching – and encourage your friends, family and colleagues to do the same.

STEP 2: START A CONVERSATION

Share your thoughts online and encourage other people to talk through what you've seen. Conversations can be a catalyst for change, so we've created free resources, which you can find online, to help you spark discussion and drive action.

Visit attenboroughfilm.com to access our free toolkits, resources and more. And join the conversation at #AttenboroughFilm

A LIFE ON OUR PLANET BOOK

Sir David Attenborough's new book, *A Life on Our Planet*, reflects on his lifetime as a naturalist – and we have three signed copies to give away

This thought-provoking book ties in with the release of the documentary film of the same name by WWF and Silverback Films, in which Attenborough outlines his witness statement for the natural world. In his 94 years, he's visited every continent on the globe, exploring the wild places of our planet and documenting its remarkable biodiversity. But he's also seen first-hand the devastating scale of humanity's impact on nature.

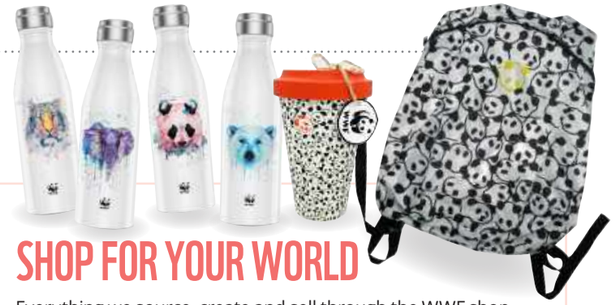
Honest, revealing and urgent, *A Life on Our Planet: My Witness Statement and Vision for the Future* sees Sir David explore the biggest challenges facing life on our planet and the solutions that could turn things around. It's a powerful message of hope for future generations.

To enter, follow the instructions below and mark your entry '**Attenborough competition**'.

WIN!
A SIGNED COPY OF SIR DAVID ATTENBOROUGH'S NEW BOOK

EXCLUSIVE WILDLIFE T-SHIRTS

We're giving away two stylish wildlife-inspired organic cotton T-shirts from our exclusive Elizabeth Grant collection



We've teamed up with artist Elizabeth Grant to create these beautiful organic cotton T-shirts in time for Christmas. They come in nine original designs created exclusively for us, inspired by threatened wildlife, including an elephant, gorilla, panda, polar bear, rhino, snow leopard, tiger, turtle and whale. There are also designs depicting the UK's much-loved brown hare, otter and puffin.

The T-shirts are made of premium super-soft, 100% GOTS*-certified organic cotton, and are printed with AZO-free dyes in the UK. To eliminate mass production, the shirts are only printed once we receive your order. They are worth £19.50 each and we have two to give away in the winners' choice of designs. See the full range at **wwf.org.uk/shop/elizabeth-grant**

To enter, follow the instructions (*right*) and mark your entry '**T-shirt competition**'. Good luck!

SHOP FOR YOUR WORLD

Everything we source, create and sell through the WWF shop exceeds strict environmental and ethical standards. We only work with designers and suppliers who share our values, so you can be sure that any products you buy are kind to the planet and the people who make them.

For more sustainable and inspiring gift ideas for Christmas, and to see our latest creative collaborations with artists and designers, take a look at our full range at wwf.org.uk/shop

HOW TO ENTER ACTION GIVEAWAYS

Send an email with your name, address and phone number, along with Attenborough Competition or T-shirt Competition in the subject line, to **competition@wwf.org.uk**

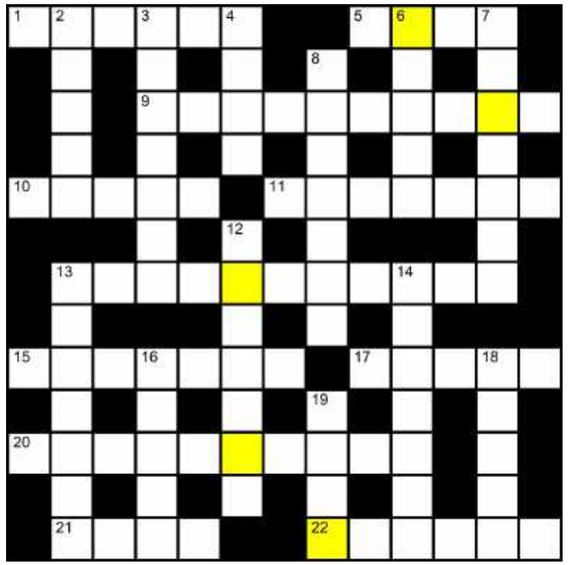
Alternatively, post your entry to ***Action* Magazine, WWF-UK, Living Planet Centre, Rufford House, Brewery Road, Woking, Surrey GU21 4LL**.

Only one competition per entry please. Closing date: Friday 20 November 2020. For terms and conditions, visit: **wwf.org.uk/compterms**

** Global Organic Textile Standard*

CROSSWORD

Solve our crossword and you could win a copy of Lily Cole's book *Who Cares Wins: Reasons For Optimism In Our Changing World*, published by Penguin, worth £20



WWF Action crossword 46: Autumn 2020 issue. Compiled by Aleric Linden

After solving the crossword, take each letter from the shaded squares (going from left to right and top to bottom) to spell out the prize word. To be in with a chance to win, just send a postcard with the prize word to the address on page 30, or email it to **competition@wwf.org.uk** *The closing date is Friday 20 November.*

Clues across

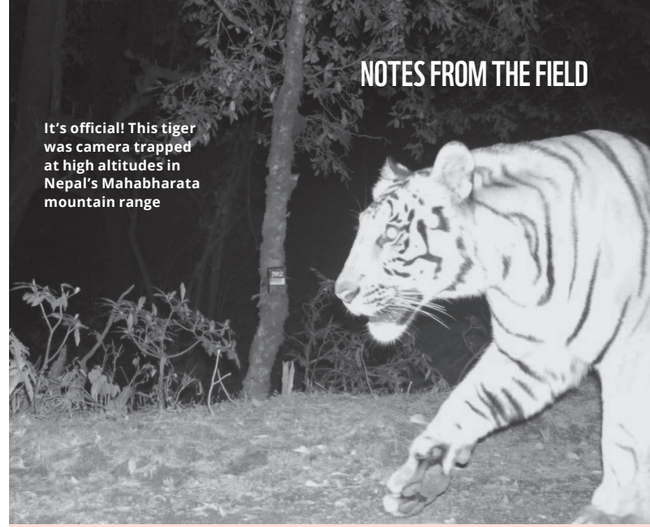
1 Outside – a world that needs protection more than ever (6)
5 Orangutans are native to this continent (4)
9 Pollutant-absorbing trees improve this noticeably (3,7)
10 Extensive flat landform (5)
11 Central _ , the region between Mexico and Colombia (7)
13 Green solution for garden waste (7,4)
15 Galapagos _ , famous archipelago (7)
17 Any full-grown animal (5)
20 Marine ecosystems at grave risk from climate change (5,5)
21 _ lakes, water high in alkalinity (4)
22 Climate _ , computer-driven predictors of future weather (6)

Clues down

2 A coral reef surrounding a lagoon (5)
3 Radioactive metallic element used in nuclear energy (7)
4 Currency used in Europe (4)
6 Renewable form of power with a sunny outlook (5)
7 Predators launch them when going for the kill (7)
8 International meetings such as the G20 (7)
12 The Great Barrier Reef is one of the world's seven natural ones (7)
13 Any authority combating illegal wildlife trafficking (7)
14 An enriched form of table salt (7)
16 Duke of Edinburgh Conservation _ , prestigious WWF honour (5)
18 A symbol of FSC-certified wood and paper products (5)
19 _ trawling, destructive method of fishing (4)

Summer 2020 answers

Prize word: CRATERS
Across 1. Bicycle 7. Inuit 9. Rewilding 10. Apex 11. Victoria 13. Badger 14. Seaway 17. Ligurian 19. Palm 22. Detergent 23. Noise 24. Steppes
Down 1. Bowhead 2. Calf 3. Crisis 4. Eighties 5. Sugar 6. Orca 8. Treaty 12. Hebrides 13. Baleen 15. Whalers 16. Cattle 18. Grain 20. Mate 21. Crop



NOTES FROM THE FIELD

It's official! This tiger was camera trapped at high altitudes in Nepal's Mahabharata mountain range

SKY-HIGH TIGER

From day one, Dadeldhura was full of surprises. Local villagers had told us they'd seen a tiger prowling in the misty mountain forests, so – hopeful, but unsure – we travelled to the hilly district to look for the mysterious big cat.

Dadeldhura is a beautiful landscape on Nepal's border with India, flanked by rivers to the north and west. Its mountain slopes are cloaked with temperate forests of oak, alder, rhododendron and cedar – not the sort of habitat where we'd expect to find a tiger. What's more, I had never even heard of a tiger at such high altitudes in Nepal before. Could it be true?

We arrived to find thick snow had fallen overnight, blanketing the ground and draping icicles from branches. It made our chances of success seem even slimmer, but I remained hopeful.

We had already identified the healthiest areas of forest in the region and – with the help of local citizen scientists and forestry workers – set up 32 pairs of camera traps across an area of almost 130 sq km. To locate the cameras, we looked for the sort of tracks and trails a tiger might use to traverse this hilly region, such as ridge lines and cliff paths. With fingers firmly crossed, I returned to Kathmandu and waited for a call from the team who would monitor the cameras every five days for a month.

A CALL ABOUT A CAT

The call came sooner than expected – a cat had triggered a camera! But elation turned to disappointment when we saw the photo and identified the feline as a leopard cat. Beautiful, but not a tiger. It was back to the waiting game. Then I got another call, quickly followed by a photo from a camera trap. I couldn't believe my eyes. This time it *was* a tiger, photographed at a dizzying altitude of around 2,500m, a record-breaking height for Nepal!

Now we know tigers use these high-altitude habitats, we'll try to learn more about their movements and survey other healthy forests that are outside the region's protected areas. Our profound wish is to safeguard and connect tiger habitats in Nepal and India, strengthen transboundary conservation efforts and provide a safe corridor to allow tigers to disperse between protected areas.

Samundra

Samundra Subba, research officer, WWF-Nepal

A LOVED ONE REMEMBERED
A WORLD PROTECTED

Donating or fundraising in memory of someone you loved is a special and meaningful way to remember them. From creating a tribute fund, collecting donations at their funeral or memorial, or taking part in an event in their name – you can honour their life, while fighting to protect the world they loved.

To find out more, please contact Rebecca or Maria by phone 01483 412153, email inmemoryteam@wwf.org.uk or visit wwf.org.uk/giveinmemory

GIVE IN THEIR MEMORY. FIGHT FOR YOUR WORLD.

For a future where people and nature thrive | wwf.org.uk

FSC logo to go here

All information correct at time of printing, September 2020