



Action

THE MAGAZINE FOR WWF MEMBERS

SPRING 2023

INSIDE
WIN SKINCARE
PRODUCTS INSPIRED
BY NATURE
PAGE 30

OUR WILD ISLES

See the UK's wildlife
as you've never
seen it before



WALRUS DETECTIVES

Walrus are under threat from a warming climate, but you can help by spotting them – from space!

FORESTS FOR THE FUTURE

With your help, we're harnessing the power of 'blue carbon' by supporting ocean farms



WE NEED TO HALT NATURE LOSS



At WWF, we use science to understand nature – and the impact humans are having on it – so we can make informed decisions about how to protect it.

Last October, we released our latest *Living Planet Report*, and its findings are shocking: on average, global wildlife population sizes have plummeted by 69% since 1970. Our most comprehensive study to date

reveals how over 32,000 populations of mammals, birds, fish, reptiles and amphibians are responding to human pressures. And the staggering rate of decline is a warning that nature, our own life-support system, is breaking. This is putting every species at risk – including us.

The situation in the UK is no better. Here, we've lost so much wildlife within my lifetime! When I think about what I saw as a boy and what's left to show my grandson, it makes me sad and angry.

The nature crisis is inextricably linked to the climate crisis. At one point last summer, temperatures 40°C above average were recorded in Antarctica, while in the Arctic the mercury reached 30°C higher than normal.

It's clear the clock is ticking, but it's not too late. The science shows us the solutions. Together, we can bring our world back to life, as long as we act now.

Mark Wright, WWF director of science



“NATURE, OUR OWN LIFE SUPPORT SYSTEM, IS BREAKING. THIS IS PUTTING EVERY SPECIES AT RISK – INCLUDING US”

We're studying how restoring and farming kelp could contribute to the fight against climate change. Kelp and other seaweeds store carbon and eventually carry it down to the seabed

CONTENTS

TOGETHER, WE DID IT!	4	WHERE'S WALRUS?	18	INTERVIEW	28
A round-up of all you've helped us achieve in recent months		Understanding the Arctic's walrus populations will enable us to protect them more effectively. But before we can do that, we need to count them – from space! By Mike Unwin		<i>Wild Isles</i> producer Chris Howard takes us behind the scenes of the new show, with all its highlights and challenges	
WWF IN ACTION	6	NEW LIFE	24	GIFTS & GIVEAWAYS	30
Environment news, including measures to tackle the climate and cost-of-living crises		Recycling is helpful but won't solve our waste problems. When it comes to phones and tech, reusing is the answer. By Anna Scrivenger		You could win a Liz Earle Beauty Co pamper pack, or a signed copy of the <i>Wild Isles</i> book	
INTO THE BLUE	10	NATURE AT HOME	26	CROSSWORD	31
Seaweed farming could be a major ally in the fight against climate change, by storing carbon and providing alternative food sources. We're investigating this wonder-plant's full potential... By Paul Bloomfield		Groundbreaking TV series <i>Wild Isles</i> , co-produced by WWF, will reveal the amazing nature found around the UK. Here, the team behind the series share some breathtaking highlights of each episode		Solve our crossword and you could win a copy of <i>Puffins: Life on the Atlantic Edge</i>	
BIG PICTURE	16			NOTES FROM THE FIELD	31
Puffins are coastal icons, but in the UK their habitats and food are under threat. Together we can step up to protect them				Spending months monitoring Antarctica's emperor penguins can be uncomfortable, cold and noisy – and life-affirming, says Jimmy Allain	

MEET THIS ISSUE'S GUEST CONTRIBUTORS



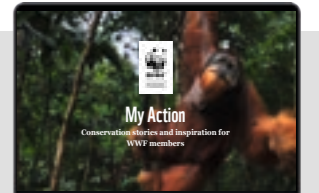
MOLLIE GUPTA is our seaweed solutions project manager, looking for ways to increase seaweed farming in the UK. "Kelp and other ocean forests are just as important in absorbing carbon as terrestrial ones," she says.



CHRIS HOWARD is a producer who's worked on the new *Wild Isles* series and he's seen first-hand the threats facing UK nature: "For some species, such as salmon, there are now very few places left where you can reliably see them."



DR HANNAH CUBAYNES is a scientist at the British Antarctic Survey and an expert in studying wildlife using satellite imagery. "Satellites can survey hundreds of places in the Arctic," she says of our work studying walrus.



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Jimmy Allain, Paul Bloomfield, Rod Downie, Dr Jaume Forcada, Barney Jeffries, Kevin Morgans, Anna Scrivenger, Mike Unwin, Lauren Wiseman

YOU HELPED RESTORE FORESTS IN KENYA

Thanks to you, a landscape in Kenya famed for producing world-class runners is turning green to support local people. The forested hills of Kaptagat are home to amazing wildlife and a high-altitude training centre used by athletes, including marathon world record holder Eliud Kipchoge. But the landscape is under threat from erosion and deforestation. That's why we're supporting Greening Kaptagat, a programme working with communities to restore degraded land and improve the lives of local people. With your support, our partners in Kenya have planted over 870,000 native trees since June 2022, including over 30,000 fruit trees that will provide food and income for communities. We're also working with the Eliud Kipchoge Foundation to restore 50 hectares of forest, with training paths and an ecotourism site. ■



YOU HELPED TRANSFORM CATTLE RANCHING IN PERU

Because of you, we've supported cattle ranchers in the Peruvian Amazon to switch to nature-friendly farming practices. Raising cattle is the main cause of deforestation across the Amazon, and traditional grazing quickly degrades the land, leading to further forest clearance. But with your support, we've provided training for more than 200 cattle ranchers in regenerative livestock farming practices that increase productivity and create space for nature. For example, interspersing trees with grazing land can help restore soils, improve animal welfare by providing shade and give farmers an extra source of income – all while absorbing carbon and increasing the habitat available to wildlife. Fencing cattle into smaller paddocks and moving them regularly allows the grass to regenerate, fertilises the soil with manure and keeps cattle safe from predators such as jaguars. ■



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

My Action
DISCOVER MORE
Discover more success stories you're helping achieve around the world at myaction.wwf.org.uk

“I WAS HAPPY THE WWF WORKSHOPS GAVE VALUE TO WOMEN. WOMEN ARE NOT ONLY WIVES - WE CAN DO THE SAME AS MEN”

BELÉN SOTA, PERUVIAN CATTLE RANCHER



YOU'RE HELPING PEOPLE COEXIST WITH JAGUARS IN BRAZIL

With your help, we're bringing together communities to share ways to reduce conflict with jaguars in the Amazon. As cattle farming has expanded, deforestation has destroyed large areas of jaguar habitat, bringing cats and communities into closer contact. And as natural prey declines due to hunting, hungry jaguars are forced to target livestock, provoking lethal retaliation. We know people and jaguars can live side by side. A few simple, low-cost measures can make a huge difference, such as installing solar-powered lights and putting bells on cattle. Last year, we invited 18 farmers, Indigenous people and other community representatives to a workshop in Brazil, to share ways to keep livestock safer. Since then, none of the participants have experienced jaguar attacks and they're passing on what they learned to others. ■

YOU HELPED TIGERS TRAVEL SAFELY THROUGH NEPAL

A project you support has been recognised as a leading example of forest restoration by the International Union for Conservation of Nature (IUCN). The 31.5km-long Khata Corridor links Bardia National Park in Nepal with Katarniaghat Wildlife Sanctuary across the border in India. The landscape was overgrazed and degraded, but over the past 20 years we've worked with the communities here to restore it to lush, green health. Around 30 species of wild mammals now use the corridor to move and mingle with other populations, including tigers, elephants and rhinos. As a result, the tiger population in Bardia National Park has shot up from around 18 in 2003 to 125 in 2022. This has helped Nepal smash its target of doubling wild tiger numbers. Figures released in July 2022 showed the wild tiger population had increased from an estimated 121 in 2009 to an amazing 355. ■



YOU'RE HELPING PEOPLE LIVE WITH GORILLAS IN RWANDA

Thanks to you, hundreds of families in Rwanda now have clean water close to home – and that's good news for endangered mountain gorillas too. Just over 12 years ago, women living around Volcanoes National Park had to trek long distances into the forest to fetch water, risking encounters with wild animals and potentially disturbing the park's mountain gorillas. So the International Gorilla Conservation Programme – who you support through your membership – trained 20 women and five men from a local cooperative to construct rain-harvesting water tanks. The team have since installed more than 600 tanks in communities surrounding the park, improving people's health and quality of life. Now they're benefiting from having mountain gorillas close by, people are more tolerant of wildlife, which helps to secure the future of these endangered apes. ■

YOU HELPED TRAIN VOLUNTEERS TO PROTECT TURTLES IN FIJI

Thanks to your support, we trained a team of volunteers in Fiji to protect threatened marine turtles by collecting data on their nesting beaches and monitoring the illegal trade in their shells and other parts. The volunteers learned how to find nests, identify different species of turtle and collect the reliable scientific data that's vital for effective conservation. The training also covered topics such as the illegal wildlife trade and boat safety. Five of the world's seven species of marine turtle are found in the waters around Fiji. The latest recruits join a network of community volunteers, called *dau ni vonu*, who work across the country to protect turtles. Volunteers play a crucial role in monitoring and protecting nesting beaches. They raise awareness about turtle conservation and assess the threats they face – from climate change and plastic pollution to being accidentally caught in fishing gear or deliberately killed for their meat and shells. Encouragingly, the number of nests has been increasing in the areas where the volunteers work. ■



TOGETHER, WE DID IT!

WWF IN ACTION

How we're bringing our world back to life

Switching to clean energy – here, solar and wind power in China – is essential to shift the world to a low-carbon economy and stop pollution

CLIMATE AND COST OF LIVING CRISES: A SHARED SOLUTION

Reliance on fossil fuels is driving the global climate crisis, and a cost-of-living crisis here in the UK.

The soaring cost of energy has left millions of people struggling to heat their homes over winter, as well as contributing to out-of-control inflation. And today's sky-high bills aren't a one-off: the rise is almost entirely due to the price of gas, which is predicted to stay high for the next few years.

Alongside this we're experiencing more frequent extreme weather events, such as floods, heatwaves and devastating wildfires. The climate is changing more quickly than wildlife or people can adapt. But these interlinked crises have shared solutions. Making our homes more energy efficient and switching to affordable, clean power can free us from unstable, expensive fossil fuels and help to combat the climate crisis.

Carbon emitted from UK households accounts for 15-20% of the nation's greenhouse gas emissions. With some of the draughtiest houses in Europe, we lose heat from our homes up to three times faster than our European neighbours. Insulation is one of the easiest and most effective ways to reduce household emissions and reduce energy bills – having a well-insulated home can cut energy bills by over £500 per year.

Investing in clean, renewable energy, such as wind and solar, will also improve our energy security, meaning we're no longer at the mercy of volatile international oil and gas markets. The UK has huge potential for wind, wave and solar power. Cheaper energy, improved air quality and a stronger economy – what's not to like?

But we're not yet seeing the leadership we need to tackle the climate and energy crises. While the government provided

some welcome support by capping energy prices and recognising home insulation as a priority, action to protect consumers from high energy costs in the years to come hasn't been enough. And the switch from fossil fuels to renewables must happen sooner.

With the energy and nature crises sharing many of the same long-term solutions, we should be using every opportunity to address them together. The UK government has promised to reduce greenhouse gas emissions to net zero by 2050, but needs to act now to show it's serious about helping people, nature and the economy to thrive.

Find out more about the promises made and add your voice to help us hold our leaders to account:
www.wwf.org.uk/hold-leaders-to-account

ECO-FRIENDLY ECONOMICS

Five ways to tackle the climate crisis that can also help with the cost of living



HEALTHIER FOOD

After energy, the food system is the biggest contributor to climate change. Reducing food waste, increasing sustainable farming and eating a more plant-based diet would lead to healthier, more affordable food.



LOWER BILLS, WARMER HOMES

Energy efficiency can save money and offers an immediate solution to the energy crisis. Investing in cleaner, greener energy will provide a fair, stable energy system in the long term.



HEALTH BENEFITS

With clean, renewable energy and more natural green spaces, air quality will be much purer, leading to health benefits for all, and reduced pressure on the NHS.



CHEAPER TRANSPORT

Electric vehicles are cheaper to run than their diesel or petrol equivalents.



IMPROVED WELLBEING

Protecting nature all around us helps restore more wildlife habitats that we can also enjoy for our personal wellbeing.

NEWS IN BRIEF



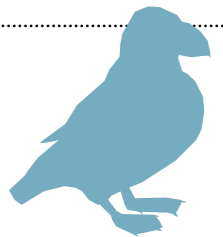
BETTER HOMES, COOLER PLANET

Low-carbon technologies are good news for homeowners and can help solve the energy and climate crises. Our *Better Homes, Cooler Planet* report with ScottishPower shows how heat pumps, solar panels, battery storage and electric vehicle charging points could potentially add about £10,000 to the value of a typical home, while reducing energy bills by up to £1,800 and carbon emissions by over 95%. WWF and ScottishPower are working together to accelerate the UK's transition to net zero. We're pushing for more government support for households to go greener.

500,000

With our partners in Brazil, we supported the collection of four tonnes of native seeds, which should enable around 500,000 trees, shrubs and other plants to be restored in the Cerrado. The region is home to 5% of all plant and animal species on Earth, but around half its native vegetation has been lost to agriculture. We're working with local families to collect seeds and restore degraded areas.

253



At least 253 species – including humpback whales, puffins and angelsharks – are put at risk by British demand for seafood, according to our *Risky Seafood Business* report. The UK consumed some 887,000 tonnes of seafood in 2019 – equivalent to 5.2 billion portions of fish and chips by weight – of which over 80% was fished or farmed outside UK waters.

NEWS IN BRIEF



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PREVENTING PLASTIC POLLUTION

In November, governments started discussing a global treaty to prevent plastic pollution – but every day, more plastic pours into the ocean. Working with partners such as the Ellen McArthur Foundation, we’re stepping up our campaign for a strong, legally binding UN treaty, which could be agreed by late 2024. It’s a once-in-a-generation opportunity to tackle the global plastics crisis and transform our throwaway culture into a circular economy by reducing the amount of plastic we use, reusing it where we can and recycling as much as possible. Over 2.2 million people signed our plastics petition, which contributed to the decision to draw up the treaty. With your support, we’ll keep fighting for ocean health.



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BE PART OF THE PEOPLE’S PLAN FOR NATURE

Last October, we received over 20,000 amazing ideas from the UK public on what they love about nature and how we should work together to save it. These ideas were presented to the People’s Assembly for Nature – a panel of 100 people from around the UK – to help build a plan for change that’s too big for anyone to ignore. The result will be the People’s Plan for Nature, setting out how governments, businesses, NGOs and communities can take action to protect and restore nature. The People’s Plan for Nature is powered by WWF-UK, the National Trust and the RSPB. Find out how you can be part of the action at peoplesplanfornature.org

HARNESSING THE POWER OF ART FOR TIGERS

Our Tomorrow’s Tigers project, in partnership with Sotheby’s and Artwise Curators, sees some very special rugs helping to turn things around for tigers.

Tigers and rugs don’t have the happiest history. Poaching for tiger-skin rugs – still prized as a luxury item in some parts of the world – is one of the reasons behind the shocking decline in tiger numbers, from around 100,000 in the early 1900s to as few as 3,200 in 2010.

Over the past three years, we’ve worked with top names in the art world to create beautiful tiger-themed rugs to raise funds for our TX2 conservation efforts to help double the number of tigers in the wild.

In 2019, we invited 10 internationally renowned contemporary artists to design tiger-themed rugs, drawing inspiration from traditional Tibetan rugs showing images of tigers. Their designs were made by a team of master craftspeople at rug specialists Christopher Farr, and use a range of traditional techniques and hand-dyed natural wools and silks. Being made by hand, each one of the limited-edition rugs is unique and highly collectible.

As a finale to the project, in November 2022, we held a selling exhibition of the original 10 designs and revealed two

newly commissioned rugs from Ai Weiwei and Peter Doig. The exhibition also featured a range of other tiger-themed artworks and jewellery, with a percentage of the sales being donated to WWF.

We’re so grateful to the artists who participated: Ai Weiwei, Francesco Clemente, Peter Doig, Bernard Frize, Gary Hume, Reena Saini Kallat, Anish Kapoor, Maya Lin, Harland Miller, Raqib Shaw, Kiki Smith and Rose Wylie. You can see their wonderful designs at artforyourworld.wwf.org.uk/tomorrows-tigers

To date, Tomorrow’s Tigers has raised over £1.1 million for tiger conservation. While we hadn’t reached the TX2 target by the end of 2022, recent surveys show that wild tiger numbers are on the rise.

Tomorrow’s Tigers was part of a larger collaboration with Artwise called Art For Your World, which aims to unite the art world in the fight against the climate crisis and nature loss. As well as tiger conservation, Art For Your World is supporting our work in five areas: protecting habitats and species, replanting seagrass meadows in UK waters, promoting sustainable lifestyles, tackling deforestation in the Amazon, and restoring forests with Trillion Trees.



The Tomorrow’s Tigers exhibition included this limited-edition art rug by Peter Doig

© ARTWISE

BOOST FOR ARCTIC FOXES

Our colleagues in Finland are celebrating after Arctic foxes have bred there for the first time in over 25 years – a milestone in the conservation of the species, which is critically endangered in the country.

Den inspections in 2022 revealed that an Arctic fox pair had given birth to three pups in the mountainous Enontekiö area of Finnish Lapland. This is the first time wild fox pups have been recorded since the last confirmed birth, in Utsjoki in 1996. At the start of this century, the Nordic Arctic fox population hit an all-time low, with just 100 adult individuals, their demise driven by demand for their pure white fur. There are now thought to be around 450 Arctic foxes in Norway, Sweden and Finland.

“It’s unique to see the return of a species that’s disappeared from Finland’s breeding species for decades,” says Petteri Tolvanen, WWF programme manager. “What’s more surprising is that it returns when climate change is progressing in the northern regions faster than anticipated.”

Although the foxes’ Arctic home is in meltdown, the arrival of the new pups is proof that conservation efforts are paying off.



Arctic foxes’ fur is brown or grey in summer, but in winter they turn pure white

© ALAMY

With National Parks Finland, WWF identifies key threats to the foxes during the year and the most effective ways to deal with them. By creating feeding stations near dens when there’s a short supply of lemmings (the foxes’ main prey), we’re giving them the best chance of breeding, and new arrivals are more likely to survive their first Nordic winter.

Conservation efforts must continue if we’re to restore the population of this iconic Nordic species. In the meantime, the new Arctic fox pups have now set out on their own to start independent lives after leaving the family den.

The Kwita Izina gorilla-naming ceremony is inspired by the Rwandan tradition of naming children in the presence of family and friends. Rangers and researchers helped name the new arrivals

GORILLAS: HOPE FOR THE FUTURE

Twenty new mountain gorillas born in the Volcanoes National Park in Rwanda over the past year have been named at the annual Kwita Izina naming ceremony.

After two years of virtual events, last year’s ceremony was held in the foothills of the Virunga mountains and attracted more than 50,000 guests, from global leaders to international celebrities.

His Majesty King Charles III named one of the gorillas Ubwuzanyane, which means ‘harmony’. “The restoration of harmony between nature, people and planet is the most critical issue facing humanity,” he said. Ivorian football legend Didier Drogba named his gorilla Ishami, which means ‘offspring’.

As well as the infant gorillas, a newly formed family group was given the name Kwisanga, which means ‘feel at home’.

Since 2005, 354 young gorillas have been named at the Kwita Izina ceremony. As well as being a celebration, the event helps raise awareness about mountain gorilla conservation and the challenges they face. Michaëlla Rugwizangoga from the Rwanda Development Board explains: “By naming these magnificent creatures, we give them the value they deserve.”

© KWITAZINA/WWF

BLUE SEA THINKING

The UK's marine environment is a powerful ally in tackling climate change. You're helping us to restore and protect this critical life-support system and to unlock the potential of 'blue carbon' through regenerative ocean farming

Kelp and other seaweeds could be hidden heroes in the fight against climate change, absorbing vast amounts of carbon. With your support, we're studying how effective farmed kelp could be at sequestering carbon

Did you know more people have walked on the moon than have dived to the deepest parts of the ocean? Much of the underwater world is little visited and poorly understood. Perhaps that's why global climate action plans have, until now, focused largely on terrestrial habitats, such as protecting the Amazon rainforest.

This work is vital, yet it's becoming clear we also need to harness the potential of the ocean. Just as trees and plants on land draw down carbon from the atmosphere and store it, so do coastal and marine ecosystems, including mangroves, seagrass meadows, saltmarshes and kelp forests. This 'blue carbon' can remain locked away in the underlying sediments for centuries or millennia, if left undisturbed.

These habitats are home to abundant wildlife, too, sheltering birds, turtles, fish, crustaceans and molluscs; even proboscis monkeys and tigers forage among mangroves. Marine plantlife protects coastal regions from ocean storm surges, reducing erosion and flooding. It filters water, helping remove pollutants. And it has the potential to provide food and income for local communities.

Sadly, these ecosystems are under threat from habitat conversion, pollution, industrial fishing, unsustainable coastal development, extreme weather and the warming climate. So we're working with partners around the world on pioneering initiatives to restore them to health and show how blue carbon restoration can benefit people, nature and climate.

PLANTING HOPE

With your help, we're restoring the UK's coastal habitats such as seagrass, as more than 90% of these meadows have been lost over the past century. Together with Sky Ocean Rescue, Swansea University and Project Seagrass, we've collected and planted around 1.2 million seagrass seeds off the coast of Pembrokeshire. We're now starting



Kelp forests – here off Shetland – are one of the most productive habitats on Earth. They support a huge variety of life and provide a range of ecosystem services, such as buffering coasts against storm surges

CASE STUDY



Princess Eugenie visited regenerative ocean farm Câr-y-Môr in Pembrokeshire in 2022

REGENERATIVE OCEAN FARM

Câr-y-Môr (meaning 'for the love of the sea') is the first commercial kelp and shellfish farm in Wales – and it's supported by you. This community-run, regenerative ocean farming project has more than 100 members in Ramsey Sound, Pembrokeshire.

"Our three-hectare ocean farm grows kelp, mussels, oysters and scallops," says co-founder Meg Haines. "The kelp grows on ropes hanging from buoys. Underneath are lantern nets [concertina-like cages of lightweight mesh] where we keep scallops and oysters, and mussels grow in vertical mesh 'socks'."

"Everyone uses the term 'seaweed', but kelp is more like a vegetable than a weed," adds François Beyers, another co-founder. "It's a superfood, packed full of vitamins and proteins."

"Dried seaweed is great – you can sprinkle it over food as seasoning," says Meg. "As a gluten-free alternative to pasta you can use sea spaghetti, or try sugar kelp in lasagne."

The team is also developing non-food products. "We can make plant pots that are 95% seaweed," says François. "Tulip farmers in the Netherlands plant seedlings in them, then put the entire pot in the ground, where it will biodegrade and act as a fertiliser. We're also working with a company called Notpla, making biodegradable linings for takeaway food cartons."

My Action

FIND OUT MORE!

Go behind the scenes with Câr-y-Môr at myaction.org.uk



WE'RE EXPLORING HOW KELP FARMS COULD HELP IN THE FIGHT AGAINST CLIMATE CHANGE

new restoration projects to scale up our work to help the UK restore 15% of its seagrass meadows by 2030.

Just how big a part do our coastal ecosystems play in combating climate change? To find out, we've co-funded a pioneering project to completely map the UK's blue carbon stores by this summer, in partnership with the Scottish Association for Marine Science, the University of St Andrews and the Marine Biological Association. Creating this knowledge base will enable UK governments to plan and prioritise how marine environments are used, helping protect these ecosystems from further damage by human activities.

There's another, less-studied coastal ecosystem that could help mitigate the effects of climate change and provide other benefits: kelp forests. Kelps are some of the 72,500 identified species of seaweeds (or macroalgae) that cover an estimated 3.5 million sq km worldwide. Seaweed provides shelter and food for thousands of marine species, and absorbs an estimated 190 million tonnes of CO₂ each year – as much as the annual

emissions of New York State. Britain's waters alone harbour perhaps 600 seaweed species, offering huge potential for supporting wildlife and, when farmed, for food production for people and livestock. Seaweeds grow quickly – up to 60cm a day in some species – capturing carbon and environmental pollutants. This benefits marine fauna such as oysters and mussels, which grow better in cleaner water.

We're now exploring how effective kelp farms are at sequestering carbon and how they could contribute to the fight against

climate change, while also yielding a nutrient-rich superfood, livestock feed (as an alternative to soy) and other products.

CARBON PATHWAYS

In a natural kelp forest, we know carbon is stored in the fronds. Then, as the seaweed grows or is eaten by marine grazers, pieces of the fronds break away, drift off and eventually sink to the ocean floor, contributing to long-term carbon storage in deep-sea sediments.

But we need to understand more about the carbon pathways of farmed kelp. "The destination of carbon in farmed kelp is different, because the fronds that don't break off naturally are harvested and taken out of the ocean to be turned into products such as food," explains Mollie Gupta, our project manager for the seaweed programme. "The production of kelp is near carbon zero," she adds. "The carbon stored by farmed kelp that's used in human food or animal feed is released back into the carbon cycle when it's consumed. But there are significant benefits in replacing what would

have been eaten instead of the seaweed, such as soy meal by livestock."

To understand the carbon benefits of farmed kelp, we're working with researchers at Newcastle University and the Marine Biological Association in Plymouth to investigate carbon capture in wild kelp beds and in ocean farms, comparing how much carbon is transported and sequestered.

Much depends on how the harvested kelp is used – and there are a lot of possibilities. Kelp could one day replace animal-feed ingredients such as soy. That's significant, because the UK imports around 3.6 million tonnes of soy for animal feed per year, requiring about 1.7 million hectares of land to grow it. This land is often converted for agriculture through deforesting important habitats such as the Amazon rainforest and Brazilian Cerrado, resulting in enormous carbon emissions.

You're helping us support a company called Oceanium that's developing processes to extract proteins from kelp and sea lettuce for use as a vegan alternative to fish, as well as in livestock feed. This could be a double



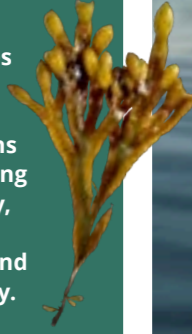
In Shetland, otters hunt in the kelp forests for fish and crabs

WONDER WEED

Various species of brown seaweed offer diverse benefits for people, wildlife and landscapes.

KELP IS AT HAND

Kelp forests provide homes and food for marine life, including juvenile fish, soft corals, limpets, urchins and crustaceans. By filtering water and lowering acidity, kelp forests help molluscs such as oysters, scallops and mussels grow more quickly.



COASTAL CUSHION

Kelp forests can act as buffers, helping to protect coastal landscapes and communities from erosion, ocean surges and flooding.



OTHER OPPORTUNITIES

Surprising products made using seaweed and its extracts include skin cream, soap, ice cream, beer and even faux leather.

ANIMAL EDIBLES

As well as using seaweed in animal feed to reduce livestock methane emissions, it could also help reduce deforestation. Linked to the destruction of ecosystems such as the Brazilian Cerrado, soy is used as a source of protein in animal feed. If we can produce a bulk feed ingredient from seaweed that's high in protein, we could use it as an alternative to soy, helping us prevent deforestation.

FOOD FOR THOUGHT

Seaweed has long been eaten by people in the British Isles, notably as laverbread in Wales and dulse in Scotland and Ireland. It's wrapped around rice and fish or vegetables to make sushi rolls, incorporated in burgers, made into crisps or sprinkled on other food as seasoning.



Regenerative ocean farming uses no fertiliser, pesticides or fresh water. It improves the coastal environment, which in turn supports the wellbeing of the community

win. "Studies show feeding one red seaweed species to cows can reduce their methane emissions by more than 80%," explains Mollie. "That particular seaweed isn't native to the UK – if we were to grow it here, there's a risk it would become invasive – so we're researching other species that can help reduce methane emissions but which are more suitable for farming here."

In theory, seaweed is a dream crop. Farming kelp doesn't require fertiliser, pesticides, fresh water or land, and it grows rapidly, usually attached to long ropes hanging vertically to depths of anything up to 60m. It's also hugely versatile. Historically, seaweeds have been burned to produce soda ash for glass and soap production, and for bleaching linen. Iodine has been extracted from seaweed, as have key ingredients for gelling agents used in food. Today, seaweed-derived products range from face cream to faux leather, as well as various foods.

"Anyone who's eaten a sushi roll has eaten seaweed – we just don't think about it," says

Mollie. "In Wales, there's a long heritage of eating bara lawr, or laverbread [reddish alga that's boiled and pureed], and in Scotland and Ireland dulse has been harvested for centuries. But not everyone will be keen: people think of seaweed as stuff that rots on beaches, so their reaction is 'yuck'. But the same would happen to carrots if you left them on the beach in the sun for days!"

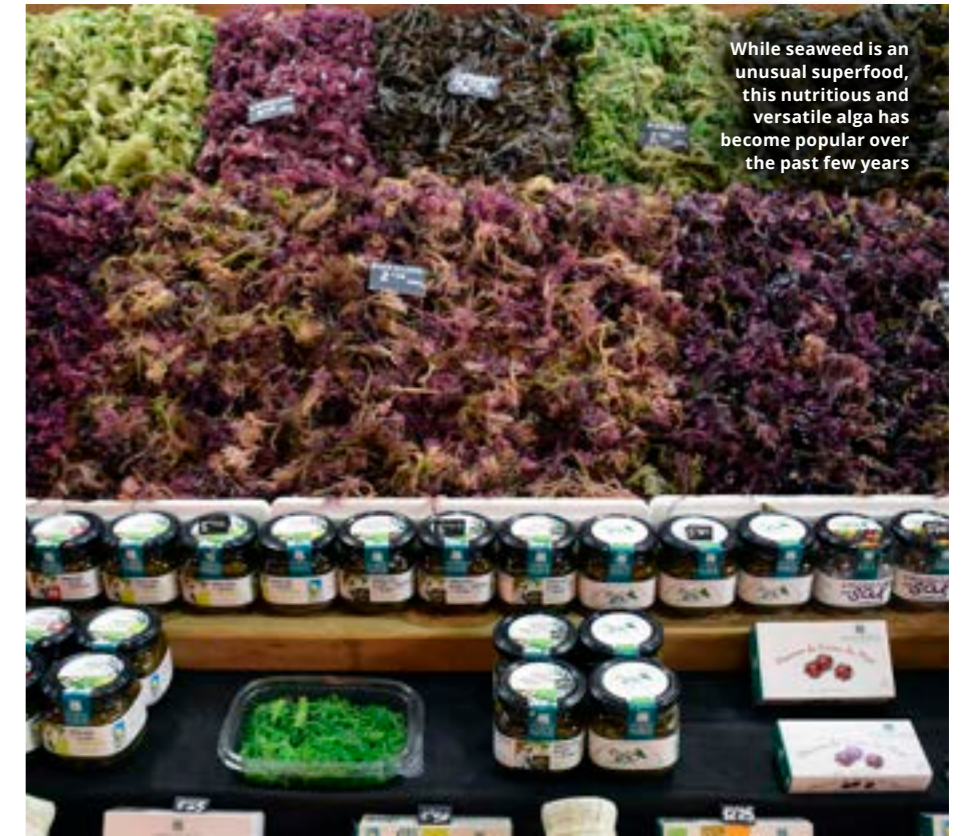
FARMS FOR THE FUTURE

Building demand for seaweed products is just one challenge. We're also working to establish and support seaweed production hubs, to promote best practice, and to secure support from communities. "Competition for space in the marine environment is high," says Mollie. "Seaweed or ocean farms can be seen as competition for the fishing industry, wind farms and recreational users. But they could be established alongside these other uses, providing shelter and food for wildlife."

Kelp farming isn't technologically complex, but because it's a relatively new industry,

TODAY, SEAWEED-DERIVED PRODUCTS RANGE FROM FACE CREAM TO FAUX LEATHER, AS WELL AS VARIOUS FOODS

infrastructure is sparse. Growing lots of seaweed is financially risky without enough processing plants to handle it. "Seaweed often has to be processed rapidly, within hours of harvesting, before it spoils," explains Mollie. "But there aren't yet many processing plants in the UK, as they can't be sure of a consistent supply of seaweed.



While seaweed is an unusual superfood, this nutritious and versatile alga has become popular over the past few years

So farmers currently have to manage this stage themselves."

In Wales, we're working with Câr-y-Môr regenerative seaweed and shellfish farm to understand some of the constraints (see p13). WWF Cymru is leading political advocacy with Natural Resources Wales and other political stakeholders to improve the licensing system there, paving the way for future improvements across Scotland and England.

"WWF is adopting a 'wholescape' approach," says Mollie. "We're looking at land, rivers and seas to create models for how these ecosystems can be managed holistically, because they're all so intimately connected. Seaweed is an important part of this, because it filters out pollutants from the land, such as nitrates and phosphates from agriculture, and could produce feed and fertiliser that go back into the local agricultural industry."

Ultimately, seaweed is a keystone of what WWF calls 'regenerative ocean farming': removing carbon, nitrogen and phosphorus, improving water quality, helping biodiversity and producing useful products – while leaving the ocean in a much better state than before.

Kelp farming could provide a novel way to help address the climate and nature crises – albeit almost invisibly. "Forests don't only grow on land," says Mollie. "Kelp, seagrass and other ocean forests and meadows are just as important in fighting climate change." ■

BE A REGENERATIVE OCEAN PIONEER

You already support our UK nature work, but will you help us discover the full potential of seaweed around our UK coastline? 100% of any extra donation helps develop exciting seaweed solutions such as...

- £10 could help to propagate 250 kelplets for sowing on a restoration site or regenerative ocean farm
- £20 could support research into how kelp can be turned into products like animal feed, to transform our food system
- £70 could help us run an underwater camera on a regenerative ocean farm for a month to monitor biodiversity
- £100 could help seed 25 metres of rope with kelp, which can grow into a blue forest

Donate today at www.org.uk/seaweed-solutions



My Action

DISCOVER MORE

Photographer Kevin Morgans' tips for taking perfect puffin photos: myaction.wwf.org.uk/puffin-pictures



PUFFINS: PAYING THE PRICE

Affectionately called the clowns of the sea, Atlantic puffins are among the most charismatic residents of the British coastline. But in the past 20 years, their numbers have plummeted.

With their brightly coloured bills, comical waddle and inquisitive nature, puffins are one of the UK's most loved seabirds. But today, they're a victim of our changing oceans. Rising sea temperatures are affecting the distribution and abundance of the small fish that puffins need to raise their chicks.

"Seeing the first puffin of the season return to its burrow on Fair Isle with its beak stuffed full of sandeels is special," says wildlife photographer Kevin Morgans. "It means the colony's first eggs are hatching." Puffins expend a lot of energy flying to and from their fishing grounds to feed their fast-growing chicks. "Each time one returns, it faces a gauntlet of gulls waiting to steal its hard-earned catch."

But they can't afford to lose a single fish. The puffins' main food source, sandeels, are becoming harder to find. On top of this, more extreme storms are flooding nests and, as fewer chicks are raised to adulthood, colonies are shrinking. But it's not too late to reverse this downward trend with better stewardship of our oceans and coastal environments.

Puffins are some of the stars of the new natural history series *Wild Isles*. Find out more on page 28

ICONS OF THE ARCTIC

Walrus are under threat from our warming climate, and we need to know how they're being affected. Satellite images may be a vital tool, but first scientists must visit these marine mammals on land to validate the results

A SPIT WITH A VIEW

An Atlantic walrus at a haul-out on Sarstangen Spit is framed against the waters of Forelandsundet and the mountains and glaciers of Spitsbergen Island, Svalbard. Walrus naturally favour sea-ice haul-outs, but as climate change forces the sea ice into retreat, they're increasingly obliged to adopt sites on dry land around the coast. This can leave them far from their feeding and breeding grounds, and increasingly vulnerable to disturbance from the shore.

July 2022: clear blue skies above the Svalbard archipelago, Arctic Norway. Against a stirring backdrop of snow-capped peaks, a small boat makes its way across a mirror-calm sound towards the narrow tongue of Sarstangen Spit. On board, the excitement of the small team of scientists is palpable. It's now clear that what they'd spied from afar is exactly what they were hoping for: a walrus haul-out! Even from a kilometre away, the great sprawling bodies basking on the shore are unmistakable, their tusks gleaming in the sunshine.

Among the team on the boat are three specialists from the British Antarctic Survey (BAS): Dr Hannah Cubaynes and Dr Peter Fretwell are both experts in satellite imagery, while Dr Jaume Forcada is a marine biologist and population scientist. All are experienced in marine wildlife conservation, but none has ever met a walrus before. With them is Rod Downie, who heads our polar programme.

Reaching the spit, the team disembark some 300m downwind from the walruses, to avoid spooking them. Walruses are easily frightened, and when startled they stampede towards the water, trampling one another. Now the work begins. First, Peter and Hannah send up drones to count the walruses. Then the team walk along the spit towards the animals, eventually stopping within 40 metres. They move slowly, keeping a low profile: it's important that the walruses don't waste energy by retreating to the sea in alarm.

After a couple of hours, the work is done and the team return to the boat. This has



▲ WORKING FOR WALRUS

Dr Peter Fretwell (right) and Dr Jaume Forcada, from BAS, consult the map as the Walrus From Space team head out towards Sarstangen Spit. The project is a collaborative effort between several partners, including WWF, BAS and the Norwegian Polar Institute. The Institute provided vital logistical support, including the Polarkirceel workboat seen here, and experienced guards who kept watch for wandering polar bears while the team conducted their field work.



“WHAT HAPPENS IN THE ARCTIC HAS IMPLICATIONS FOR THE WORLD”

◀ ARCTIC FROM ABOVE

A flight above Norway's Svalbard archipelago reveals the vast extent of this 61,000 sq km Arctic wilderness, with its sweeping glaciers and snow-capped mountains. However, nowhere on Earth is warming faster. Average temperatures here have risen by 4°C since 1971 – and by as much as 7°C during winter. The glaciers that cover 60% of the land are in retreat, while increasing rain and reduced snow cover leave large areas of tundra vulnerable to erosion and mudslides.

been day one of a 10-day trip and, so far, it's gone perfectly. “The relief and excitement in the boat was intense,” Rod explains, later. “Walrus haul-outs are highly variable. There may be lots of individuals there one day and none the next. You think, what if we get there and there are no walruses?!” Over the next week, the team visit several other haul-outs, repeating their routine.

WHERE'S WALRUS?

The purpose of this field trip was to support the Walrus From Space project, a five-year initiative that started in October 2021 with the aim of monitoring the populations of Atlantic and Laptev walruses (the latter a discrete population in western Siberia). This innovative project uses satellite imagery to identify key walrus haul-outs across the Arctic, the imagery provided by commercial company Maxar at either 50cm resolution or an unprecedented 30cm resolution (which means one pixel on your screen represents 30cm on the ground).

To cover the vast areas involved (some 25,000 sq km of Arctic coastline), the project has recruited the public to become ‘walrus detectives’. Volunteers work their way through enormous numbers of satellite images uploaded to an online platform and search

for walruses. Each image is reviewed by a minimum of nine people. Progress has been impressive: so far, some 11,000 volunteers have assessed almost 1.8 million images.

The use of satellite technology to monitor wildlife is not new. Hannah – who oversees the science, including image analysis – based her PhD on the feasibility of using satellite images to monitor whales. But this is the first time it's been used across the walruses' entire range.

“Assessing walrus populations by boats or planes is difficult, as they live in such remote areas,” says Hannah. “Satellite images can solve this problem as they can survey huge tracts of coastline and hundreds of places where walruses haul-out across the Arctic to find the animals and then count them.”

“Another advantage of working from space is that it's less invasive than visiting a walrus haul-out and risking disturbing the herd,” agrees Jaume. But to ensure reliability, the team first have to check that the data obtained from space tallies with observations on the ground – hence this Svalbard trip. “If the fieldwork data matches the satellite data, then we know that this is an effective way forward for walrus conservation efforts,” says Hannah.

After their first visit to Sarstangen Spit, the team reconvene at the nearby Ny-Ålesund ▶

▼ A CLEAR VIEW

On land, Rod Downie (foreground), Dr Hannah Cubaynes and Dr Jaume Forcada enjoy unusually favourable weather as they observe the walrus haul-out on Sarstangen Spit from an appropriate distance. Perfect cloudless skies allow for exceptionally clear satellite imagery, which enables the team to corroborate their observations on the ground with the images taken from space.



◀ TUSK FORCE

Adult male walruses can weigh over 1,700kg, making them the largest of the pinnipeds (seals and sea lions) after the two species of elephant seal. The tusks, which are present in both males and females, may reach a length of one metre. They're used in fighting, defence and dominance displays, and also to help haul their owners out of water onto ice. There are estimated to be around 2,000 walruses in Svalbard, up to a tenth of the Atlantic walrus population.



© EMANUEL RONDEAU / WWF-UK



My Action

DISCOVER MORE

See the walrus team at work in Svalbard at myaction.wwf.org.uk/join-our-walrus-watch

◀ **A DREAM COME TRUE**

The haul-out is on the western tip of Sarstangen Spit, a position that affords the walrus the greatest safety from shore-based predators and disturbance. "It wasn't a place where I would normally have expected to find walrus," says Jaume. "But when I got here, I realised it was very special. It was the spit of a major glacier between two big land masses. The walrus were making the most of this safe place. I always wanted to come to the Arctic to study walrus – so this is the fulfilment of a dream for me."



◀ **SPOTTED FROM SPACE**

The circles on this satellite image show walrus haul-outs in the Arctic at 30cm resolution. Zoom in close and it's possible to see individual animals. This image is typical of those being assessed by volunteers for Walrus From Space. The first phase of this citizen-science programme is to identify the location of haul-outs; the second is making actual counts from these satellite images.

▼ **UP AND AWAY**

Dr Hannah Cubaynes and Dr Peter Fretwell send up drones to obtain high-definition aerial imagery of the walrus haul-out on Sarstangen Spit. "They're so cool – and even better in real life," says Hannah. "I wanted to stay with them all day!" The drones were flown at a height of 55m to avoid disturbing the sensitive animals below. The images provided more accurate figures than those obtained by observers on the ground, proving that counts on flat terrain without a vantage point can be unreliable.



Research Station to assess their results. Hannah and Peter's drone images prove that ground-level visual counts can't be trusted: 38 walrus were spotted with the naked eye, but the drone picked up more than 70 – one of the largest haul-outs in the region.

Next comes a stroke of fortune in the form of fresh satellite images from that very day. "To get satellite imagery at the same time as you're doing a survey is so lucky," says Rod. "It's generally impossible to coordinate satellite coverage any more precisely than within a five-day window." Crystal-clear conditions have produced images so sharp the team can confirm the exact number of walrus counted by drone – and even spot themselves in the picture.

The walrus is one of the species most directly affected by climate change. With the Arctic warming about three times faster than the global average, it is rapidly losing the sea ice it relies on, and having to travel further to find food. New haul-outs on dry land are vulnerable to disturbance, both from human activity and hungry polar bears, with stampedes often causing many casualties. As more ice disappears, more shipping arrives, causing even more panic. Meanwhile, increased ocean acidification, caused by excess CO₂, depletes walrus food supplies by

preventing clams and other marine bivalves from producing their calcium shells. Finding and counting walrus is therefore a vital first step towards their conservation. Rod says: "If we can understand how walrus are responding to the climate crisis today, we can predict how they may respond in future."

UNDER PRESSURE

So what next? For the next few years, there'll be cycles of analysing the images to identify walrus, followed by phases of counting the walrus in the photos. Together, WWF and BAS will analyse the data to build a clearer picture of Atlantic and Laptev walrus populations. As the project expands, it may become possible to apply these techniques to the Pacific walrus, which currently survives in much greater numbers and concentrations.

We don't yet know what the future holds for walrus. "They are living on the front line of the climate crisis, and we need to better understand them so we can help to safeguard them," says Rod, stressing that the project's first priority is simply to provide evidence. Ultimately, he knows, this is about more than just walrus. "People care about walrus – they're iconic," he says. "But the climate crisis is bigger than any one species. What happens in the Arctic has implications for the world." ■



◀ **HOW MANY?**

A closer view of the haul-out reveals the challenges facing the team. A large group seen from side-on is hard to count precisely, particularly when individuals shift position. Other walrus will be in the water, invisible until they surface, or away feeding. Walrus spend roughly equal amounts of time on land and at sea.

BECOME A WALRUS DETECTIVE!

Find out more about the Walrus From Space project – and sign up to get involved – at www.wwf.org.uk/walrus-from-space

LEARN MORE

Meet the volunteers helping us count at myaction.wwf.org.uk/walrus-detectives



My Action

SECOND CHANCE

Recycling has long been seen as the solution to pollution, but to really wise up on waste we need to reuse what we already have

Alongside the climate and nature crises, pollution and waste are among the biggest threats facing the planet. From local beaches to the Arctic, manmade waste is choking oceans and killing wildlife. And it's getting worse.

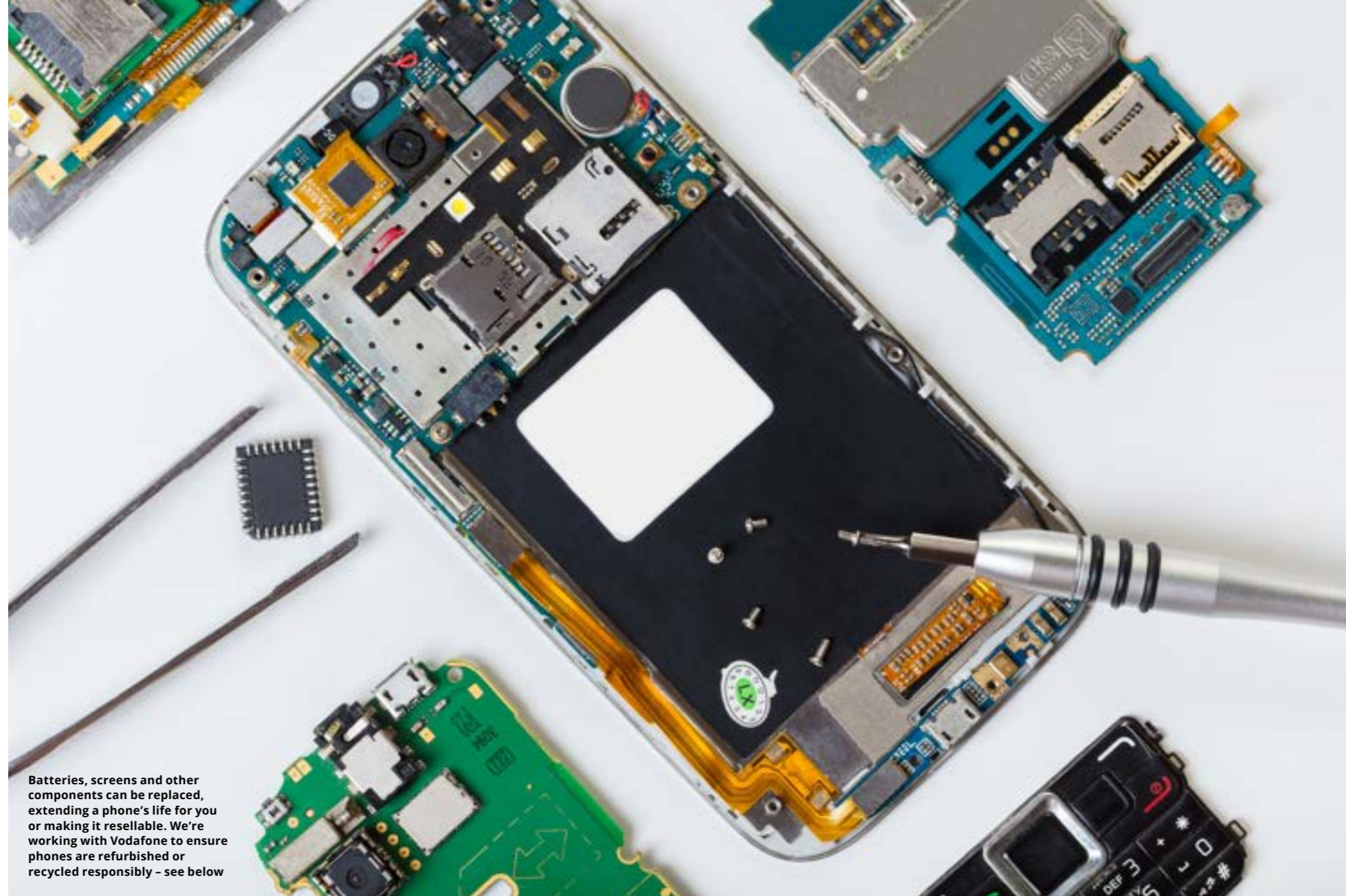
If we don't act now to tackle our throwaway economy, there could be more plastic in the sea than fish by 2050. And, however carefully we dispose of unwanted items, we can't simply recycle our way out of this problem.

The waste hierarchy prioritises ways of dealing with rubbish, from the most environmentally friendly methods down to the least. It can best be summed up with a phrase you may know: 'reduce, reuse, recycle'. The addition of the word 'refuse' at the start aims to prevent – rather than cure – the problem. Ask yourself: do you really need to buy a new item? Could you buy second-hand instead? If you do need to shop, can you buy less? Recycling should be the last resort.

A NEW LIFE

"The trouble is that by taking the guilt out of consumption, recycling is undermining our efforts to cut back on waste," says WWF environmental manager Lauren Wiseman. "Consumer behaviour is driven by convenience. And putting out recycling validates consumption by allowing people to buy whatever they want with a clean conscience. Our priority should be preventing waste and reusing what we already have."

The great news is that lots of consumer goods can be repaired or resold. Many of us



Batteries, screens and other components can be replaced, extending a phone's life for you or making it resellable. We're working with Vodafone to ensure phones are refurbished or recycled responsibly – see below

already buy certain items second-hand but with some goods, such as electricals, buying second-hand can have huge benefits.

"Reusing electrical items – and keeping them out of landfill – is important because they release harmful chemical toxins into water and the air that are hugely damaging not only to the environment, but also to the health of living species," explains Lauren.

Old phones are an example. There are 16 billion mobile handsets in the world. In Europe, a third are no longer in use – the average UK home has around £200-worth of unwanted electronics lying around. But making new handsets is one of the most environmentally damaging industries.

"Phones contain lots of minerals, mined from fragile habitats around the world," Lauren explains. "During the extraction process, pollutants leach into waterways, land

is degraded and workers inhale dangerous fumes. There's also modern slavery in the supply chain – not just in mining, but in sweatshops and production lines."

When people upgrade to a new phone, recycling the old one is less effective than you might think. "It just gets broken up," Lauren says. "Precious metals such as gold and copper are removed, but the rest is exported to landfill. There it leaches chemicals such as lead and mercury into the land."

The answer, then, is to give old tech a new life. Buying a refurbished smartphone saves around 50kg of carbon emissions equivalent and removes the need to extract over 75kg of raw materials. Sell your old phone or take it to a high-street reseller – even if it's broken. "Resellers might be able to replace the screen, camera and battery and give it a new lease of life," explains Lauren.

"OUR PRIORITIES SHOULD BE PREVENTING WASTE AND REUSING WHAT WE ALREADY HAVE"

We also need to break down the stigma around second-hand goods being inferior or unsafe. "WWF staff laptops are remanufactured rather than refurbished, which means they've been returned to like new – or better than new – condition by replacing parts," Lauren says. "And retailers usually provide a warranty to repair faults."

"Governments need to encourage retailers, businesses and manufacturers to reuse electricals," she adds. "Consumers are asked to buy second-hand, but we need businesses to do the same."

Reusing things isn't a new idea. Before mass consumerism, empty bottles were collected by milk floats, shoes were resoled, and salvaged scraps were redistributed by rag-and-bone men. The 21st century offers new ways to give life to our used goods – and now it's more important than ever.

WHY YOUR NEW PHONE COSTS THE EARTH

Mobiles contain precious minerals that are extracted at huge environmental cost. By buying refurbished, you can help keep mining to a minimum.

GOLD

Most gold is scoured from open pits, destroying habitats and causing erosion. The extraction process uses mercury and cyanide, which wash into rivers.



LITHIUM

It takes 2.2 million litres of water to evaporate one tonne of lithium from salt lakes, diverting supplies from wildlife and communities.



COBALT

Most cobalt comes from the Democratic Republic of the Congo, where its extraction is linked to child labour and other human rights abuses.



COPPER

Vast, open-cut mines on cleared land in Latin America extract copper using chemicals that contaminate water supplies, affecting local communities and wildlife.



TUNGSTEN

Most tungsten is mined in China. When it leaches into soil it stunts plant growth and kills aquatic life and creatures that form the basis of the food chain.



JOIN THE REUSE REVOLUTION!

To encourage everyone to make sustainable choices, Vodafone and WWF have launched One Million Phones For The Planet. The campaign aims to raise £1 million for WWF by encouraging people to return old phones to Vodafone to be refurbished or recycled responsibly. Every phone returned will raise £1 for WWF. **Find out more at www.org.uk/vodafone**

OUR WILD ISLES

With half the UK population of puffins being restricted to only a few sites around our coast, this distinctive species is at risk

WATCH
WILD ISLES
 This spectacular natural history series will be broadcast in spring
Tune in to BBC TV (or BBC iPlayer) in March

“THERE ARE EXTRAORDINARY WILDLIFE SPECTACLES”

SIR DAVID ATTENBOROUGH

A new landmark TV series presented by Sir David Attenborough will reveal the unseen beauty of Britain and Ireland

Britain and Ireland have some of the most diverse and beautiful landscapes on Earth. We have more ancient oak trees than the rest of Europe combined, as well as temperate rainforests in Wales, Scotland and western England; our remaining wildflower meadows are a refuge for birds and butterflies; and our coasts are home to globally important numbers of seabirds. Yet the UK is one of the most nature-depleted countries in the world and our wildlife is becoming increasingly fragmented and fragile.

Wild Isles is a landmark natural history series, co-produced by WWF, the RSPB and Silverback Films, and presented by WWF ambassador Sir David Attenborough. It reveals a previously unseen wild side of the UK and shows why it's internationally important for nature. It also explores the challenges facing the UK's precious species and what we can all do to protect and restore nature.

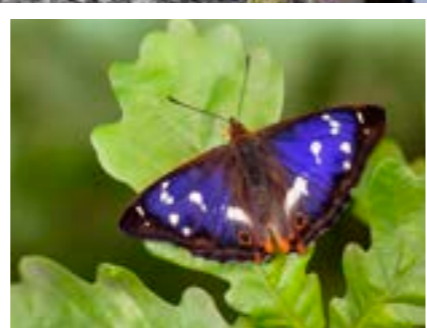
Here's a quick guide to some of the highlights in each episode.



SERIES INTRODUCTION

ORCAS HUNT SEALS

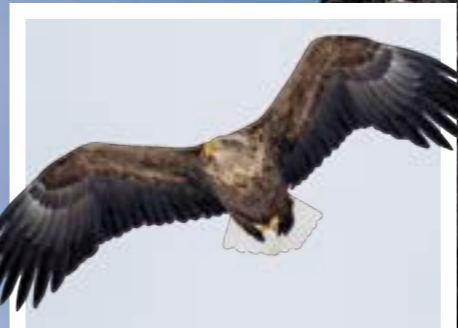
In the dark waters off Shetland, tall fins scythe through the waves – orcas. Every summer, family groups of these apex predators travel to the Scottish isles where they patrol the coastline in search of their favourite food. Their arrival is precisely timed to when common seals give birth and they know exactly where to find their prey. Common seal pups play in the shallows, unaware of the approaching danger. The orcas stop calling to each other to avoid being detected and stalk the seals using the kelp as cover. The orcas work as a team to separate a young seal from the others and drive it into deeper water – where its fate is sealed.



WOODLANDS EPISODE

EMPERORS BATTLE

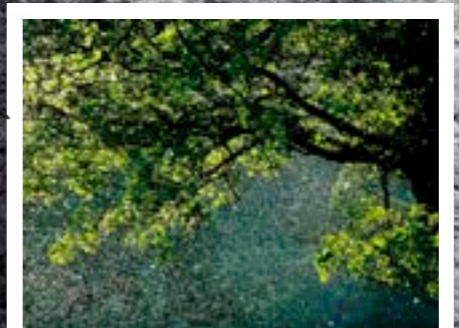
The UK's ancient oak woodlands are rich, complex and unique habitats. They're a haven for all sorts of wildlife, from red squirrels and hazel dormice to purple emperors. In high summer, the magnificent male butterflies display in the canopy of oaks, fighting over the best spots in competition for females. They're surprisingly aggressive, and will chase away anything that flies, including birds. From the treetops, the males can look down on the willow trees, where their larvae have matured and soon the females emerge. The UK is losing ancient woodland – one of our richest and most valuable ecosystems – at an alarming rate.



GRASSLANDS EPISODE

EAGLES HUNT GEESE

Every year, huge skeins of barnacle and white-fronted geese arrive in Scotland's Isle of Islay from Greenland and Svalbard. After flying 1,500 miles, they're exhausted and ready to feed on our lush grasslands. There's safety in numbers and many eyes to look out for predators, but as the geese graze, they become easy targets. White-tailed eagles tend to adopt a sit-and-wait strategy when it comes to hunting, but here a handful of birds have taught themselves how to hunt geese, chasing them in spectacular aerial displays across the grass and out over the estuary. This new skill is being learned by other eagles.



FRESHWATER EPISODE

MAYFLIES DANCE

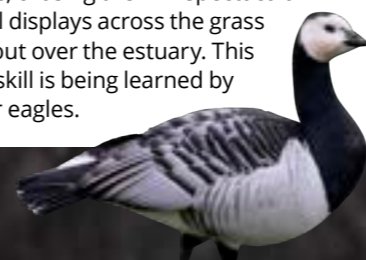
Chalk streams in south and east England are home to many unique species and host one of Britain's finest freshwater displays. Mayfly nymphs emerge from the stream bed after around two years, as sub-adults, and take their second adult form a few hours later. They shed their larval skins and launch into the air for the first time. As predators flock to gorge themselves, the mayflies perform a beautiful aerial ballet. The males dance until a female emerges, then compete to be the one to mate with her. Once the job is done, the males fall to the ground and the female drops her eggs into the clear waters below – ready for the cycle to start again.



MARINE EPISODE

BLUEFIN TUNA RETURN

Warmer oceans off the British coast in summer and early autumn are attracting exotic visitors that exploit climate-driven changes in the distribution of fish. Bluefin tuna have returned to our waters after 60 years of absence, due to numbers starting to recover from overfishing. Weighing up to 450kg and reaching 2.5m long, these magnificent predators rely on speed to catch their prey – mainly herrings and anchovies. The distribution of these silvery fish is changing due to the warming waters of the Atlantic and could be luring tuna northwards. Being warm-blooded, tuna can sustain a high metabolism in our temperate seas, giving them the edge as predators.



WORDS BY SOPHIE STAFFORD | IMAGES: © TENDRA GUPTA / WWF INTERNATIONAL | © GETTY

WILD ISLES



Hunting geese is a learned behaviour that's spreading through the UK white-tailed eagle population. But at the time of filming only eight or 10 birds were doing it



Wild Isles is a new landmark natural history series that celebrates UK wildlife. We go behind the scenes with Silverback Films producer **Chris Howard**

How is the *Wild Isles* series different?

Wild Isles is a series a lot of us have been wanting to make for years – a big blue-chip series about British wildlife. We're hoping to inspire nature lovers, but also reach new audiences by doing it in a bigger, bolder way. Thanks to WWF and the RSPB, we were able to spend two and a half years in the field and make sure we did British nature justice.

Why is this series so relevant now?

Every day there's another news story about the state of our planet. But we can't tell other countries what to do when we're not doing it ourselves. The UK is one of the most nature-depleted countries in the world. We've got to be better at looking after what we've got at home. We hope the series will make people passionate about wildlife they see every day.

How did you choose what to film?

With difficulty! We started planning this series, talking to experts and scientists to gather all their stories, over four years ago. Then we identified the must-have species and considered how we could portray them differently. We wanted to find new ways to do things and new behaviours that haven't been filmed before. Finally, we needed a balance of different species and big, surprising moments.

What filming challenges did you face?

Almost every sequence had unique challenges. Covid-19 had a major impact as the first lockdown happened during peak filming time. Plus, working in the UK – rather than somewhere remote such as Antarctica where you only get one chance – it was hard to resist the temptation to refile sequences.

Were there any filmmaking firsts?

White-tailed eagles hunting geese has never been filmed in the UK before. It took almost eight weeks just to work out where the birds were hunting and what they were doing. The whole marine episode

is surprising because the ocean is our least known habitat. It's jam-packed full of new and amazing things, such as bluefin tuna returning to UK waters. Even the colours are surprising – kelp forests easily rival coral reefs, they're stunning.

What's your favourite 'wow' sequence?

We used new infrared camera technology to film bats in the dark, without disturbing them, at very high speeds. This provided unprecedented insights into their unseen world. Rescued bats are usually filmed in studios but we spent three weeks on a river, painstakingly working out how to film Daubenton's bats in the wild. We even filmed a mating swarm, where the bats dance outside a cave.

Is it getting harder to film UK nature?

Yes. Environmental issues such as weather have been challenging – the seasons are so unpredictable now and autumn is getting milder. The first year we did purple emperors, a freak storm in June wiped out 90% of the males we were filming. Lack of habitat to film in is also an issue. The UK is one of the least forested nations in Europe and our precious chalk streams are drying up. For some species, such as salmon, there are now very few places left where you can reliably see them.

How will the series support conservation?

We want to inspire people in new ways to love the UK's amazing wildlife. The follow-up film, *Saving Our Wild Isles*, will explore environmental issues, solutions and positive things people are doing. There are lots of small things you can do to make life easier for wildlife – feed birds, grow plants for pollinators, put holes in fences for hedgehogs or make a pond. Small changes add up to big community action, so tell people how much you care about wildlife and why it's vital to protect it.

Find out more at www.org.uk/wild-isles

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FEEL REVIVED WITH LIZ EARLE BEAUTY CO

Win a luxury skincare bundle for pampering inspired by nature

Harnessing the potent power of natural botanicals to produce one of the most popular skincare ranges on the high street, Liz Earle Beauty Co is inspired by nature. And now, thanks to a new partnership with WWF, it's taking its responsibility even further – to help safeguard the UK's natural habitats and restore biodiversity.

We're working with Liz Earle Beauty Co to raise funds to protect and restore seagrass meadows off the Isle of Wight – where the company has its headquarters – and around the UK. Seagrass is a precious habitat for marine wildlife, and it's a vital tool in the fight against climate change too, absorbing 10-18% of the ocean's carbon every year.

The Isle of Wight is also home to a small but thriving population of red squirrels – one of only two populations in England. So Liz Earle Beauty Co has restored an overgrown woodland behind its headquarters to provide natural habitat for this endangered species.

We've got four bundles of Liz Earle Beauty Co skincare products to give away. Each set is worth £114 and includes a Cleanse & Polish Hot Cloth Cleanser, Instant Boost Skin Tonic, Superskin Moisturiser, Superskin Microdermabrasion Polish and a cosmetics bag. For your chance to win, see the box below.

CELEBRATE THE BEST OF BRITISH WILDLIFE

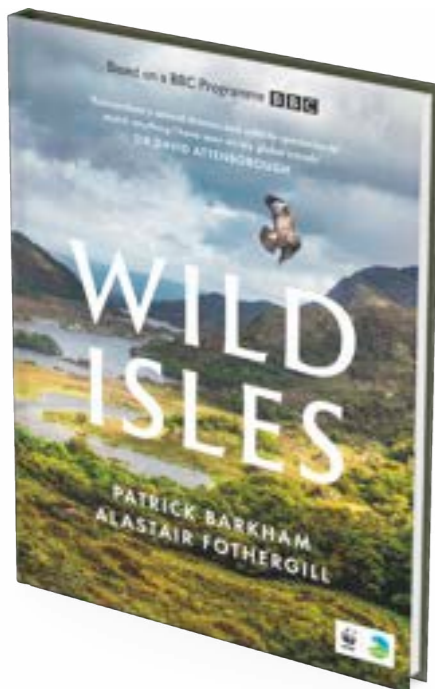
Win a signed copy of the *Wild Isles* book

Some of the world's most remarkable wildlife and beautiful landscapes are found right here on our doorsteps. Presented by Sir David Attenborough, the new *Wild Isles* TV series reveals a previously unseen wild side of the UK – and shows why our isles are globally important for nature.

This accompanying book explores some of our richest habitats and reveals the astonishing variety and dramatic behaviour of the wildlife that lives here. From chalk streams to bustling coastlines, beautiful photography shows that our wildlife really has to be seen to be believed.

Written by natural history author Patrick Barkham, *Wild Isles* also highlights the threats facing many species. The climate and nature crises have pushed much of our flora and fauna to the brink, and this timely book reminds us of the importance and urgency of taking action to protect it.

We've got a copy of *Wild Isles* (worth £25, courtesy of HarperCollins) – signed by the author – to give away. To enter, follow the instructions (right) and mark your entry 'Wild Isles'.



HOW TO ENTER ACTION GIVEAWAYS

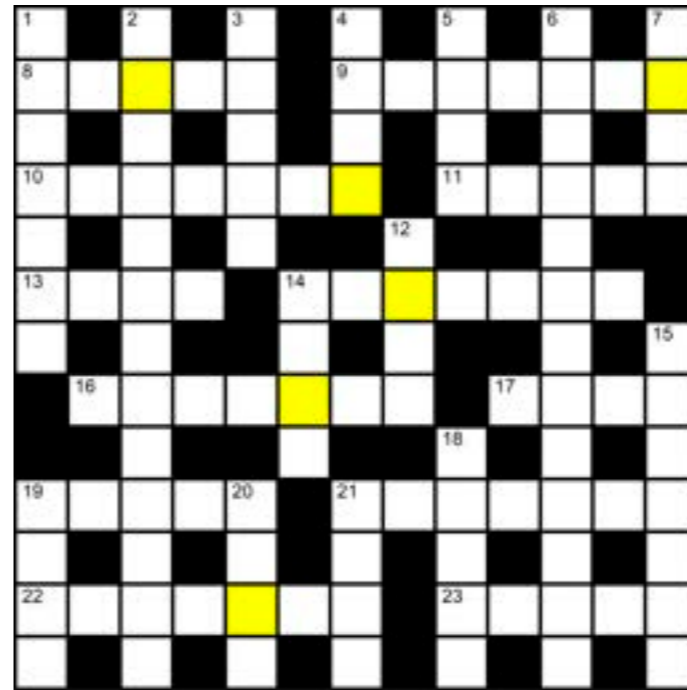
Send an email with your name, address and phone number, along with *Liz Earle* or *Wild Isles* Competition in the subject line, to competition@wwf.org.uk

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. Closing date: Friday 24 March 2023. For full terms and conditions, visit: www.wwf.org.uk/comptersms

CROSSWORD

Solve our puzzle and you could win a copy of new photo book *Puffins: Life on the Atlantic Edge* by Kevin Morgans, RRP £30



WWF ACTION CROSSWORD 53: Spring 2023. 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 24 March 2023.

Clues across

- 8 _ Hour, annual lights-off event (5)
- 9 Frozen mass in the sea frequented by walrus (3,4)
- 10 Carbon _ , emissions trading assets (7)
- 11 Region on one side of Mount Everest (5)
- 13 Major industrial region in Germany (4)
- 14 Zero-emissions two-wheeled method of transport (7)
- 16 London's 'Natural History' and 'British' are popular ones (7)
- 17 Hydropower structures (4)
- 19 Oaks and the like (5)
- 21 Viscous form of petroleum found in oil sands (7)
- 22 Common marine plant cultivated at aquaculture farms (7)
- 23 Toxic weapon of hundreds of snake species (5)

- 5 Decaying plant material that accumulates in bogs (4)
- 6 Worldwide temperature rise synonymous with climate change (6,7)
- 7 Major omission from the vegetarian diet (4)
- 12 Legislation addressing 'Environmental Protection', 'Wildlife and Countryside', etc (4)
- 14 Colour we associate with ocean carbon (4)
- 15 Destructive seismic sea wave (7)
- 18 A wood burner, for example (5)
- 19 Prominent feature of the walrus – one of a pair (4)
- 20 _ dispersal, important role of orangutans (4)
- 21 Resting places at the bottoms of seas and rivers? (4)

Clues down

- 1 Toxic element and environmental contaminant (7)
- 2 Methane or carbon dioxide, for example (10,3)
- 3 Supply _ , network disrupted by the Covid-19 pandemic (5)
- 4 Containers for recycling, waste, compost, etc (4)

Autumn 2022 answers

Prize word: HUNGER
Across 1. The Alps 5. Fuel 8. Agriculture 9. Shock 10. Chip 11. Fin 12. Dog 13. Asia 15. Slope 17. Stewardship 19. Isle 20. Cyanide
Down 2. Heath 3. African 4. PVC 5. Fauna 6. Evening 7. Florida 10. Caspian 11. Forests 12. Dolphin 14. Grebe 16. Piped 18. Dry

The emperor penguin braves the elements to reproduce in Antarctica



COLD COMFORT



Winter in Antarctica is tough. Separated from the rest of the world by more than 300km of solid ice, there are just 21 scientists and staff at Dumont d'Urville research station. Well, us and a few thousand emperor penguins.

Working with emperors is so exciting. The first time I saw one, it came right up to me, unaccustomed to humans. I was filled with childlike wonder. Now I spend all my days alone with the colony and it's like a dream come true. Each morning, I set off across the ice. It's about a kilometre to the colony. As I approach, the silence is broken. There are around 4,000 pairs of penguins here and they make a lot of noise! When the weather's good, I can watch them for hours. They can be full of grace and poetry but also very funny: they often slip and slide on the ice.

The freezing temperatures, blizzards and violent winds can be challenging. I quickly learned to never let a glove get blown away by a strong gust! At least the extreme weather makes the emperors huddle together to keep warm – a beautiful sight.

SEEKING ANSWERS

All winter, I monitor the emperors. The colony here has been studied since the 1950s, so we have a lot of information about how it's changed over time. Some of the penguins are tagged. They provide vital insights into the health of the colony as a whole. Recording how long they spend away on foraging trips, for example, gives us an idea of how far they have to travel to find enough food for their chicks. Monitoring chick survival is also important for understanding the colony's prospects. As well as the extreme weather, chicks are at risk from predators, such as giant petrels. I also study 'kidnapping', when females that don't have a chick of their own steal one from another couple. We know their broody instinct is partly down to raised hormone levels, but we're investigating why the frequency of these attempted abductions varies significantly from year to year.

Thanks to your support, all this research will help us get a better understanding of the long-term prospects of the colony in the light of a changing climate. Winter in Antarctica is a unique experience – the memories will stay with me for ever.

Jimmy Allain
Ornithologist, Dumont d'Urville research station, Antarctica

WILD ISLES

Coming this March, a new landmark BBC natural history series, presented by

SIR DAVID ATTENBOROUGH

and co-produced by WWF, the RSPB and Silverback Films

Featuring some of our
**BEST LOVED SPECIES,
EXTRAORDINARY
WILDLIFE AND
ASTONISHING
SCENERY**

**SEE THE WILD SIDE
OF THE BRITISH ISLES
AS NEVER BEFORE**

Discover more and help
make our isles wilder

wwf.org.uk/wild-isles



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

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