



The  
**Wildlife**  
Trusts

# Our Year in Adaptation

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*Adaptation progress across  
The Wildlife Trusts in 2022/23*

### Welcome to our Year in Adaptation for 2022/23!

It has been one year since the publication of *Changing Nature*, the first climate change risk assessment and adaptation plan for The Wildlife Trusts across England, Wales and Northern Ireland. The report summarised our latest understanding of the main hazards that are likely to affect our sites and operations over the coming years – flood, drought, heat, fire, coastal and marine changes. It also considered the urgency of different adaptation actions for the next five years and from this, created a 5-year adaptation plan for the Wildlife Trusts.

*Changing Nature* highlighted the large amount of adaptation already happening across the Wildlife Trusts. We are assessing the risks to our nature reserves, staff, built assets, and our projects. As well as working to improve the resilience of habitats and species, we are delivering a significant range

of nature-based solutions designed to increase climate resilience for people. Education and public engagement programmes are taking place which focus on climate change adaptation.

Although The Wildlife Trusts are undertaking adaptation work at scale, this has not previously been brought together in one place and we have also not identified our biggest gaps in action and evidence. This first annual update of *Changing Nature* brings together a range of actions that The Wildlife Trusts have undertaken over the past 12 months, set against the commitments in our five year plan. It also considers the impacts that extreme weather has had on our sites in the past year, whether there has been any change in our capacity to act, and key evidence and capacity gaps. We have documented activities taken by both **individual Trusts** and our central team at the **Royal Society of Wildlife Trusts (RSWT)**.



# Our adaptation action plan for 2022 and 2023



Adaptation action	Indicative progress
1 Take forward conversations with key partners (National Trust, RSPB, UK Government and devolved administrations, local authorities, National Parks, AONBs) on a framework for future conservation in a changing climate, building on the Lawton principles	Green
2 Assess how far our current reserves management practices and land advice go towards protecting and facilitating the movement of terrestrial and freshwater species and habitats up to 2050 in a changing climate, including a review of dispersal ability of key species and habitat connectivity for The Wildlife Trusts	Green
3 Review, across our reserves network, plans for managing climate hazards. Share information across Trusts and create lists of actions that can be taken to reduce each hazard	Green
4 Sustain planned actions to record and manage pests, pathogens and invasive non-native species and consider future risks, including emerging trends across the rest of Europe	Green
5 Consider climate change impacts to future conservation grazing regimes	Yellow
6 Assess overheating, flood and extreme weather risk for our offices in corporate policies, and provide guidance for home-based working on managing extreme heat and flooding. Assess what additional passive cooling, water efficiency, property-level flood management or other measures to manage risks from extreme weather are needed for our buildings	Yellow
7 Collect information through our impact measures on money spent/area covered by natural flood management measures	Green
8 Continue to scope out new funding opportunities for nature-based solutions based on their adaptation benefits	Green
9 Assess how we can plan for cascading and compound risks arising from climate change	Red
10 Develop new or different approaches to reserves management and land advice to facilitate adaptation for terrestrial and freshwater species and habitats	Green
11 Review approaches to new reserve creation to maximise resilience in the future through e.g. fire breaks, choice of tree and other species, hydrology modelling	Green
12 Review how we can monitor new species that are arriving on our reserves and in marine protected areas around the UK	Yellow
13 Review how climate change will affect plans for nature recovery networks	Green
14 Bring together Wildlife Trust evidence and research on soil condition and changes for our land holdings	Yellow
15 Gather more evidence on the risk of saline intrusion for Wildlife Trust landholdings and review possible adaptation options	Yellow
16 Working in partnership with relevant stakeholders, assess what additional adaptation actions can be taken to help marine wildlife to adapt to climate change	Yellow
17 Scope out available evidence and undertake research to inform us of priority coastal realignment sites and risks to our coastal assets from sea level rise	Green
18 Scope out available evidence and undertake research to inform us of possible future options for managing lowland and upland farming, to inform our land management advice	Green
19 Assess how far our urban land holdings are contributing to reducing overheating and flood risk and how these benefits can be enhanced	Yellow
20 Review climate risks to our supply chains, investments and insurance coverage for flooding and other extreme weather	Red
21 Devise a framework for considering climate risk in land acquisition strategies	Yellow

Nature is at the forefront of climate change impacts and part of our role at The Wildlife Trusts is to document and understand the changes happening already, as well as those that could happen in the future. The extreme weather in 2022 was unprecedented on several fronts; with 40°C passed for the first time in England, extreme months for low and high rainfall as well as high levels of wildfire.

- In 2022, at least **seven Wildlife Trusts** saw wildfire destroy significant areas of reserves in **Dorset, Lancashire, London, Northumberland, Surrey, Tees Valley**, and **Yorkshire**. Over 1,000 hectares of Wildlife Trust land were damaged or destroyed with the loss of ground nesting birds, nesting ducks, rare plants like sundew, lizards and snakes. We are ramping up our public messaging about reducing wildfire risk at the start of each fire season across all of our communications channels.
- **Shropshire Wildlife Trust** and **RSWT** featured on the BBC News and BBC radio in spring 2023 to speak about the impacts of the wet and cold spring weather on wildlife.
- **The Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire; Surrey Wildlife Trust; Herts and Middlesex Wildlife Trust** and **RSWT** featured on a special heatwave episode of Countryfile in August 2022 to talk about the effects of the extreme summer weather on our wildlife, and what we are doing to adapt.
- **Devon Wildlife Trust** reported an increase in weathering impacts on building materials. For example, oak doors fitted to their Woodah Farm site in 2012, chosen for their durability, became damaged beyond repair much sooner than would be expected. Specialist contractors reported that this is now becoming a common problem they face with materials aging and deteriorating much quicker than 'normal' because of the effects of extreme weather.



Staff from Wildlife Trust for Beds, Cambs and Northants inspecting their butterfly bank project at Pegsdon nature reserve during extreme heat conditions in summer 2022.

Image © BBC

<https://www.bbc.co.uk/iplayer/episode/m001bmrX/countryfile-heatwave-special?page=1>

**Action 1:** Take forward conversations with key partners (National Trust, RSPB, UK Government and devolved administrations, local authorities, National Parks, AONBs) on a framework for future conservation in a changing climate, building on the Lawton principles

All of the work we do at The Wildlife Trusts is built around the [Lawton Principles](#) of ‘more, bigger, better and joined’. As such, climate change resilience at a basic level is built into all of our habitat management practices. However, what additional steps we take, over and above these core principles, to protect and recover nature in the face of climate change remains an active area of discussion. In April 2022, **RSWT** held a dedicated [Wild LIVE](#) event with Sir John Lawton and a range of practitioners, including **Staffordshire Wildlife Trust** and The National Trust to debate the question of the future of conservation in a changing climate. Part of this discussion focussed on how we might build on the Lawton principles to bring in rewilding approaches, translocation, and acceptance of new beneficial species as ‘native’. Resilience was also the key topic at our Federation Conference in September 2022, with presentations and interactive discussions on what our goals should be in a changing climate which all Wildlife Trusts participated in. Those outputs have fed into our internal adaptation work programme for 2023, and have formed the basis for further discussions with our partners at RSPB and National Trust.

The UK does not have an adaptation goal in the same way it has a net zero goal for mitigation. However, the Kunming-Montreal Global Biodiversity Framework, agreed at the Convention on Biological Diversity COP

in December 2022, set out new global goals and targets for nature recovery globally, which the UK has also signed up to. Target 8 provides a global goal on adaptation and nature. In the current absence of a nationally agreed framework for adaptation for biodiversity in the UK, the new target provides a useful yardstick to measure our progress against for the interim:

*“Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity”.*

The Wildlife Trusts are very active in trialling new adaptation strategies and goals for our own sites and regions. Both **Somerset** and **Sussex Wildlife Trust** have been trialling and using the RAD (Resist-Accept-Direct) framework as a basis for their adaptation programmes, centred on accepting some degree of change and ensuring community engagement from the beginning of the process. **Somerset Wildlife Trust’s** [Adapting the Levels](#) programme in 2022/23 created a new adaptation toolkit, community engagement materials on sustainable drainage, and an adaptation pathways tool.



Work to manage the risks to the Roaches in Staffordshire from wildfire was one of the adaptation case studies discussed at our Wild LIVE event in April 2022  
Image © Jon Rowe



Craig Bennett, CEO of The Wildlife Trusts and Kathryn Brown, Director of Climate Change and Evidence attended COP15 in December 2022, where a new global framework for biodiversity (including an adaptation target) was agreed  
Image © Kathryn Brown

In 2022, **RSWT** reviewed the available evidence on the most vulnerable habitats and species across the UK, drawing on evidence collated in the third [UK Climate Change Risk Assessment](#) as well as [research](#) by Natural England and the BTO to consider the vulnerability of different species to climate change. Of 3,049 separate plant and animal species assessed in the Natural England study, 640 are deemed to be at high risk from climate change in a 2°C warming scenario alone. Work we are undertaking in relation to particular at-risk groups includes:

- **Bryophytes (mosses).** Our new £38 million nature-based solutions programme, funded by Aviva, will focus on the expansion of temperate rainforests in the west of the UK. These habitats are made unique through their assemblages of mosses, lichen and fungi. Increasing the range and connectivity of these habitats should help bryophytes to persist across our western regions.
- **Vulnerable seabird populations** such as puffins are projected to decline significantly by 2080 due to changing marine conditions and reduced sandeel populations. The Wildlife Trusts continue to manage population strongholds such as the islands of Skomer and Skokholm off the Pembrokeshire coast, owned and managed by **The Wildlife Trust for South and West Wales**. The Trust reported a [thriving population](#) of puffins in early 2023, against a background of global declines.

- **Chalk stream freshwater species.** Chalk stream communities are highly vulnerable to current and future low flows. **Herts and Middlesex Wildlife Trust**, through the River Lea Chalk River Resilience scheme, are connecting multiple nature reserves and improving the condition of 2km of threatened chalk stream habitats, alongside creating ponds, reedbed and wet grassland.
- **Improving habitat connectivity** is a core part of many of our new land acquisitions and partnership programmes. One example is Severn Treescapes, a **Worcestershire, Gloucestershire and Herefordshire Wildlife Trust** partnership project working across the three counties to create a 60-mile corridor of enhanced tree cover to connect two of England's largest semi-natural woodlands. The corridor will stretch from the Lower Wye Valley and the Forest of Dean in the south, to the Wyre Forest in the north. The project will build on remaining pockets of ancient woodland. It will assist in flood management especially through contour planting and riverside buffer opportunities; provide cooling functions and wind disruption; increase foraging opportunities through browsable hedgerows; and increase carbon sequestration capability.



Atlantic rainforest habitat on the edge of the rainforest zone in Exmoor  
Image © Kathryn Brown

While guidance exists on specific adaptation actions for specific habitats, less is available on how to adapt whole ecosystems and multiple sites to specific hazards that are damaging our wildlife now. Representatives from multiple Trusts met early in 2023 to discuss what was required to help managers to adapt their reserves to specific hazards; fire, drought, extreme heat and flood. **RSWT** created short and simple guidelines for low-regret actions that should be taken to reduce the effects of extreme events across all of our sites, regardless of habitat type.

Some specific examples of actions included:

- **Surrey Wildlife Trust** introduced new adaptive measures on some of their major lowland heath sites to improve firebreaks and access for the fire services to tackle wildfires from strategic locations. This work has been part of a wider fire management plan for Chobham Common National Nature Reserve.
- **Hampshire and Isle of Wight Wildlife Trust** made changes to their hay cutting to reduce grassland fire risk. Cutting was delayed to protect staff from the extreme heat and limit the risk of fire starting from machinery use, though the uncut areas also caused heightened concern about fire risk from

neighbouring properties. These trade-offs needed to be managed through changing decisions about the timing of cutting and mowing. The Trust is also reducing drainage on their lowland heath mires to retain water for longer in hot and dry spells.

- **Lincolnshire Wildlife Trust** have developed BDAs, or 'Beaver Dam Analogues', on their reserves to trap silt, attenuate water and slow the flow to manage overall water flows more effectively. Three BDAs have been installed at Sow Dale nature reserve using a combination of planted coir fibre rolls, logs and live willow brush where the developing root mass will eventually replace the coir fibre as it rots. At Kirkby Moor, an old drainage ditch alongside what was the visitor route has been filled with logs, brush, leaves and turves to create a classic BDA. Collapsing trees are dropped to form mini dams at right angles to the main ditch. At Crowle Moor, the various cuttings and ditches have been blocked either with peat, brush dams and/or plastic piling to create extensive areas of re-wetted peat.

**RSWT** is planning a longer series of deep dives with Trusts to share knowledge and experience on managing different hazards, including through the testing of new approaches and sharing what works as well as failures.



Firebreaks being widened on Chobham Common in March 2023  
Image © Kathryn Brown



Crowle Moor re-wetting  
Image © Lincolnshire Wildlife Trust

Managing the threats from pests, pathogens and invasive non-native species was one of the few risks in *Changing Nature* marked as 'sustain current action'; meaning the level of action underway is commensurate with the level of risk across The Wildlife Trusts.

We have continued a wide range of on-site work and engagement activity in the past 12 months related to this risk. Nearly every Trust is having to undertake works to remove trees affected by Ash Dieback, as broken branches and dying trees pose a risk to people walking nearby. Some Trusts such as **Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust** are [fundraising](#) to help fund the costs of the works, which can cost hundreds of thousands of pounds. Natural regeneration is being used on some sites to fill the gaps left by the removal of ash to provide better resilience of the new woodland.

**Devon Wildlife Trust** has a dedicated programme called Saving Devon's Treescapes, which aims to plant and nurture 250,000 trees outside of woodlands to help mitigate the devastating impacts of Ash Dieback and the general ongoing decline of Devon's

Treescapes. The project plants a mix of broadleaf native species, grown from the project's own tree nurseries, to ensure Devon's treescapes are diverse and resilient for future years.

Every Wildlife Trust has information about invasive non-native species, pests and diseases on its website, and **numerous Trusts** are involved in local monitoring and control initiatives, such as in [Shropshire](#), [Hampshire](#) and across [Wales](#). Some Trusts provide contact details for members of the public to report sightings such as on the [Isle of Man](#). Public engagement on social media has also taken place. For examples **North Wales Wildlife Trust's** [Ecosystem Invaders](#) campaign aims to increase awareness of invasive species and biosecurity, and their '[Garden Escapers](#)' project aims to limit the spread of invasive plants from gardens and identify those which might be invasive in future.

While The Wildlife Trusts remain very active in managing current pests, diseases and invasive non-native species, more work is needed to assess the future risk and emerging threats which may arrive from Europe in the next few years.



Himalayan Balsam  
Image © Vaughn Matthews



Young trees naturally regenerating after ash removal at BBOWT's Warburg Nature Reserve  
Image © Kelly Hedges



## Action 5: Consider climate change impacts to future conservation grazing regimes

Conservation grazing is a key activity to maintain the vegetation structure across many of our reserves and is a core part of land management to protect and promote biodiversity. Climate change is likely to act as a threat to both the welfare of our livestock and could threaten the existence of some of our habitat types where grazing is important.

Some Trusts are already changing the timing of grazing and bringing livestock indoors earlier in the season due to drought and lack of vegetation to support their animals. For example:

- **Wiltshire Wildlife Trust** were forced to take cattle off grazing land in August rather than October in 2022 due to a lack of grass growth over the very dry summer.
- **Hampshire and Isle of Wight Wildlife Trust** have similarly had to change grazing patterns in 2022 due to the combination of extreme wet and dry conditions. Grazing was altered across several sites, and cattle were taken off the land altogether in some locations.

- **Lincolnshire Wildlife Trust** have changed the facilities and techniques for conservation grazing of Lincoln Red cattle at Woodhall Spa Airfield Nature Reserve to reduce the need for supplementary feeding as well as to improve overall welfare. Due to the changes, the hardy conservation grazing herd now has access all year round to extensive grazing. The improvements have gained farm assurance certification and plaudits for the standard of infrastructure.

We need to investigate further the climate change threats to our open habitats that we use conservation grazing to maintain (e.g. chalk grassland, open heathland), and the risks to the welfare of our livestock. Some evidence about the vulnerability of open habitats to climate change is available, but it is not clear how likely the threat of loss or permanent change is in the short-term. This is an active topic and we are working closely with our colleagues at the National Trust in particular to better understand the level of risk in the short-term.



Longhorn cattle used for tradition conservation grazing  
Image © Chloe Ryder



New livestock welfare facilities at Woodhall Spa Airfield Nature Reserve  
Image © Lincolnshire Wildlife Trust

We highlighted several examples of office sites in *Changing Nature* that have been impacted by flooding or overheating in recent years; for example the Woods Mill Headquarters of **Sussex Wildlife Trust** and **Shropshire Wildlife Trust**'s Shrewsbury office have both suffered from flooding in the past five years.

One of the main impacts to our staff working in offices in 2022 was extreme heat. Following the issuing of a Met Office red weather warning for extreme heat in mid-July, **RSWT** closed the Newark office and updated guidance for staff working from home on measures to take to protect themselves. Staff guidance for managing overheating was subsequently included in an updated environmental policy. Other Trusts including **Devon Wildlife Trust** report that they are having to shift attention to cooling rather than heating as the main focus for their offices and are investigating options from tinted window film to reverse heat pumps. **Worcestershire Wildlife Trust** have been working to lower internal heat gains in their buildings through pipe lagging and switching to LED lights, with added energy efficiency benefits.

Business continuity plans and property-level measures to reduce flood risk are also high on our agenda. **RSWT** reviewed its business continuity

plan in 2023 to ensure that measures are in place to respond to a flooding incident, as the Newark office is located in an area of high risk from river flooding. **Devon Wildlife Trust** are seeing repeated threats to their Cricklepit Mill office – a grade II listed building in Exeter – due to surface water flooding. The Environment Agency have fitted non-return gates at the mouth of the Mill to try to limit flood risk to the lower floors, and the Trust are making changes to the watercourse infrastructure to increase capacity, including the removal of a hydroturbine.

**Lincolnshire Wildlife Trust** introduced flood resilience and resistance measures to visitor centres on The Wash and Humber estuary to reduce the risk from major coastal flooding, following major coastal flood events in 2013. New volunteer accommodation on the east coast is being built on stilts to provide safe and resilient places for trainees to stay while working at coastal nature reserves.

Further work planned for 2023 includes sharing more widely corporate policies related to heat and flood risk and identifying the best approaches to reduce the risk of extreme heat in our buildings. The Trusts are already trialling some new solutions such as window shutters, tinted window film and investigating the feasibility of reverse heat pumps.



Cricklepit Mill very close to flooding  
Image © Stuart Hodgkiss, Devon Wildlife Trust



Lincolnshire Wildlife Trust's Gibraltar Point visitor centre  
Image © Rachel Shaw

## Action 7: Collect information through our impact measures on money spent/area covered by natural flood management measures

For the first time, we began recording total activity on natural flood management in 2022 as part of our collective Strategy 2030 impact measures. Trusts reported spending nearly £2.2 million on natural flood management in the 21/22 financial year, across 159 separate projects around the UK. Many of these involve beaver re-introductions, where changes to the local water environment are being monitored including retention in extreme dry conditions.

Some examples of the many other natural flood management projects under way include:

- **Staffordshire Wildlife Trust** are working with the Environment Agency on Trent ReNEW, a programme to re-naturalise and enhance waterways in the Staffordshire Trent Valley.
- **Sheffield and Rotherham Wildlife Trust** are delivering natural flood management in the Limb Brook catchment, through the installation of leaky dams, ponds and re-bending streams that flow down into the Limb valley. The project is also using citizen science to engage local communities and schools in the changes taking place.

- **Warwickshire Wildlife Trust** are the lead partner in a programme to install interventions on rivers and streams across Warwickshire to slow the flow of water, including leaky dams, shallow pools and tree/hedge planting.
- **Birmingham and Black Country Wildlife Trust** are undertaking a community-focussed river restoration scheme, Love Your River Stour, which is creating new woodlands and hedgerows, ponds, wetlands and re-naturalising areas of the river Stour. Over 1,300 members of the local community have engaged in the project so far.
- **Staffordshire Wildlife Trust** are working in the River Churnet catchment through the Green Recovery Challenge Fund Wilder Churnet project. The work involved the installation of leaky dams, logjams and bunds to slow the flow of flood waters in eight locations on the headwaters of the catchment. The area is vulnerable to flash flooding, with water rushing from the uplands into the steep sided valleys during heavy rain events, leaving settlements such as Leek and Cheddleton at risk.



River Sow Floodplain  
Image © Staffordshire Wildlife Trust



Citizen science photography point in the Limb Valley  
Image © Kathryn Brown

## Action 8: Continue to scope out new funding opportunities for nature-based solutions based on their adaptation benefits

The Wildlife Trusts' new partnership with Aviva to restore temperate rainforest across the UK is the largest single nature-based solutions programme we have developed to date. It is also one of the largest, if not the largest corporate donation for nature-based solutions in the UK. The programme success factors encompass outcomes for climate change adaptation alongside mitigation and biodiversity, including for example natural flood management. These precious new habitats should also increase habitat connectivity, condition and patch size, in line with the Lawton principles. At the time of writing, sites have already come into the programme with **North Wales Wildlife Trust** and **Manx Wildlife Trust**.

**Hampshire and Isle of Wight Wildlife Trust** have been piloting nutrient credit markets. High levels of nitrates in the Solent lead to ecological damage that reduces the suitability for seagrass beds, a high carbon storing

habitat. The Trust has acted to reduce nitrate pollution through rewilding low-grade agricultural land. During the nitrate credit allocation, the Trust has factored in a 5% buffer of unsold credits so that the land use change results in an actual decrease in nitrates. Nutrient credit markets are now being piloted in other parts of England, and the Hampshire example is also boosting the resilience of wildlife in the Solent through reduced pollution pressure.

Through our work to deliver our 2030 Strategy, we are compiling case studies of the large range of nature-based solutions projects that **Wildlife Trusts** are delivering across the country, including those with a specific adaptation focus such as natural flood management, river restoration, marine habitat restoration, creation of microclimates, peatland restoration, re-introductions of large herbivores, and sustainable urban drainage.



Coed Cradnant bracken © Ben Porter



Coed Cradnant in spring © Ben Porter

**Action 10:** Develop new or different approaches to reserves management and land advice to facilitate adaptation for terrestrial and freshwater species and habitats

**Action 11:** Review approaches to new reserve creation to maximise resilience in the future through e.g. fire breaks, choice of tree and other species, hydrology modelling

Action 10 and 11 are considered together due to their similarities. Many of our programmes to manage existing reserves or create new reserves as part of landscape scale conservation have climate change resilience at their heart. Following the Lawton principles, new reserve creation generally focusses on improving the size or connectivity of different sites. We are also starting to accept permanent changes to some of our sites and work with those, rather than simply try to maintain the status quo. Some recent examples of these themes in action include:

- **Durham Wildlife Trust** have created over 220 hectares of new reserve habitat as part of the Great North Fen, land that has been secured across the Carrs for habitat restoration and creation, including open water, swamp, marsh and wet grassland, woodland and scrub. These habitats will support a diverse range of species, most notably large numbers of wading birds and wildfowl and the wetland plant assemblage that remains in a few isolated areas. The scheme is focusing on improving resilience through landscape-scale restoration, resulting in improved water quality and natural flood management. The project is the focus of flood and nutrient mitigation research and development that will inform schemes across the country.

- When **Essex Wildlife Trust** took over Abbots Hall in 2002, almost 50 hectares of previously arable land was reverted into saltmarsh and intertidal habitat, with a further 35 hectares of coastal grassland and other terrestrial features created. The site was designed to act as a natural coastal defence for the nearby village of Salcott. Its transformation has also seen significant wildlife benefits, over and above those of allowing saltmarsh to expand, becoming a significant refuge and nursery for estuarine fish. The resilience aim for this site has been mirrored elsewhere and has fed into the Trust's new Wilder Seas Strategy which was developed in 2022.
- **Worcestershire Wildlife Trust** are changing the tree species being planted at their Tiddesley Woods reserve, an 80 hectare ancient woodland. Following advice from the Forestry Commission, The Trust has shifted its tree planning species mix towards native species that are more tolerant and resilient to increasing temperatures. These include hornbeam, small-leaved lime and wild cherry. The strategic species shift is now also being incorporated into all land management plans for new land purchases, as well as being incorporated into each reserve's existing management plan as they come up for review.



Students carrying out research projects at Abbots Hall coastal realignment site  
Image © Essex Wildlife Trust

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Durham Carrs  
Image © Durham Wildlife Trust



Sanderling  
Image © Chris Gomersall/2020VISION



An aerial view of Fobbing Marsh nature reserve along the Thames, showing the ditches and low-ways retaining water following the recently completed engineering works  
Image © Jim Pullen/ Essex Wildlife Trust

- **Essex Wildlife Trust** are making changes to the management of their coastal wetland sites to cope with increasingly arid conditions. The Trust is working to maintain wet grassland habitat on its coastal grazing marshes, which lie along the East Atlantic Flyway for migrating waders as well as being nationally important sites for breeding waders. The region receives around 520 mm of rainfall per year, nearly at the threshold for semi-arid conditions. At their Fobbing Marsh reserve, the Trust have completed a programme of extensive ditch and low point blocking alongside the installation of a new tilting weir. These improvements will keep the water table high and ensure that the reserve is wetter for longer into the spring, providing optimum conditions for breeding Lapwing and the many other terrestrial and aquatic species.
- **Hampshire and Isle of Wight Wildlife Trust's** Lower Test nature reserve is losing ground due to coastal erosion, and plant communities are changing due to saltmarsh rising up the valley. Rather than resisting these changes, the Trust is adapting its management of the site to allow change to occur.

**Action 12:** Review how we can monitor new species that are arriving on our reserves and in marine protected areas around the UK

Species monitoring is undertaken through multiple schemes in the UK, underpinned by a vast amount of citizen science including through open source tools such as iRecord, and organisational schemes including those led by The Wildlife Trusts such as [Shoresearch](#). The Wildlife Trusts are involved in many of these schemes, but we would like to see a more specific focus on understanding the movement of species due to climate change, including the arrival of new species.

Trusts are recording changes in different assemblages. One example is at **Hampshire and Isle of Wight Wildlife Trust's** Pamber Forest site, where the prevalence of different moth species has been

changing, potentially due to climate change. Some species which had been restricted to a few sites in Hampshire are now more widespread across the county and beyond. Previously, there were migratory and temporary records of species such as blue, light crimson and dark crimson underwings but have now been recorded to be resident and breeding. There have also been more frequent records of previously scarce species moving north from the south coast and continental Europe such as Jersey tiger and oak processionary moth. Some moths are not faring as well, such as argent and sable moths, which are rapidly declining and are now absent from recent surveys.



Red Underwing (*Catocala nupta*) © Vaughn Matthews



Jersey Tiger (*Euplagia quadripunctaria*) © Vaughn Matthews

The Wildlife Trusts are involved in national conversations about the future of nature recovery networks and we have been holding internal discussions on how climate change could affect them. The Trusts are also undertaking a range of nature recovery network programmes which include adaptation. For example:

- **Hampshire and Isle of Wight Wildlife Trust** manage over 180 hectares of rewilding land on the Isle of Wight which improves habitat connection and quality, as well as providing opportunities for new species colonisations. The Trust manages a number of nature reserves in the Eastern Yar valley, leading to wider landscape-scale resilience to the impacts of climate change. The Trust has also set up the Hampshire and Isle of Wight Rewilding Network in affiliation with Rewilding Britain, which aims to raise the standard of rewilding and contribute to Trust's goals of seeing nature recovering over 30% of land and sea.
- Through the [Green Connections Powys](#) project, **Radnorshire, Montgomeryshire** and **South and West Wales Wildlife Trusts** have worked with community groups, small businesses, landowners and statutory organisations to take local action to address climate change and biodiversity loss and create a nature recovery network across the county of Powys in Wales.
- **Sussex Wildlife Trust** leads two Wilder Landscape Projects, one focussing on a District level ([Wilder Horsham District](#)) and one on a River Catchment ([Wilder Ouse](#)). Both projects work at a landscape scale to bring people together to restore healthy ecosystems and to deliver meaningful change. They create robust nature recovery networks with climate resilience embedded into the land, by supporting the delivery of nature based solutions to climate change such as natural flood management, natural tree regeneration and the restoration of ecosystem engineers such as beavers. The projects are key delivery partners in the [Weald to Waves Initiative](#), which links the Sussex Kelp Recovery to Ashdown Forest inland, via a 100km nature recovery corridor.
- Worcestershire's [Natural Networks](#) project is a five-year partnership between **Worcestershire Wildlife Trust** and Worcestershire County Council and is funded by the European Regional Development Fund (ERDF). It aims to help create and enhance wildlife corridors across the county, to improve resilience in the face of climate change as well as other threats to nature such as intensive land management and development.



Working with contractors to put in water attenuation features in the landscape – these work as adaptations for both flooding and drought scenarios – Sussex Wildlife Trust Wilder Landscapes  
Image © Sussex Wildlife Trust.



## Action 14: Bring together Wildlife Trust evidence and research on soil condition and changes for our land holdings

This area is a research priority for us as evidence on how soil condition is being affected by climate change now is scarce. Despite this, The Wildlife Trusts are undertaking a range of projects to monitor soil health and improve its overall resilience. Two examples are:

- **Worcestershire Wildlife Trust** are monitoring soil health and resilience through their work on Lower Smite Farm. Reducing heavy cultivation and tilling, cover cropping with green manures, and sowing diverse leys has so far led to an increase in soil organic matter from 2.5% to 5%. While a small gain, the land has increased water holding capacity and is storing more carbon. Farmers also bring soil samples to the Trust to examine soil biology and work with Trust agronomist advisors to review their soil health, set goals and work out cultivation and fertilisation approaches to enhance soil resilience.

- The Fens East Peat Partnership (FEPP), which **Lincolnshire Wildlife Trust** is leading, has been carrying out peat sampling across the project area in low-lying areas of Lincolnshire, Cambridgeshire, Norfolk and Suffolk. The glaciation processes which took place across the area created pockets of buried peat encased within the surrounding clay, many of which are now being found. It is clear that where the encasing clay layers have been punctured, the peat is then vulnerable to oxidation and decomposition. Further research is needed into the peat oxidation, however the identification of buried peat allows for more detailed site restoration plans to ensure water levels can be raised to protect and re-wet the peat deposits.



Intensive agricultural practices are damaging to soil health  
Image © David Tipling/2020VISION

## Action 15: Gather more evidence on the risk of saline intrusion for Wildlife Trust landholdings and review possible adaptation options

Saline intrusion is a risk for isolated areas across our reserves, but where this is a threat, action is being taken to manage the risk:

- Following the extensive coastal flooding in 2013, the freshwater marsh area at Gibraltar Point National Nature Reserve in Lincolnshire was affected by saline intrusion after an old Victorian sea defence bank was breached. The failed banks have been decommissioned and a plan of works is being drawn up by **Lincolnshire Wildlife Trust** to allow a natural gradient between saline and freshwater habitats, while other freshwater habitats on site are protected from saline intrusion by existing large natural dunes. The picture shows the 2013 breach in the sea defence. The plan is now to remove the whole of the bank to connect

the saltmarsh (right of picture) to the freshwater marsh (left of picture). This will make an extensive dune slack, open to the sea at the south end, of just over 2 kms in length. The brackish transition zone will be allowed to develop and fluctuate naturally depending on rainfall and tidal events.

- *Changing Nature* mentioned the threats to groundwater supplies on the Isles of Scilly from saline intrusion. As well as the risk to people, saline intrusion is threatening the loss of very rare coastal species on the island such as shore dock. **The Isles of Scilly Wildlife Trust** has continued to coordinate action with partners in 2022 to review the risk, and has been active in the production of an adaptation plan for the islands, led by the local council.



Bulldog bank breach, Gibraltar Point  
Image © Sam Wilson

**Action 16:** Working in partnership with relevant stakeholders, assess what additional adaptation actions can be taken to help marine wildlife to adapt to climate change

The Wildlife Trusts were instrumental in influencing the designation of 3 pilot Highly Protected Marine Areas (HPMAs, due to be formally designated later in 2023). HPMAs protect all species and habitats and associated ecosystem processes within the site boundary, including the seabed and water column. This whole-site approach will allow nature to recover and ensure a more climate resilient marine ecosystem.

Most of our work on direct marine adaptation links to improving and expanding degraded habitats, to help improve the overall resilience of the marine environment. Some recent examples are:

- **Sussex Wildlife Trust** have worked closely with cross-sectoral partners to further develop the Sussex Kelp Recovery Project. This partnership aims to protect and monitor the recovery of kelp forest around the Sussex coast, following new legal protections for the seabed in that area in 2021. The approach looks closely at the ecosystem services provided by a restored marine ecosystem including those for climate adaptation.
- The Solent Seagrass project, undertaken by **Hampshire and Isle of Wight Wildlife Trust** helps marine wildlife to adapt to climate change by restoring seagrass habitats, creating a wilder Solent. It supports increased biodiversity and sustainable fisheries, promotes greater ecosystem services, cleaner water and is increasing carbon sequestration in seagrass.



Seagrass bed © Paul Naylor



A healthy marine environment © Alex Mustard/2020VISION

One of our research priorities for the coming years is to better understand the threats of loss to our coastal sites from rising sea levels or coastal erosion. We are taking discussions forward with academic partners on how this research might be funded. Over the past year, the Trusts have continued to undertake numerous coastal realignment and habitat compensation schemes with benefits for both wildlife and coastal protection for people. Some examples include:

- **Norfolk Wildlife Trust** through their Wissey Wetland Creation project are compensating for habitat loss on the East Anglia coast due to climate change, through the reversion of land from spent arable to a habitat rich in wildlife. Since 2017, 60 hectares of reedbed have begun to establish, alongside areas of wet grassland, willow scrub and woodland. Two pairs of Bittern and two pairs of Marsh Harrier have started breeding on the site since 2020.
- **Lancashire Wildlife Trust** won an award in 2023 for coastal best practice from the North West Coastal Forum for their work on the Fylde Sand Dunes, covering 80 hectares of sand dune, maritime grassland and saltmarsh habitat. The project aims to reverse coastal squeeze and recover this important coastal strip to maintain its ability to act as a natural coastal defence for much of the

South Fylde Coast. The risk of coastal inundation to 400 properties has dropped and the dune front has expanded seawards by 5-10 metres per year since 2005.

- **Suffolk Wildlife Trust** featured on Countryfile in March 2023 for the work they are doing on coastal realignment at Hazelwood Marshes. The reserve transformed following defence breaches in the tidal surge of December 2013, creating a new inter-tidal habitat which has since been colonised by spoonbill, lapwing and avocet. The Trust have had to change the management of their reserve to follow that transformation, and it now acts as an important natural coastal defence.
- **Essex Wildlife Trust** has continued to measure the success of its experimental saltmarsh restoration approach using coir 'sausages' to stabilise the habitat structure. In 2021, The Trust published the lessons learnt in a Saltmarsh Restoration Toolkit, which lays the foundations for how their saltmarsh structures can be used on a landscape-scale.
- **Lincolnshire Wildlife Trust's** land acquisition strategy takes account of the future need for managed retreat from current coastal sites which may not continue to be defended against tidal flooding in the future.



Wissey Wetlands  
Image © Norfolk Wildlife Trust



The change in the coastal dune system at Fylde  
Image © Lancashire Wildlife Trust

The Wildlife Trusts have been very active in the past year on projects showing how farming can be done in tandem with nature recovery to boost overall resilience to climate change, as well as where land use change is needed to protect vulnerable upland and lowland habitats. Some examples include:

- **Devon Wildlife Trust** are undertaking a six-year project, Northern Devon Natural Solutions (NDNS) to facilitate a stronger working relationship between northern Devon's land managers and nature. This is being achieved through targeted on-farm advice, ecological surveys, training and support for a wide range of nature based interventions.
- The Yorkshire Peat Partnership, led by **Yorkshire Wildlife Trust**, is a now well-established partnership delivering upland peatland restoration across the Yorkshire Dales National Park, the North York Moors National Park and Nidderdale Area of Outstanding Natural Beauty. The Trust works closely with landowners, agents, gamekeepers, farmers and contractors to help restore Yorkshire's internationally important bogs.
- **Manx Wildlife Trust** are working with upland farmers to map the extent and depth of peat cover in the Manx uplands, following which detailed restoration plans have been drawn up for

550 hectares. The Trust are also starting to work with the Island's agri-environment scheme to survey and restore and protect areas of degraded lowland peat.

- **Dorset Wildlife Trust** are restoring natural hydrology and creating extensive grazing on 170 hectares of previously intensive farmland at Wild Woodbury, in England's first community rewilding project. The project is working closely with neighbouring landowners.
- **Somerset Wildlife Trust** acquired Honeygar, a former dairy farm, in 2021 and are now restoring the site to show how it is possible to restore farmland for nature and stimulate a new economic model through lowland peat restoration. The re-wetted site will greatly improve the resilience of the remaining peat soils as well as store more carbon and promote the return of wetland species to the site.
- **Lincolnshire Wildlife Trust** through the Bourne North Fen programme are creating an ecosystem-based model of lowland farming. Through the cessation of ploughing and wetting the submerged peat, the site will provide space to store water in a flood as well as capture more carbon. These ecosystem services will be sold as a trial business model for farmers in the area to replicate.



Yellowhammer  
Image © Chris Gomersall/2020VISION



Wild Woodbury  
Image © Jack Clarke/Dorset Wildlife Trust

Many Trusts have reserves located within urban areas, or are managing sites adjacent to urban areas to lower flood risk and reduce the impacts of extreme heat. For example:

- Work by **Hampshire and Isle of Wight Wildlife Trust** to reduce flood risk in Winchester is taking place at Winnall Moors, a 64 hectare fen meadow and chalkstream floodplain reserve. This was an award winning project that aimed to demonstrate the effectiveness of large-scale capital restoration on a chalk river and reconnection with its floodplain. During the 2022 drought, the floodplain reconnection was observed to assist with retaining water flows. This follows previous impacts in 2014, where the reserve provided effective flood reduction to the city of Winchester for a 1:200 flood. The event did not adversely impact the reserve's wildlife and evidence demonstrated that that the approach to in-channel restoration had been key in protecting ecology; something that was not observed along large sections of the Rivers Test and Itchen.

- **The Wildlife Trust for Lancashire, Manchester and North Merseyside** has been working on former urban colliery land owned by Wigan Council at Bickershaw in Leigh on nature-based flood attenuation schemes. These offer increased protection to 100 homes in the Westleigh area immediately downstream. The ditch network on the site was converted back to streams with meanders, pools and riffles; a network of small ponds was created, concrete-lined trapezoidal channels and culverts were removed and given a more naturalistic profile; and a wetland area with small ponds was re-contoured to make a larger body of open water with the potential to retain and store 86,000 m<sup>3</sup> of water during high flows. The work will further increase the availability of habitat for water vole and great crested newt, and a very rare visitor to the UK, a white-tailed lapwing, was seen on the site in 2022. Storm Christophe in 2021 created 50 hectares of wetland with around 300,000m<sup>3</sup> of water was temporarily stored across the site, preventing flooding of homes downstream.



Aerial view of the Bickershaw 'slow the flow' site  
Image © Tony Da Silva, Wildlife Trust for Lancashire, Manchester and North Merseyside

Both as a Federation and across individual Wildlife Trusts we have been working to increase our capacity to adapt to climate change, through our resources, skills and access to information. In 2022 across the Federation as a whole, we assessed ourselves to be operating at adaptive capacity level 1 (NI188 indicator), with scores at the level of individual Trusts more variable. This reflected our fledgling state to embed climate risk and adaptation into our decision making in a comprehensive way. As a federation, we have established some sound foundations – we have made a public commitment to identify and manage climate-related risks, undertaken a risk assessment and created an adaptation programme, and we are beginning to assemble our evidence base where significant gaps remain. Further information on this assessment can be found in *Changing Nature*.

In the past year, we have made cultural progress, as awareness and consideration of climate risk in decision making and the focus on adaptation has risen across our staff.

Through our internal climate change community of practice we have:

- Hosted webinars on climate risk and adaptation decision-support tools.
- Produced basic tools and guidance, such as a check-list of adaptation actions to help Wildlife Trusts to consider climate risks and vulnerabilities in their decision making.
- Produced a climate change training resource for Wildlife Trusts that prioritises climate risk and adaptation, alongside mitigation.

Several individual Wildlife Trusts have refocused priorities for staff roles or new recruitment to spotlight climate risk and adaptation, and we expect this to continue to grow in the future. We are also actively seeking new sources of funding to support our climate change adaptation work.



Some of the actions in our adaptation plan require further research or data gathering, which cannot currently be resourced internally. The list below outlines the actions we have yet to begin taking forward in detail and/or where we are actively looking for research partners to help us with research and data collection:

### Action 4

Sustain planned actions to record and manage pests, pathogens and invasive non-native species and consider future risks, including emerging trends across the rest of Europe

### Action 5

Consider climate change impacts to future conservation grazing regimes

### Action 9

Assess how we can plan for cascading and compound risks arising from climate change

### Action 12

Review how we can monitor new species that are arriving on our reserves and in marine protected areas around the UK

### Action 14

Bring together Wildlife Trust evidence and research on soil condition and changes for our land holdings

### Action 17

Scope out available evidence and undertake research to inform us of priority coastal realignment sites and risks to our coastal assets from sea level rise

### Action 20

Review climate risks to our supply chains, investments and insurance coverage for flooding and other extreme weather

### Action 21

Devise a framework for considering climate risk in land acquisition strategies