

10 species that can help save the world





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Nature has always regulated the health and heat of our planet, and **every part of our natural world plays a role.**

Introduction

The benefits of our wealth of wildlife on the world's health is often unseen, underestimated and undervalued. Very few are aware, for example, that earthworms help tackle flooding, great whales help tiny phytoplankton in our seas to capture as much carbon as 2.4 trillion trees, and wetlands can reduce local air temperatures by up to 10°C.

Nature has always regulated the health and heat of our planet, and every part of our natural world plays a role. From producing oxygen and capturing carbon, to keeping temperatures stable, and performing a wealth of actions that keep our air, waters, soils and people healthy, we rely on nature.

But human activity, in particular in the last half-century, has thrown this natural balance out of sync. The planet is heating to dangerous levels, pollution is dirtying our air and waters, overuse is damaging our ocean, rivers and soils, and wildlife is disappearing at an unprecedented rate.

The World Economic Forum says that globally annual investment in nature-based solutions needs to quadruple to avoid the planet's environment being pushed to the point where it can no longer regenerate itself.¹ Yet government investment in nature in the UK remains low, particularly compared to investment in high-tech climate solutions such as offshore wind and hydrogen power. Most government focus and investment continues to be in just a few core natural solutions like tree-planting. Wider nature restoration is chronically underinvested in, with just 0.02% of UK GDP (£473m) spent on restoring nature in 2018/19, less than was spent on pothole repairs.

The precious wildlife that we highlight in this report show how enormous an impact just ten species have on our climate, air, water and soils, and how much greater their impact could be, if their former abundance was restored. It is vitally important that we help these, and a plethora of other species, if we are to limit and mitigate climate change, clean-up our environment, and ensure our economy and public health thrive. Targeted species conservation measures play a vital role alongside wider ecosystem restoration to ensure that the richness of life on Earth – and the benefits it provides – are maintained.

These issues have risen up the global agenda as never before. As a planetary spotlight shone on the COP26 climate talks, expectations were held high. And while global commitments received a luke-warm reception, they did keep the hope alive for limiting global-warming to 1.5 degrees, and, crucially, recognized for the first time the vital role that restoring nature has in healing our environment.

But to turn ambition into reality UK leaders need to keep up the momentum from COP26 by shifting the spotlight to the COP15 nature negotiations in 2022. The global agreement on protecting and restoring biodiversity that world leaders will finalise in Kunming, China will have huge implications for our interlinked nature and climate crises. It's critical that at these biodiversity talks the UK persuades other countries to at least match England's world-leading 2030 target set in the Environment Act 2021 to halt species decline. UK and other global leaders must also commit the resources, protection, and actions needed to deliver this ambition.

Importantly, whilst the UK will be expected to deliver commitments made at COP15 talks as a single party under the Convention, each of the four UK countries must play a full part in turning the tide for nature in the run up to 2030. A coordinated approach across the four Governments will be essential for recovery of UK species and habitats.

All life on Earth is threatened by the crises caused by just one species – ours. The ten species illustrated here are our allies in the fight against climate and ecological breakdown. And they offer a tiny glimpse at the immense power of the living world to heal itself, if only we let it. By protecting and restoring all our declining species, we will also protect ourselves.

Parliamentarians can take three key actions today to help nature to help us:

- The Prime Minister to attend COP15 in person, to help secure global agreement to halt and reverse nature's decline
- Government to commit the significant funding required to fully implement global 2030 nature targets at home, and for more ambitious UK targets to restore nature.
- Call for the designation of new nature sites to expand UK protected site networks, along with improved protection and management for existing sites.

Domestic action of this kind will help demonstrate leadership, paving the way for global agreement.

Blue Whale



giant of climate action

EN

Status:
Endangered



Population:
Between 10,000 and 25,000



Location:
Global, but larger populations
in the Southern Hemisphere



Size:
80 – 100 feet, up to 200 tons



Habitats:
Ocean



© Christopher Swan WDC

The biggest whales also play a pivotal role in **supporting the ocean's smallest, but most powerful, carbon capturers – phytoplankton.**

How Blue whales can help save the world

Blue whales are the biggest creatures that have ever lived on Earth. These ocean giants are also giants of climate action. Great whales like the blue, sperm and humpback whales are a highly effective natural carbon sink, gathering carbon from the food they eat. Carbon is accumulated and stored in each whale's body over their long lifetimes (up to 100 years or more) and later stored on the ocean floor after the whale's death, remaining there for hundreds or even thousands of years. Before whaling, five species of whales took 250,000 tonnes of carbon to the deep of the Southern Ocean via their carcasses every year.²

The biggest whales also play a pivotal role in supporting the ocean's smallest, but most powerful, carbon capturers – phytoplankton. Without these tiny organisms our climate and atmosphere would almost certainly collapse. They are Earth's primary oxygen producer, having contributed around 50% of all oxygen in our atmosphere, and they are also our key carbon converter – capturing 39% of all carbon dioxide.^{3,4}

Whales' iron and nitrogen rich faeces stimulate phytoplankton growth, boosting the power of these micro-climate-cleaners.⁵ Globally, phytoplankton fix up to 50 billion tons of carbon each year equivalent to the amount of CO₂ captured by up to 2.4 trillion trees – equivalent to almost 6 times the size of the Amazon rainforest.⁶

Great whales are powering climate action, cleaner air and biodiversity recovery. Economists have calculated the public good benefits of great whales could be worth \$2 million plus per whale, with whales, dolphins and porpoises collectively delivering more than \$1 trillion in benefits.⁷

The threats they face

Commercial whaling has severely decimated global whale populations. It is estimated that, pre-whaling, there were around 3.7 million great whales, but around three quarters of the population has now disappeared.⁸ In the 20th century alone, almost 3 million large whales were killed, making it perhaps the biggest hunt in human history regarding removal of biomass. Six of the thirteen great whale species are endangered, with Blue whales critically endangered in the Antarctic, having more than 99% of their population in the last century.⁹ Other populations of great whales appear to have completely disappeared.¹⁰

Despite a global ban on commercial whaling, the practice continues in some nations and whales still face additional huge threats. These include collisions with ships, entanglement in fishing gear, the effects of climate change on food sources and habitats, noise and plastic pollution, and chemical pollution which is known to be significantly affecting whales' fertility.¹¹ There are an estimated 300,000 fishing-related deaths alone of whales and dolphins every year.¹²

The help they need

- **UK and international pressure to ban commercial whaling** in countries such as Japan and Norway that continue the outdated practice, including scrutiny in the public forum of COP15 to raise this issue up the political agenda.
- **Protection and effective management of key whale habitats.** In the UK we need to better protect and manage our Marine Protected Areas, with damaging activities such as bottom-trawling and infrastructure development still allowed in these zones despite their protected status.
- **Greater prevention of fishing-related deaths** through investment in, and compulsory use of, new technologies such as Remote Electronic Monitoring and ropeless fishing gear.
- **Robust legislation, regulation, enforcement, and engagement action is essential to reduce noise, plastic and chemical pollution impacts** on our whales.

What more great whales would mean

If whale populations increase, it would give a double boost to climate and biodiversity action. If populations were restored to pre-whaling levels the amount of carbon directly stored by great whales would increase from almost 2 million tonnes today to 11 million tonnes, the equivalent of creating a temperate rainforest the size of Los Angeles.¹³ The secondary, and much larger, indirect impact of increasing whale populations is the huge rise it would deliver in phytoplankton carbon capture.

Whales help to stimulate the base of the oceanic food chain, creating more energy resources for the ecosystem and wider biodiversity. Even in death, they provide life, as a food source for orca, sharks and whole deep sea ecosystems. More great whales means a richer and more resilient ocean full of life.

Striped Lychnis Moth



Moths are hugely important pollinators, often travelling further and to more diverse plants than daylight pollinators.

How Striped Lychnis moths can help save the world

We all know the vital role of our daytime pollinators, like bees and butterflies, but the equally critical need for night-time pollinators is often neglected.

Globally 64% of invertebrates live partially or wholly at night, so our night-time insects are even more prolific than their daytime counterparts.¹⁴ Moths are a hugely important part of the pollination process, often travelling further and to more diverse plants than daylight pollinators, ensuring a wide pollination reach. By carrying pollen over large distances moths help to disperse genes between populations of plants at a landscape-scale.¹⁵ They also reach a really wide range of plants, including many that bees, butterflies and hoverflies tend to ignore.¹⁶

There are over 2500 species of moths in the UK, occupying a wide range of microhabitats. Some are generalists, with their caterpillars eating a wide range of common plants but there are also specialist moths that prefer specific plants, including some of our rarest species.

The Striped Lychnis is a specialist feeder, preferring the localised Dark Mullein. Species like the Striped Lychnis moth are totemic of those much-maligned margins, such as disturbed road verges, embankments and field fringes that are so important for many wildflowers and the insects that depend on them.

By helping to pollinate our plants and crops, moths have a crucial role in promoting biodiversity, carbon-capturing and food security. They are also a key food source for birds and bats in particular, including struggling species like the Cuckoo, endangered Greater Mouse-eared Bat and Grey Long-eared Bat.

The threats they face

Moth numbers have declined steeply since the 1970s due in large-part to changes in land use and the increasing use of pesticides. In the UK there has been a 33% fall overall with a 39% decline in Southern England.¹⁷ The Striped Lychnis moth is a prime example, as it is now limited to just 40 colonies in Hampshire, West Sussex and the Chilterns.

Another key factor in moth declines is light pollution. Artificial night lighting is one of the most pervasive and yet under-recognised, causes of environmental pollution and has increased 49% globally in the past 25 years.¹⁸ While lighting is important for night-time activities and safety, it affects moths and their pollinating powers, reducing nocturnal visits to plants by an estimated 62%.¹⁹ Evidence also shows diverse impacts of artificial lighting across most life stages and key behaviours of moths, caterpillar populations are shown to decline 52% in areas with LED streetlights.²⁰

The help they need

We need to ensure moths are not out of sight and out of mind.

Land management changes are pivotal to helping moth numbers recover.

Key measures include leaving field margins unploughed, using pesticide alternatives, and no mowing of verges and other sites between May to September. It's crucial that major government policies like the Environmental Land Management Schemes and Local Nature Recovery Strategies are ambitious, well-designed, sufficiently funded and monitored to ensure that our farmers, land managers and local councils can deliver these changes.

To protect moths and other species from light pollution we need to change our relationship with light and recognise and treat it as a form of pollution. We need to ensure we are using better lighting, in the right place for the right amount of time. Use of timers, motion sensors and lowering the brightness of lights can reduce the impact of artificial lighting while still providing the light people need. To ensure action, particularly from local councils and businesses, we need to introduce statutory national targets to reduce light pollution.

What more moths would mean

More moths means: more night-time pollination; more flowers (and the carbon-capturing and other benefits they deliver); better crop yields and more food for struggling bird and bat populations.

But to allow these pollinating powerhouses to do their job we must protect their habitats, mow verges and other green spaces at the right time and protect moths and other nocturnal insects from overpowering light pollution.

Common Reed



As part of wetlands, common reeds help filter up to 60% of metals, 90% of sediment, and 90% of nitrogen from water.

How common reeds can help save the world

The common reed is a water-purifying wonder. These prolific plants are a key part of our natural water filters – wetlands. This grass is not just any old grass, its rhizomes under the water, and their associated microbial communities that live on the surface of their roots, give it fantastic filtering capabilities. As part of our wetlands, reedbeds help take out up to 60% of metals in the water, trap up to 90% of sediment from runoff and eliminate up to 90% of nitrogen.²¹ The processes by which pollutants are broken down is supported by oxygen transported to the root-water interface.

Due to being very successful in wetland habitats, the organic matter they produce provides a rich source of energy for microbes and invertebrates which then support wider wetland bird and fish species, of great economic value.

Healthy reedbeds and wetlands perform a wealth of further ecosystem services in addition to filtering out chemical and sediment water pollution. Their sponge-like water storage and natural coastal defence protects against floods, they help recharge groundwater and prevent drought, and can help tackle climate change by storing carbon and reducing local air temperatures by up to 10 degrees Celsius.²²

The proud common reeds are also essential for biodiversity, cleaning water so life can thrive and providing a vital habitat for some of our shyest and rarest wildlife and a 'service station' for migratory birds to rest and refuel. Visiting a reedbed you might be lucky enough to see and hear the boom of a bittern, watch otters playing or water voles swimming, spot a marsh harrier or bearded tit, or spy a harvest mouse weaving its nest. They also provide beautiful natural wetland spaces which have been shown to improve visitors' health and wellbeing.²³

Modern technology means new wetlands can be created in a matter of months or years. This makes the delivery of more of these high-impact habitats a key resource in tackling climate change and delivering cleaner waters alongside the recovery of nature.

The threats they face

Although the common reed is widespread in wetlands around the world, our wetlands are in rapid decline. Despite their vital role in our water system up to 71% of the world's wetlands disappeared in the 20th century.²⁴ Globally, wetlands are still disappearing three times faster than forests and a quarter of wetland species face extinction.

England has lost around 87% of its wetlands, with vast swathes of land drained for farming and pollution of watercourse by extensive chemical nutrient and pesticide applications.

Wetlands continue to be drained to provide land for housing, industry and agriculture across the UK and globally. Those that remain are often in poor condition which risks them turning from a natural carbon sink into a source of CO2 emissions.

Wetlands can help tackle pollution and climate change. But those degraded by pollution, drainage or rising temperatures are more vulnerable to invasive species. These are a big threat to wetlands, spreading and growing particularly easily in waters warmed by climate change. Species like the floating pennywort and New Zealand pygmyweed have had a devastating impact on wetlands, often strangling plants like the common reed.

The help they need

In short, funding is needed to restore degraded wetlands and create more of these fantastic natural pollution filters, carbon capturers and biodiversity boosters. In the UK, government investment in 100,000 ha of new wetlands across the UK is needed as one of the key natural solutions to meet 30 by 30, species abundance and Net Zero targets. We also need stronger regulation, policy and enforcement on water pollution to ensure these natural filters aren't overwhelmed by avoidable water pollution.

Additionally, government must include and integrate the use of nature-based solutions into existing and future policy. This will ensure that both natural and constructed wetland infrastructure is utilised to mitigate flooding, improve water quality and store carbon in aid of climate resilience.

What more reeds would mean

With wetlands come reeds. By restoring and creating new wetlands in a strategic network, we would be able to relieve much of the pressure felt by our freshwater ecosystems from urbanisation, and agriculture. Engineered solutions, such as treatment wetlands, are able to target specific and known sources of pollution from landfill leachate and mine wastewater to raw sewage and agricultural runoff.

With every UK waterbody failing chemical standards, only 16% of our waters in good ecological health, and with climate change increasing flood and drought risk, growth of the common reed, and wider wetlands, can play a key part in cleaning our waters for our wildlife and communities.

Lob Worm



critical to saving soils

NM

Status:
Not monitored



Population:
Under-recorded but thought to be declining



Location:
Native to Western Europe, found worldwide



Size:
Up to 35cm in length



Habitats:
Deep soil



The Lob Worm is the only deep burrowing species in the UK, which gives it a crucial and unique role in our soil health.

How Lob Worms can help save the world

The Lob Worm is critical to saving soils in most of Europe. Britain's largest earthworm, is one of over 20 UK earthworm species and 200 European species. But the Lob Worm is the only deep burrowing species in the UK, which gives it a crucial and unique role in our soil health.²⁶ Many of our earthworms munch through leaf litter, other decaying surface matter and fungi, but the Lob Worm drags leaves up to five metres below the surface feeding off the ferment from the fungi that grow on them underground.

This earthworm activity delivers four key benefits: incorporating nutrients into shallow and deep soil, prevention of soil erosion, improving soil aeration and drainage; and stimulating plant growth, all of which are essential for restoring the declining health of our soils.

The poor health of our soil is putting our food security at risk, with some estimates saying that nutrient loss in farmland soil means we may have less than 100 harvests left.²⁷ Soil is being lost at 10 times the rate it is created, causing a multitude of problems.²⁸ Soil loss is increasing sediment, chemical and nutrient pollution into our rivers, and causing greater flood-risk for homes and businesses, costing the economy in England and Wales £1.2bn a year through increased costs for local authorities, water bill customers, businesses and port authorities.²⁹

Healthy soil biodiversity including earthworms, and particularly the Lob Worm, due to the impact of its unique deep burrowing, are pivotal to tackling this plethora of problems.

The threats they face

There is very little monitoring of earthworm populations so it is impossible to say just how badly they have fared. But there is little doubt that modern farming practises will have had damaging consequences for our earthworms. Experts have witnessed the impact that toxic pesticides have had, often encountering just a handful of earthworms in soils that should have been full of earthworms, and more intensive land-use, including increased ploughing, means much of our farmland is unsuitable for earthworms that prefer undisturbed soil.³⁰

Plastic pollution also has an unseen and little known impact on earthworms. Research has proven that microplastics can stunt the growth of earthworms, and even cause them to lose weight.³¹

Another threat to Lob Worms and other earthworms is the introduction of invasive non-native species through imported potted plants and growing media. New Zealand flatworm (*Arthurdendyus triangulatus*) is already widespread in the UK and can reduce earthworm biomass by 20% impacting soil health and agriculture.³² Sightings of another flatworm species *Obama nungara*, are increasing in the UK and could have similar impacts to *A.triangulatus*.

The Lob Worm faces even more challenges to recovery from these problems than other UK earthworms as it is the longest-lived, living to 20 years old, and slowest breeding, laying just 5 eggs a year.

The help they need

While many of the most worm-damaging pesticides have now been banned, such as methyl bromide, other agro-toxins are likely to still be having an impact on worm populations, with intensive land use and invasive species also reducing populations.

Pivotal to the earthworm's resurgence in the UK will be effective incentivisation, through the Government's landmark Environmental Land Management Schemes, of low soil-impact farming techniques like agroforestry, minimum or no tillage, and organic farming. This is key both for the lob worm and for the farming industry's long-term profitability through more stable and nutrient-rich crop soils.

While eradication of existing invasive species threats to the earthworm is unlikely to be achievable, the UK can do more to prevent further non-native wildlife threats arriving on our shores including flatworms like the devastating New Guinea flatworm.³³ Improved biosecurity measures should be introduced not only for plants and plant material but also hitchhiker species on plants and within the growing medium. This should include regulatory quarantine periods for tree and plant material. We also need to reduce our reliance on imports of plant and tree material, and build capacity and support for a larger domestic industry.

A 1 year-trial for an Invasive Species Inspectorate is currently underway. There is multi-sector support, backed by the Environmental Audit Committee, for the Government to permanently instate this committee with a tripling of budget.³⁴

What more worms would mean

Earthworm recovery is critical to getting our soils healthy, stable and productive again, with active earthworms increasing plant biomass by 56%, and the presence of Lob Worms reducing soil erosion and drainage exponentially.³⁵ Put simply, more Lob Worms would lead to much less soil erosion, reduced water pollution, higher crop yields for farmers, increased wildlife diversity, and reduced flood-risk for communities.

Common Eelgrass



ocean super-healers

C

Status:
The most common seagrass in the UK



Population:
Declining



Location:
Throughout the North Atlantic and North Pacific, restricted distribution in the Mediterranean



Size:
Up to 1m in length



Habitats:
Ocean shallows, found at depths of up to 20m



Seagrass is a climate champion, capturing carbon up to 35 times faster than tropical rainforests.

How common eelgrass can help save the world

Common eelgrass, and other seagrasses, are ocean super-healers.

Seagrass is a climate champion, capturing carbon up to 35 times faster than tropical rainforests, and although it only covers 0.2% of the seafloor, it absorbs 10% of the ocean's carbon each year.³⁶ Seagrass's long blades also provide a buffer to storm damage and reduce coastal erosion, increasingly important as we face climate change induced weather extremes.

Seagrass meadows are hugely important for restoring wildlife, holding 40 times more marine life than seabeds without grass, including vulnerable species like seahorses.³⁷ They are also a stimulant for fishery sustainability, acting as a nursery for many of the fish we eat, including cod, plaice and pollock.

Restoring our meadows of common eelgrass and other seagrasses would not only benefit our wildlife and climate, it would also support our food security and fishing industry, and protect our coastal communities.

The threats they face

In the UK 92 percent of seagrass has been lost in the last century with only 20 of our 155 estuaries currently containing grasses.³⁸ Ocean overuse has played the biggest role in this loss with boat moorings and bottom-trawling fishing having disturbed and damaged the ocean floor and the seagrass that lives on it. Nitrogen pollution from agricultural run-off and sewage have also significantly affected our seagrass meadows.

The help they need

With so much of the UK's seagrass destroyed, tackling the root causes of this devastation at the same time as re-establishing our sea meadows is crucial to capitalise on the benefits that this and other seagrass species can bring.

Protection of our existing seagrass meadows means restricting damaging activities in the areas where they are present, particularly banning bottom-trawling fishing in Marine Protected Areas. Other areas of concern include replacing traditional boat moorings with less damaging alternatives, like helical (corkscrew) moorings, that allow seagrass to re-establish, and ensuring other ocean infrastructure (such as the expansion of offshore wind) avoids damaging seagrass and other vulnerable marine species.³⁹

We also need to increase the presence of this chief carbon capturer in UK waters. Major seagrass restoration projects in Denmark and in the UK are paving the way in trialling creating new seagrass beds.⁴⁰ Projects from WWF and Marine Conservation Society can create a model for replication on a large-scale in the UK. But substantial funding will be needed to replace our ocean meadows.

What more seagrass would mean

By restoring our underwater meadows we would create dramatically important ecosystems. These would provide a wealth of benefits including helping to restore ocean health, nurture fishing stocks, protect coastal communities and greatly increase the carbon storage potential of our ocean.

Curlew



Size:
Length of up to 60cm,
wingspan up to 100cm



UK's largest wading bird

RL

Status:
Red-listed in the UK



Population:
58,500 breeding pairs in the
UK, 125,000 wintering birds



Location:
Much of Europe and Russia,
African and Asian coastlines,
with breeding or wintering
populations across much of
the UK



Habitats:
Farmland, Uplands, Grassland,
Coastal, Wetland

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It is believed that this beautiful bird **naturally improves the health of our carbon-capturing coastal mudflats.**

How curlews can help save the world

The iconic curlew, with its distinctive cry, is the UK's largest wading bird, present on our coastline in the winter and migrating to upland pasture, moorland and wetlands in warmer months. This treasured species is much-loved by birdwatchers. But it is also believed that as it goes about its daily life the curlew, and other wading birds, may also naturally improve the health of our important coastal mudflats.

On our mudflats wading birds' feeding habits affect valuable sediments, with research suggesting they play a significant role in the function and stability of mudflats, helping them to provide protection from erosion, flooding and carbon sequestration.⁴¹ Further research is underway on the full impact waders have.⁴² But this role is important for our climate, with mudflats a high carbon-capturing habitat, capturing millions of tonnes of carbon a year.⁴³

The curlew is also an important umbrella and indicator species. They are so closely entwined with the wider ecosystem that the curlew's decline can alert us to issues in its habitats and conversely its success can demonstrate when the state of these habitats is improving. Focusing conservation and management efforts on recovering curlew populations can provide an 'umbrella effect' helping recover wider wildlife, particularly those that rely on similar habitat, including other endangered species like the tiny fingered speedwell plant and the wormwood moonshiner beetle.⁴⁴

The threats they face

The UK is hugely important for the curlew as it is home to around a quarter of the world's breeding population. But we also have among the highest rates of curlew decline globally, with populations down 65% since 1970, losing 30% in the last ten years alone, making them Britain's highest conservation priority bird species.^{45 46}

Losses to this much-loved species are due to a range of issues, with farming and forestry pressures key factors in breeding population declines.

More intensified farming practices (including drainage of wetland areas, loss of rough grassland and inappropriate livestock grazing densities), alongside the planting of commercial forests, have resulted in reduced and fragmented nesting habitats and diminished food supplies for these birds. Curlews have been mostly lost from their former lowland breeding grounds, with most breeding pairs now found in upland areas. Changes to land-use and management, including forestry, have also increased predator numbers, which has had a significant impact on ground-nesting birds like the curlew.⁴⁷

Their wetland and coastal wintering grounds are also threatened by pollution, mechanised shellfish harvesting, land reclamation and development. Developments include housing construction and tidal barrage construction – resulting in loss of mudflats and saltmarshes – and expansion of renewable energy sites, such as windfarms, all reducing habitat.⁴⁸

The help they need

Habitat restoration, sustainable management, and land use policies that reduce predation pressure, are vital to restoring curlew numbers.⁴⁹

Ensuring Environmental Land Management schemes incentivise 'curlew-friendly' practices from farmers and other land managers will be key to improving the bird's fortunes in both upland and coastal areas, and in restoring former lowland curlew breeding habitat. Key measures for farmers should include: restoring rough, damp pasture; extensive grazing to allow a diverse mix of taller and shorter vegetation in the breeding season; later and less frequent cutting of grass; restoring wetland areas; and providing shallow pools as chick-feeding areas.

The Government has announced some protections and restoration for peatlands which could improve breeding habitat. But peatland restoration plans need to go much further to support the recovery of the curlew and other vulnerable species. In particular, greater ambition is needed on the amount of peatland to be restored, with Government planning to restore 35,000ha which is less than 5% of England's peatland.⁵⁰

Ensuring planning protections for nature are maintained and enhanced, including the at-risk habitats regulations, is also critical to protect the curlew and other disappearing species from development threats.

What more curlews would mean

Restoring curlew populations would benefit habitats and biodiversity from coast to moor. On our mudflats curlews can help boost UK resilience to climate-change impacts of flooding, rising sea levels and erosion.

Common Poppy



Symbol of life and hope

C

Status:
Common



Population:
Declining



Location:
Widespread globally
and across the UK



Size:
Up to 60cm tall



Habitats:
Field edges, roadsides
and wasteland



Poppies help keep our fields fertile, **protecting pollinators, retaining nutrients and reducing run-off.**

How Common Poppies can help save the world

One of our most iconic wildflowers, the Common Poppy can help turn roadsides, farmland, waste ground and field edges into wildlife hotspots, improve the health of our water and soils, and increase crop yields. This Remembrance flower is a symbol of life and hope; its seed can lie dormant for decades, waiting for the right moment before showing itself in the most unlikely of places.

Poppies have been helping to keep our fields and farmland fertile for hundreds of years, with the Egyptians and Romans making garlands from Common Poppies to ensure the gods guaranteed fertility for their crops.⁵¹

On farmland, these and many other wildflowers provide vital free services. They provide pollen and shelter for pollinators and pest-controlling insects, often at times when crops are not flowering, ensuring more of these useful insects are around when crops need them, helping to boost farm productivity. The Common Poppy only produces pollen and no nectar, and it is thought that the pollen contains essential amino acids that bees require throughout their lives.⁵² The roots of wildflowers also help retain nutrients in the field soils, and reduce run-off during periods of heavy rain or irrigation, helping to keep soils healthy and preventing water pollution.⁵³

The Common Poppy can also be important along roadsides, bringing our grey roads to life with their striking colour. Many pollinators can't travel far without resting, so wildflower refuges on wasteland and roadside verges, for example, provide essential protection and food in areas with few sources of pollen and nectar.

The threats they face

Poppies are one of the UK's most threatened group of plants – arable wildflowers - which depend on soil disturbance for their seed to germinate. The Common Poppy was in the last century viewed as just a weed of cornfields. As a result, excessive herbicide use has seen these wildflowers disappear from many of the fields and margins where blooms of poppies used to be a common sight.

Disappearing hedges and field margins impact these arable flowers, as does unnecessary Spring and Summer mowing of verges and other green areas by local councils. This disappearance of habitat has had a huge impact for Common Poppies and other wildflowers.

The help they need

Reduced herbicide use and land-sharing by farmers, incentivised as part of the UK Government's flagship Environmental Land Management scheme along with advice and regulation, will be pivotal to getting these wildflowers back into British fields where they belong.

Sensitive management of marginal land and fields by landowners, can go a long way towards recovering lost habitat for the Common Poppy and other cornfield flowers. Ensuring Biodiversity Net Gain requirements for building developments and Local Nature Recovery Strategies deliver more for cropland wildflowers and that these are considered a vital resource for our farmland biodiversity will be vital to their habitat recovery.

What more poppies would mean

More common poppies can provide vital pollinator pit-stops, and improve soil health, helping our farms and fields flourish as well as being a cultural connection of remembrance and a feast for the eyes!

Sphagnum Moss



super sponges



Population:
Declining. Localised to certain wetlands in the UK, with some species rare



Location:
Mainly peatlands in the USA, Russia and Europe, smaller clusters in South America, Australia and New Zealand



Size:
5cm tall



Habitats:
Heathland, moorland, wetlands



Sphagnum moss's most important impact is in forming peatlands, which are one of the planet's biggest carbon sinks.

How Sphagnum Moss can help save the world

There are 380 types of sphagnum moss (30 in the UK) and all of them are super sponges of both carbon and water, making this super-powered plant a key preventor of flooding and climate change.

Sphagnum moss's most important impact is in forming peatlands, which are one of the planet's biggest carbon sinks. The moss becomes compressed to form peat – a process that takes hundreds of years. Peat wetlands store more carbon than rainforests, storing a third of the world's total carbon despite only taking up three per cent of the world's surface.⁵⁴ In the UK peatland occupies about 12% of our land area, storing 5.5bn tonnes of carbon, over half of the entire country's current carbon storage.⁵⁵ Restoring our peatlands to full health has a vital climate action role in containing current carbon stores, preventing more CO₂ leaching into the atmosphere, and capturing additional carbon.

Due to their nature peatlands form in areas of particularly high rainfall and can help counteract flooding in many high-risk areas. Sphagnum mosses can hold 16 to 26 times as much water as their dry weight.⁵⁶ These spongy mosses retain water even after the surrounding soil dries out. Healthy blankets of the moss in our peatlands can absorb and retain rainwater, reducing the likelihood and impact of flooding in the watercourses beneath them.⁵⁷ When they are healthy, sphagnum moss blankets also provide a rough terrain which dramatically slows the progress of rain-flow over peatlands, further reducing the risk of flooding. These super sponges provide a dual flood defence.

The threats they face

Sphagnum moss has suffered heavily from human activity. Peatlands, and the sphagnum mosses that form them, are drained, damaged and dug up for multiple uses. Around 80% of peatlands are in poor condition in the UK due to activities including heather burning for the game-bird industry, intensive agriculture, forestry, and extraction for horticulture and other uses.⁵⁸ Climate change related drought is also drying out these unique and valuable wetland habitats and excess nitrogen in air pollution is degrading peatland ecosystems.

The help they need

Sphagnum moss has disappeared from many of our dry and damaged peatlands and needs replanting and rewetting (through removal or blocking of drainage ditches, pipes, pumps and channels) to recover. This would need significant public investment, as part of 2030 nature recovery and 30x30 plans, to achieve.

Removal of the root causes of damage to our peatlands is also critical to restoring these flood and carbon super sponges. Government is currently considering a ban on the sale of peat compost, after a lack of voluntary action from commercial retailers, this is a key action which needs to rapidly become Government policy after its consultation ends. Government has committed to restoring 35,000 hectares of peat and has introduced a partial ban on heather burning on peatland. But as it is only restoring around 5% of English peat, and exemptions mean much burning will still continue, both policies need to be extended to protect sphagnum moss's key climate and flood prevention eco-services.

The climate value of investing in restoring our peatlands is enormous. The Office for National Statistics estimated that fully restoring the UK's lost peatlands could cost between £8bn and £22bn over the next 100 years. But it predicted savings of £109bn in terms of reduced carbon emissions alone.⁵⁹

What more sphagnum moss would mean

Protecting and restoring sphagnum moss on peatlands in the UK would provide a triple win:

- Improving vital natural flooding defences for many of our most at-risk communities
- Ensuring the UK's biggest carbon sink, our peatlands, continue to store CO₂ and capture even greater amounts
- Creating vital habitat for threatened wildlife like the large heath butterfly and wading birds like the greenshank

Atlantic Salmon



Swimming carbon-stores

P

Status:
Priority conservation species



Population:
Falling globally, UK populations down 50% in ten years



Location:
Breeding grounds in rivers across Europe & NE USA coast



Size:
Up to 150cm



Habitats:
Ocean and freshwater



About **10 –15% of the bodyweight** of large fish like salmon is made up of carbon.

How Atlantic salmon can help save the world

Large fish like the Atlantic salmon are swimming carbon-stores and play a vital part in restoring struggling freshwater and ocean ecosystems.

The Global Ocean Commission, estimates that globally fish, like salmon and other aquatic life absorb enough carbon dioxide in the ocean to avert \$74 billion to \$222 billion in climate damage per year.⁶⁰ About 10 –15% of the bodyweight of large fish like salmon is made up of carbon.⁶¹ So more salmon in our seas and rivers leads to more long-term carbon storage for of our rivers and seas.

Salmon are also a keystone species, meaning they have a disproportionately large impact on the ecosystems they are part of relative to their population size. The importance of the salmon is due largely to its wide role in the food-web, contributing to the health of dozens of predators and scavengers from caddisflies to orcas. Its transportation of vital nutrients from the ocean to its freshwater spawning grounds and surrounding woodland and other terrestrial habitats is also hugely important for rivers and surrounding habitats.⁶² So healthier salmon populations mean healthier populations of a huge variety of ocean, freshwater and terrestrial wildlife.

The threats they face

Atlantic salmon have faced serious declines in the UK, with breeding populations having fallen by about half in ten years.⁶³ This reflects widespread global declines. There are fears this species could become extinct in some UK waters, which can have a big impact, for example in lowland Hampshire streams where salmon populations are genetically distinct from other salmon.

Agricultural pollution has had a big impact on the quality of Atlantic salmon breeding grounds and reproductive success. In particular soil, sediment and nutrient run-off are affecting salmon populations. Some spawning grounds have been smothered, egg survival rates are reduced, foodwebs are altered, and gills irritated.⁶⁴ Other forms of water pollution affecting water quality, including sewage overflows, are also affecting the health of these fish. Blocked salmon migration by man-made barriers such as weirs, reduced populations from overfishing, parasites originating from fish farms, and competing non-native species, are all threats to the salmon. Higher ocean temperatures due to climate change are also likely to negatively affect growth and survival.⁶⁵

This wild salmon loss affects our economy. It is estimated that a “severe decline” in salmon stocks would equate to a societal economic loss of £350 million annually in England and Wales alone.⁶⁶

The help they need

It's important that water quality and water connectivity, including routes to overcome man-made barriers, are tackled to avoid local salmon extinction in the UK.

To remedy the plethora of issues that agricultural pollution is causing for salmon and other species in fresh and marine waters, it is vital that the Government's Environmental Land Management scheme effectively engages farmers to change polluting practices. Tough enforcement, and infrastructure investment to reduce sewage pollution from overflows and treatment works is also key.

Fishing restrictions in estuaries, harbours and coastal waters which house salmon migration pathways should also be considered, alongside measures to protect salmon from the impact of aquaculture.

What more salmon would mean

More wild Atlantic salmon in our waters would not only be a natural wonder to behold, it would improve the health of ocean and freshwater ecosystems, including carbon storage. It would benefit dozens of other species, from the endangered freshwater pearl that hitches a lift on its gill to the orca that eats it for dinner.

Common Oak



Supports 2,300 species

C

Status:
Common



Population:
Unknown



Location:
Nationwide, especially
common in southern and
central Britain



Size:
Up to 40m



Habitats:
Predominantly woodland



The majestic oak supports a whopping **2,300 species**, with **326 species** dependent on oaks for their survival.

How common oak can help save the world

Our iconic common oak trees support more wildlife than any other native tree species in the UK. They, along with other native trees, also have a vital role to play in greening, cleaning and cooling our cities, tackling climate change, and mitigating its impacts, like flooding and higher temperatures.

Enhancing existing woodlands, and planting, or rewilding, new ones with native trees like the oak, is one of the easiest and most cost-effective nature-based solutions we have for tackling climate change. A new mixed native woodland, for example, will capture 400plus tonnes of carbon in each hectare over its first 100 years growth, by locking it up in trees, roots and soil.⁶⁷

The often quoted mantra, ‘the right-tree in the right place’, is vital in our tree-planting approach. Mixed native tree-planting helps support and encourage the restoration of a much wider range of wildlife and makes woodlands more resilient to disease.

In our cities broad-canopied trees like the oak provide shady oases for wildlife and people alike. They help lower local temperatures through evaporative cooling, help counteract the ‘heat island’ effect in cities, and soak up excess rainfall. Oak, and other trees and hedges, help to reduce air pollution from roads, including black carbon (soot) and heavy metals. And the very presence of trees, and the sound of their leaves rustling, are proven to reduce stress and lower blood pressure levels. All of which provides a carbon-capturing, cooling, cleaning and calming effect, which benefit city residents.

The majestic oak also supports a whopping 2,300 species, with 326 species dependent on oaks for their survival. Hundreds of insects, birds like woodpeckers and the pied flycatcher, bats, red squirrels, and fungi all make the oak their home and rely on the trees for food – directly or indirectly.⁶⁸ More oaks in our forests, fields and cities means more wildlife too.

The threats they face

The biggest threat to the oak is the loss of woodland, including ancient woodland, to development. A huge 1,225 ancient woods are at risk from development currently, many of which contain ancient oaks. Not only is the loss of these ancient woodlands devastating to wildlife, with many vulnerable species unique to these woods, killing these woodlands also releases the centuries of carbon they have captured back into the atmosphere.

Pests and diseases are also threatening our oak trees, with invasive non-native species including the oak processionary moth contributing to oak losses.

The help they need

Planning reforms are being considered in England which could either greatly weaken or greatly strengthen protections and enhancement for our oaks and other wildlife. We want to see strong standards which require access to good quality natural spaces for every community in England, promoting the establishment of more woodland and other green and blue spaces.

It is also vital that reforms deliver stronger protections for existing woodlands, particularly ancient woodlands, across the country. For England’s protected sites, protections should be levelled up so all sites are afforded the strong level of protection against development and damaging activities that Special Areas of Conservation and Special Protection Areas enjoy. In our national designated landscapes, like National Parks must be strengthened with clear statutory purposes to nature recovery and the duties and resources to deliver these. Local Nature Recovery Strategies must be well-resourced to deliver effective plans to increase improved woodland and other wildlife habitats.

Our native trees have suffered from a deluge of devastating diseases and invasive insects being brought into the country. The oak processionary moth arrived here in 2005 via trees imported into London and has impacted people and trees alike. It strips the leaves of oaks leaving them vulnerable to disease, pests, drought and flood. It’s vital that to protect against other damaging invasive species arriving on our shores the Government invests in an adequately resourced invasive species inspectorate.

What more oaks would mean

Increasing the number of oaks and other broadleaf trees, and protecting our existing woodlands, would be hugely beneficial for nature, people and climate. More oaks means more resilience and restoration for the 2300 species that oak trees support, protection for people from flooding, pollution, and increased temperatures, and considerable carbon capturing resource.



Conclusion

The ten species detailed in this report clearly show the vast impact that our entire natural world has on our environment, wellbeing, and even our survival, far beyond the well-known benefits of habitats such as woodlands and wetlands in capturing carbon. Every species, from our giants of the seas, to the tiniest of insects on land, has a vital role to play in supporting the ecosystems that maintain the healthy environment that we need to thrive socially and economically.

Yet our natural world is in crisis, with the UK one of the most nature-depleted countries on Earth. Individual species need a raft of targeted interventions to help them recover, as detailed for the ten species that we highlight in this report. But to support the recovery of all species, and to increase the benefits they bring our environment and economy, targeted species interventions must also be supported by wider ecosystem restoration measures.

The Government has set ambitious and welcome targets including a legal requirement to halt nature's decline in England and promises to protect 30% of our land and seas for nature by 2030 (including extending our protected site network). In so-doing, the UK government is styling itself as a world-leader on nature recovery ahead of global biodiversity talks in China this year.

But three key areas of action must be delivered upon if the UK is to live up to its world-leading aims:

COP15 leaders must be convinced to commit to a 2030 legal deadline to halt and reverse nature's decline, with the PM attending in person to make this case

As COP26 president and the first in the world with a legal target to halt species' decline, the UK has a pivotal role to play in shaping the global agreement that will be set at COP15 to protect our natural world. The UK previously helped pave the way for the adoption of legal Net Zero emissions targets in multiple countries, and achieving a similar nature positive international commitment at COP15 must be the UK's main goal for the talks. The PM's attendance at COP15 would show the UK's commitment to achieving global agreement of a net zero for nature.

To deliver a convincing global argument at COP15, and to deliver at home on its promises to end nature's decline and protect 30% of land and sea by 2030, it's crucial that robust and urgent action is delivered domestically by the UK Government.

We can't achieve these targets without providing truly protected areas for nature, including land, freshwaters and our coasts and seas, and a massive increase in funding for nature restoration. At least £1.2 billion extra per year is needed for restoring priority UK habitats and species alone.

Delivering the resources and policy needed at home, alongside influencing an ambitious global deal for nature at COP15 is critical to turn the tide for nature by 2030.

Turn our 'paper parks' into properly protected places for nature

The Government's commitment to protect 30% of the UK's land and sea for nature by 2030 is to be applauded. But there is a danger that a minimal interpretation of 'protection' may mean little improvement on the ground for nature.

The Government currently considers that all designated land and marine areas will make up part of this 30%. But the sad state of affairs is that much of our National Parks, Areas of Outstanding Natural Beauty, Marine Protected Areas and other protected sites are in poor ecological condition and are not adequately protected from overuse, damaging activities and development.

Government claims that 28% of UK land is already protected for nature. Yet due to the poor condition of much of our National Parks and Areas of Outstanding Natural Beauty (AONBs), RSPB estimates the reality is that just 5% of land is in good ecological condition and effectively protected. There is a similar situation at sea with 40% of English waters alone in Marine Protected Areas, yet the vast majority of these sites are poorly managed and protected, with damaging activities like bottom-trawling still permitted, leaving wildlife in these sites in jeopardy.

We are far from being 'job done' in protecting 30% of the UK for nature. Extensive improvements in protections, restoration measures, and monitoring to demonstrate the effectiveness of these measures, are urgently needed if this commitment is to be more than a tick-box exercise based on paper parks rather than robust protections.

To ensure 30x30 delivers meaningful nature protections the Government must:

- **Prohibit damaging activities in our protected areas.** Effective prevention of damaging activities such as bottom-trawling fishing in Marine Protected Areas and intensive farming and urbanisation within National Parks and AONBs.
- **Strengthen landscape designations to realise their potential for nature.** The statutory purposes of National Parks and AONBs must be amended to place a stronger emphasis on nature and environmental protection and recovery. Ambitious, well-implemented and sufficiently resourced management plans are crucial for National Parks and AONBs to actually deliver for nature. These must be complemented with effective and regular monitoring to ensure improvements.
- **Strengthen the guidance relating to development** in strictly protected sites to clarify that damaging activities should only happen in the most exceptional circumstances. This would reduce damaging developments within these sites, give clarity to developers and prevent huge costs to those who manage protected sites.
- **Designate all of our most valuable and irreplaceable nature sites**, including ancient woodland, Important Plant and Invertebrate Areas, and our few remaining seagrass meadows, with the strongest legal protections. Scientific evidence suggests that to establish resilient ecological networks, 16% of English land alone needs to be effectively legally protected through SSSI, SAC, SPA, and Ramsar designations, double the current level. Government must act quickly to designate new sites to expand the protected site network.
- **Ensure improvements to Environmental Land Management schemes** effectively incentivise a wholesale shift to nature-friendly farming practises and nature-positive land management in protected areas and across the countryside. A ramping up of ambition is crucial to the success of the schemes.

In addition to protecting 30% of land and sea for nature, what happens in the remaining 70% determines whether we will lose nature overall. Delivering an effective Environmental Land Management Scheme with high take-up, alongside improvements to fishing sustainability is key to success.

Sustained and significant funding to meet 2030 targets to restore and protect nature, with ambitious targets for the longer term

Halting and reversing the decline of biodiversity by 2030, and meeting 25 Year Environment Plan goals, is critical to tackling our nature and climate crises. Targets beyond 2030 also need to be robust. The species abundance target for 2042 should aim for a significant increase in populations compared to current levels.

These targets require nature interventions that come with a big price tag. But the returns on investment are even bigger. The Government's own experts estimate that restoring our carbon-capturing peatlands alone would achieve between a 5x to 13x return on investment due to reduced atmospheric carbon.

Modelling shows that a bare minimum extra investment of £1.2 billion is needed to restore priority habitats and wildlife alone. To be confident of achieving the Government's wider environmental ambitions however, UK public spending on nature would have to triple from £2.2 billion to £6.8bn per year in total. This includes funding of:

- £2.262bn per year to restore and protect habitats and species to halt nature's decline by 2030 across the UK
- At-least £5.5bn over 3 years to level-up access to nature and improve nature sites across the UK. Funding to local authorities would deliver natural spaces that help wildlife recover and deliver health and wellbeing benefits to communities. It would provide £200bn in healthcare benefits, deliver around 40,000 jobs, and provide 3,500 deprived communities with access to natural spaces.
- An additional £501m per year is needed in England to underpin environmental commitments through advice, enforcement, and capacity-building

This significant and sustained government investment in restoring our natural world is critical if key 2030 nature targets and 2035 emissions targets are to be met. This should be alongside a paradigm long-term shift in how we value the services we receive from nature - such as carbon capture, clean air and water, healthy soils, flood protection, and pollination, as proposed in the Dasgupta Review. This shift has the potential to open up new sources of ethical investment in nature that benefit nature, climate and people.

The UK's goal to be a world leader on nature restoration is ambitious but achievable, with promises made in 2021 setting us on a path towards ending nature's decline by 2030. But there are plenty of ways we can wander off the path unless the Government's vision is backed by long overdue treasury investment in restoring nature and much-needed additional protections for our struggling nature species and sites.

COP15 is the critical test for the Government's world-leading nature ambition. Its success will be determined by the action it delivers at home across all four nations to back up its promises, and the strength of the global deal achieved at the talks.

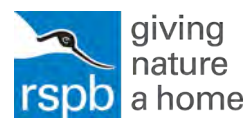
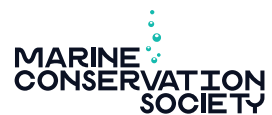
We can't afford another lost decade for nature, we must protect the nature that protects us, now.

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