West Yorkshire Combined Authority | Tracy Brabin Mayor of West Yorkshire

Local Nature Recovery Strategy

Publication information to come; to include date, copyright statement, disclaimer, statement from steering group, acknowledgements, main logos

Structure of this document

Parts 1 and 2 tell the story, set the vision, and explore the benefits of nature. They introduce the term ‘nature recovery’ and regional ambitions, highlight the strategic context, and showcase nature in West Yorkshire.

Part 3 introduces the key habitats and species for the strategy, provides a description, and outlines the main threats and opportunities to nature. It identifies priorities for nature recovery in West Yorkshire and provides examples of measures (actions) that could achieve these.

The focus of **Part 4** is the technical section: the full table of priorities and measures (the full table will be included in this document for final publication).

Parts 5, 6 and 7 include links to the appendices for further information such as national and regional policies, case studies, glossary and links to supporting reports and user guides.

Mayor’s foreword

Nature is essential for West Yorkshire’s people, wildlife and places. It underpins our region's growth, economy, health and security. Nature generates the food, water and clean air that all life depends on, and we need to invest in nature to maximise the full range of benefits. Nature helps us manage our approach to flooding and wider climate resilience, and to food and water security; it also provides the spaces around homes and workplaces that we need to live enjoyable, fulfilling and meaningful lives.

To function well, nature needs to be healthier and joined-up across all places in our region. As Mayor of West Yorkshire, my ambition is to pioneer post-industrial nature recovery; I want to create a high-quality, wildlife-rich, nature network across the whole region, so that many creatures and other species, in all places and in all communities, can thrive.

That’s why I am publishing the region’s first Local Nature Recovery Strategy. This sets out how we can boost the abundance of different animals, fungi and plants that support nature here in West Yorkshire. The strategy details how we can protect, enhance, and restore existing habitats, as well as create new high-quality homes for nature, to enhance biodiversity.

West Yorkshire is unusual: a lot of us live in densely populated towns and cities, close to beautiful landscapes. We also have residents in more rural areas, such as in villages and valleys, living within the wider landscapes. This means that we have an unparalleled opportunity for everyone in our region to enjoy the benefits of nature. We can bring nature closer to where we live and work – particularly at the heart of our urban communities – by creating greener, healthier, happier, more comfortable neighbourhoods; reconnecting people to nature and improving our physical and mental health. Our strategy will also improve the existing nature within our rural communities, boosting the health of ecosystems.

How we live with, and look after water, is vital. Water will be one of the determinants of our success and is a ‘big blue thread’ woven through the whole strategy. The plan ensures that we think about water every time we help nature, including in the built environment, on farmland, grassland, woodlands and in the uplands.

Our strategy will also ensure that West Yorkshire contributes to national and international environmental targets, such as the United Nations commitment for at least 30 per cent of land and ocean area to be protected by 2030 (’30by 30’).

It is rooted in the realities of West Yorkshire, shaped by its landscapes and natural heritage, and by its industrial past. West Yorkshire is now a young, diverse region with a strong focus on the financial, cultural and digital industries. The strategy reflects local challenges and opportunities, and it identifies how we are working to make a significant difference to enhance and protect our natural world.

We are not alone; this strategy is one of 48 being published across England. By pulling together locally, regionally and across the country, we can safeguard nature for us all to enjoy now, and for future generations to come.

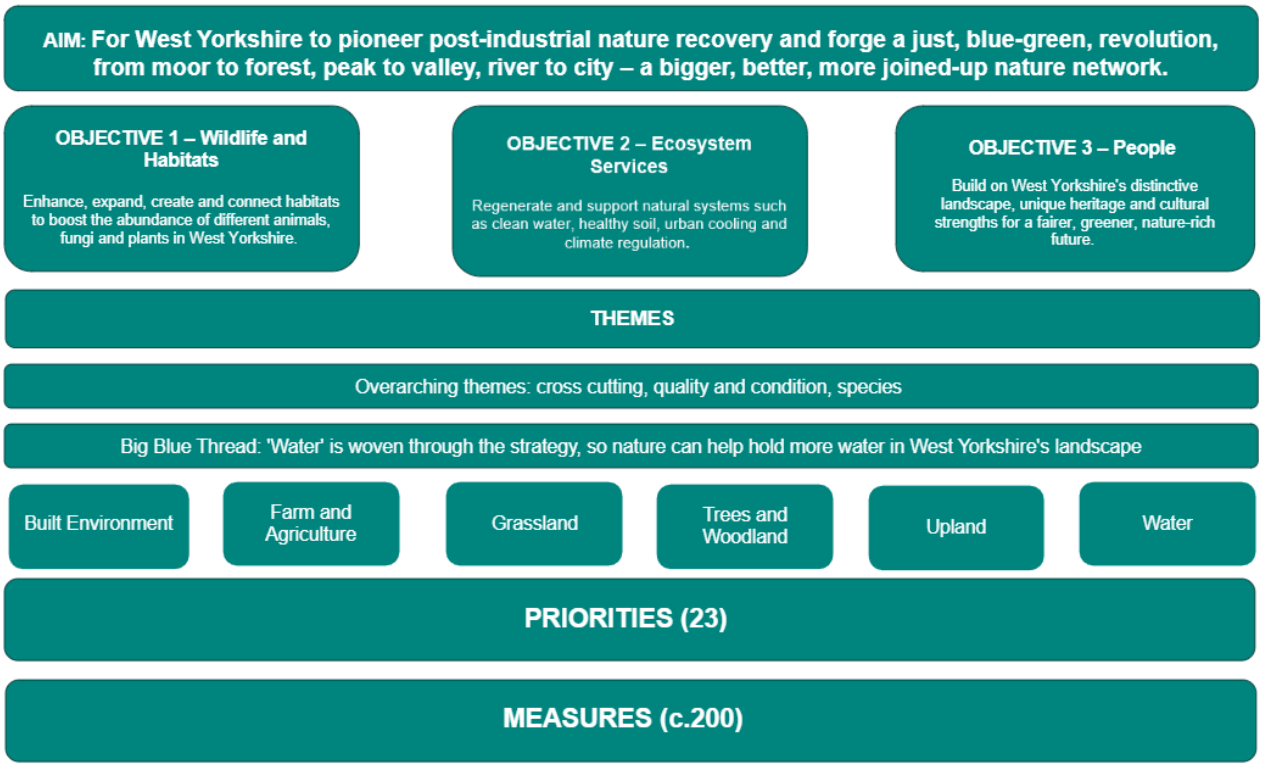
Executive summary

Welcome to the first Local Nature Recovery Strategy for West Yorkshire.

This is one of 48 strategies that, together, cover the whole of England. Each one describes how and where we can best support nature at a local, regional and landscape scale for biodiversity, the environment and people, and will be updated and republished in due course. This is West Yorkshire's contribution to that national nature network that Sir John Lawton says must be "bigger, better, more, and joined-up"[1].

It describes our vision for a West Yorkshire that is rich in nature. It outlines what needs to happen to reverse the decline in wildlife, safeguard natural infrastructure for benefits such as clean air, climate resilience and health, and ensures that West Yorkshire can play its part in wider national and international environmental aims and other ambitions for nature.

The strategy takes a 'nature first' approach and is organised around one aim, three objectives, six habitat themes, and three overarching themes, with water as a blue thread throughout. The diagram below shows how these relate to each other.



Water: the big blue thread

Nature recovery in West Yorkshire and beyond could stand or fall depending on how we think about, respond to, and live with water. This is why water is an overarching thread throughout this strategy, with the vision to re-wet the region for the benefit of wildlife and people.

This could be supported by inter-connected, ambitious water-related projects, for example:

- 'Strings of pearls' – connected re-wetted areas, as being considered by the Aire Catchment Network;

[1] Lawton, J.H., et al. (2010) *Making Space for Nature: a review of England's wildlife sites and ecological network*. Report to Defra. [Online.] [Accessed 04/09/2025.] Available at: https://www.researchgate.net

- ‘Water-thriving cities’ – the vision of Friends of Bradford Becks, who work to restore river systems for clean, visible accessible becks in urban areas for nature and people;
- ‘Wiggly wetways’ – projects to allow streams to follow their natural paths and slow the flow.

Ecosystem services

Nature supports lives (ours and those of other species) in so many ways. Helping nature will regenerate ecosystem services such as plentiful and clean water, clean air, noise regulation, urban cooling, flood protection, thriving animals, plants and fungi, climate regulation, cultural benefits, erosion control, timber and other wood products, cultivated crops, reared animals, pest and disease control.

Benefits

Nature generates not only what all life needs to survive (food, clean water, comfortable temperatures, healthy air, shelter) but also those that make human life pleasurable, fulfilling and meaningful (such as health and wellbeing, strong communities, amenity, spirituality and culture).

Priorities

There are **23 priorities** (what we want to achieve), with additional priorities for species:

Built Environment
- B1 High-quality, accessible nature in towns and cities
- B2 Blue and green links rich in nature through, between and beyond towns and cities
- B3 Species-rich brownfield and other previously developed sites
- B4 Nature-friendly transport infrastructure
- B5 Nature-friendly buildings and developments

Farmland and Agriculture
- F1 Nature-friendly farming
- F2 Species-rich hedges, edges and corners

Grasslands
- G1 Acid and ancient grasslands rich in species
- G2 Biodiverse Magnesian Limestone habitats
- G3 Ecologically diverse meadows and other neutral grasslands

Trees and Woodlands
- T1 Nature-rich ancient and veteran trees, and ancient woodlands
- T2 Other trees and woodland full of wildlife
- T3 Biodiverse wood pasture and historic parkland

Uplands
- U1 High-quality peatlands
- U2 Other upland and moorland habitats full of wildlife
- U3 Nature-rich upland hay meadows

Water and Wetlands
- W1 Nature-friendly habitats next to and between water bodies
- W2 Aquatic habitats full of wildlife
- W3 Biodiverse catchments and floodplains
- W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows

Quality and Condition
- Q1 More dark, quiet places for wildlife
- Q2 More healthy, biodiverse soils

- Q3 Better ecosystem balance

Species
- Priorities for 27 individual species (such as red squirrels, water voles and adders).
- Priorities for 13 groups of species (such as farmland birds, light-averse bats and freshwater fish).

Cross-cutting themes

- C1 Cross-boundary thinking
- C2 Landowner engagement
- C3 Nature connectedness
- C4 Enabling factors

Who is this for?

This strategy will help to direct efforts to help nature to where this should have the most lasting impact. It is backed by national law and supported by funding frameworks. The strategy will outline our nature recovery ambition to government and will be used to shape future decisions around funding and opportunities for investment. Those who are likely to find this strategy useful therefore include:

- developers, local planning authorities
- farmers, landowners and land managers
- private companies and businesses, including utilities
- community and volunteer groups
- environmental organisations
- central and regional government
- members of the public.

Mappable measures, land use and biodiversity net gain (BNG)

Please note that the mapped measures suggested on the Local Habitat Map neither direct, nor preclude, other uses for any given site. Instead, they provide additional insight to those making decisions about land use (such as plan-making, development proposals, agricultural land, private estates, business sites, private gardens). The Local Nature Recovery Strategy means that developers and other end-users can ensure that land use in West Yorkshire contributes positively to environmental outcomes, with decisions based on the best available evidence.

For the purposes of biodiversity net gain (BNG) in the planning process, mappable measures will be eligible for the high strategic significance multiplier in the statutory biodiversity metric only if:

1. the specific measure/s that apply to that location are clearly referenced in the BNG assessment/report submitted as part of the planning application, *and*
2. the appointed ecological consultant justifies (to the satisfaction of the local planning authority) that the outcomes are highly likely genuinely to result in an appropriate biodiversity uplift for habitat, hedgerow or watercourse biodiversity units.

Contents

Part 1: Introduction

West Yorkshire overview

West Yorkshire (an area of some 203,000 hectares, or 784 square miles, with a population of 2.3 million people) has spectacular and important natural spaces, from the upland blanket bog and upland heath of the South Pennines in the west, to the lower-lying former coalfields and Magnesian Limestone[‡] ridge in the east. There are hills, peat bogs, craggy river valleys and rolling farmland, nature reserves on old mining sites, urban greenspaces and tiny city pocket parks, cherished allotments, ancient pack-horse routes and canals in the heart of built environment. Peatlands in the headwaters of river catchments are the largest natural terrestrial carbon stores in the UK.

West Yorkshire is one of the most 'built-up areas' in the country, after Greater London, Greater Manchester and the West Midlands. Most people (85 per cent) in West Yorkshire live in dense, historically industrial towns and cities such as Leeds, Bradford and Wakefield[±], but close to open countryside.

In terms of nature, this characteristic presents the region with both unique challenges and opportunities. The proximity of dense cities close to open landscapes does put pressure on the natural environment. But, with a thoughtful, careful approach that is sensitive to nature's needs, it could also help to catalyse a new green revolution, inspire more people to do more for nature and support the recovery of wildlife and habitats, while enjoying the benefits a healthy relationship with nature offers. This unusual profile – lots of people living close to distinctive, special landscapes – also offers West Yorkshire a unique opportunity to help to reduce social inequalities.

In 2025, West Yorkshire's first National Nature Reserve was declared. The South Pennine Gateway National Nature Reserve recognises the value of West Yorkshire's natural environment and the unique opportunities available to the region to support wildlife, habitats and people. The new nature reserve (1,272 hectares), is part of this ambition, aiming to bridge the gap between Bradford city and the countryside.

> *'Nature' is a broad term, and people define it in different ways. Here, it refers to landscapes and their features (for example catchments and rivers), habitats, humans and other animals (including birds), as well as fungi and plants. It also comprises natural systems such as pollination and the way water moves (along rivers, through soils, down hills) and the relationships within/between species (predator-prey, social bonds and other interactions).*

Many organisations, groups and individuals in West Yorkshire already work hard to help nature and people, and many of them have already helped shape this strategy, sharing their time, passion and expertise.

Efforts to help nature in West Yorkshire are far from new. It was here that the first known example of a landscape designed to protect nature is thought to have been created: 19th century naturalist Charles Waterton put a boundary wall around his estate in Wakefield to keep predators out, banned shooting and fishing, protected nesting birds and created new habitats for native species; it later became a designated Local Wildlife Site. Two hundred years later, in 2026, the Combined Authority marked this as part of a year of cultural activities to highlight West Yorkshire's cultural and environmental assets. People will be able to put their new skills

[‡] Magnesian Limestone is a formal natural character area (NCA) – these include landscape, biodiversity, geology, economic activity and cultural features.

[±] Of neighbouring regions, only Greater Manchester has a higher urban/rural split (90%). In North Yorkshire, most people (65%) live in more dispersed, rural areas (ONS, 2024).

around sustainability, green energy and nature recovery to use, helping to turn this nature recovery strategy into action.

The region is steeped in industrial heritage. Today's urbanised 'hub' of West Yorkshire was shaped by the former expansion of manufacturing, coal mining, as well as steel and textile production across the county. It was once globally important in the industrial revolution, from the wool and cotton mills of the late 18th century (powered by water) to the urban industries of the 19th century (powered by coal). Remnants of disused pits, quarries, mill ponds, canals and other past industrial sites are scattered across the landscape, alongside the historic rail, road and water-based transport routes that once supported them. Weirs that once harnessed the water's energy now fragment habitat, preventing migratory fish such as salmon from returning to spawn in rivers.

Its natural heritage has exerted just as much influence, and West Yorkshire stands out for many reasons. The landscapes have nurtured and inspired poets, writers and artists, including Simon Armitage, the Brontës, Andy Goldsworthy, David Hockney, Ted Hughes, Henry Moore, Sylvia Plath and Joseph Turner. As part of Bradford's 2025 City of Culture, hundreds of artists celebrated the city's cultural and natural heritage, including a two-day musical 'Progress' travelling across moors, along canals and through historical industrial sites, a 'Wild Uplands' sculpture trail in Penistone Hill Country Park, and nature-based creative workshops for refugees, asylum-seekers and other marginalised communities.

West Yorkshire is home to fungi so rare that they are globally significant. The region also captures carbon: its peat cover, grasslands, wetlands and tree canopy cover contribute to national and international targets set by organisations such as the United Nations. Together, the region's many species, habitats, and the relationships between them and other living/non-living parts of the environment underpin wider natural systems such as timber production, water control, soil health and air quality.

Around the world, many natural places are undergoing a catastrophic decline in animals, fungi and plants, and England is one of the most nature-depleted countries of all[2]. Habitats are often in poor condition and fragmented, forming isolated patches. This makes it hard, if not impossible, for nature to spread. The natural systems that control floodwaters, provide food, clean air and water, break down.

Here in the north of the country, Yorkshire's nature network has experienced massive change over the past century. More than 80 per cent of wetlands have been lost[3] due to water drainage and river canalisation. Nearly half of the rivers in Yorkshire have been physically modified, and many are in poor ecological condition[3]. This has greatly reduced biodiversity and impacted the natural processes that provide flood protection, climate regulation and urban cooling that are so important for helping local communities to be resilient. Nearly 2,000 species may have disappeared over the past 200 years; of those that remain, almost one in five have seen their populations decline by more than 25 per cent over the past 20-30 years. Today, a further 3,000 species in Yorkshire are at risk of extinction[3]. The *State of Nature* (2023) report identifies land-use/management and climate change as primary drivers of nature's decline.

This is terrible not just for species and habitats – it's critically dangerous for humans, too (see box below). Erosion, for example, poses a serious risk to the policy areas of economic resilience, climate adaptation, and the security of timber (the UK currently imports 73 per cent of

[2] State of Nature Partnership (2023) *State of Nature 2023*. Report to State of Nature Partnership. [Online.] [Accessed 04/09/2025.] Available at: https://stateofnature.org.uk

[3] Yorkshire Wildlife Trust (2025) *Nature in West Yorkshire: Description, threats and opportunities for recovery.*

its timber)[4], food and water, according to *State of Natural Capital* report[5]. Climate changes are likely to trigger an increase in tree health problems such as ash dieback. And every aspect of nature's poor condition threatens economic resilience. It is happening on our watch.

To remove or reduce these threats, the government intends to help nature to recover. New Local Nature Recovery Strategies (48 in total, updated every three to 10 years) will cover the whole of England, and contribute to this national, coordinated effort to help nature at both a local and landscape scale – a national nature network. They will help to translate national and international ambitions such as those in the Environmental Improvement Plan 2023 into locally led and implemented strategies for nature recovery.

This strategy is West Yorkshire's contribution to Sir John Lawton's vision of more, bigger, better, and joined-up habitats to create a national nature network across the whole of England, for the benefit of all the living things for whom it is home. Nature recovery in catchments in West Yorkshire play a big part in improving water quality to support downstream environments, including floodplains, coastal and marine environment elsewhere, and so helping nature in West Yorkshire will have an impact beyond our region.

It describes our vision for a West Yorkshire that is rich in nature and outlines how we will help to make that a reality, reverse the decline in biodiversity and safeguard the natural infrastructure that underpins everything else.

It explains how the steps we take will help West Yorkshire to play its part in wider national and international ambitions for nature. The UK's National Environmental Objectives goals for a healthier planet include achieving clean air and water, restoring nature and biodiversity, managing resources sustainably to minimise waste, and tackling climate change by reaching Net Zero emissions by 2050. The West Yorkshire Local Nature Strategy contributes to these.

Biodiversity and the strategy

Biodiversity is the abundance of different animals, fungi and plants. These multispecies communities interact with each other and the physical world around them. They underpin the environment's natural ecosystems services. These services are: regulating (such as climate, heat, air quality, floodwater), producing (such as food), supporting (soil formation, for example), and cultural (recreation, creativity). Species are like the nuts and bolts in a bridge: each species that is lost weakens the overall integrity of the structure/ecosystem until, eventually, it collapses. Halting the decline in species populations by 2030 and increasing populations by at least 10 per cent by 2042 is a key target in the Environmental Improvement Plan 2023.

Climate and the strategy

Healthy habitats generate strong natural systems that can help respond to the climate crisis. Woodlands absorb and store the greenhouse gas carbon dioxide. Soils in habitats such as peatlands hold on to carbon, reducing harmful emissions that lead to global warming. Trees keep towns and cities clean and cool during heatwaves. And trees, shrubs and other plants prevent erosion and

[4] Brown, A. (2025) *Celebrating the timber in our lives*. Article for the Forestry Commission. [Online.] [Accessed 08/09/2025.] Available at: https://forestrycommission.blog.gov.uk/

[5] Lusardi J., Rice P., Craven J. et al (2024) *State of Natural Capital Report for England 2024: Risks to nature and why it matters*. Report to Natural England. [Online.] [Accessed 04/09/2025.] Available at: https://publications.naturalengland.org.uk/

protect downstream communities from flooding in times of heavy rainfall. Taking action to reduce greenhouse gas emissions and adapt to the impacts of climate change are key targets in the Environmental Improvement Plan 2023.

People and the strategy

"The ecological crisis (along with the climate crisis) is one of the greatest threats to our very existence. As well as things such as clean air, water and food, natural green space has many other benefits. It helps with stress, sleep, depression, anxiety, ADHD, concentration, memory, cardiovascular health, blood pressure, and improves pain control and immune function and much more. Those who are already disadvantaged already suffer disproportionately from the impacts of the emerging ecological crisis."
Henry Moore (Kaleidoscope, BBC Radio 4, 18 May 1987)

Nature recovery and other regional ambitions

Access to quality, wildlife-rich local environments is a fundamental target for the government; this encompasses the need for both people and the environment to be healthy and in good shape. This strategy will support this and many other plans and strategies (see Appendices – 'Strategic Context'). It will help the Combined Authority with many other aspirations. The following examples give a flavour of what other initiatives can achieve when they recognise the full potential of embedding nature throughout.

Nature and the West Yorkshire Plan

- *Mission 1: A prosperous West Yorkshire – an inclusive economy with well paid jobs.* The strategy presents an opportunity to boost the green economy. Nature can attract visitors and business and encourage people to spend time and money here, and it can bring people into volunteering and increase skills. Young farmers with nature-friendly career plans will be better able to identify options, ideas, innovation, networks, skills, work experience and training; nature recovery will increase the type and number of green jobs across the region.
- *Mission 2: A happy West Yorkshire – great places and healthy communities.* Nature recovery can increase the number of residents with access to high-quality green spaces; the health and wellbeing impacts of this include activity levels and improved life expectancy. Green cities protect more people against dangerous climate-related health threats such as heat exhaustion. There are many direct and indirect mental, cognitive and social health and wellbeing effects of nature.
- *Mission 3: A well-connected West Yorkshire – a strong transport system.* The strategy will help mass transit proposals fulfil their biodiversity net gain obligations in a way that is best for nature. Proposed measures (actions) along transit routes will increase the project's climate resilience (canopy cover, planting, healthy soils) and make these travel options more desirable. Nature along transport routes could increase nature connectedness, which leads to greater pro-environmental behaviour (such as sustainable travel). Pathways to nature connectedness reflect a key target in the Environmental Improvement Plan 2023, to enhance engagement with nature.
- *Mission 4: A sustainable West Yorkshire – making lives greener.* The strategy shows how to restore the hydrology of the uplands, restore peat, increase canopy cover in line with the White Rose Forest, hold more water in the landscape, improve air quality, increase climate resilience, increase blue and green infrastructure and bring more nature into the heart of towns and cities; this 'doorstep' nature will make people's lives greener as they go about their daily lives.

- *Mission 5: A safe West Yorkshire, free of the fear of crime so everyone can flourish.* Spending time in nature reduces stress, regulates emotions, improves mood, social connection and pro-social behaviour. Nature can boost community cohesion and reduce socio-economic inequalities. Attractive natural green spaces, and with the jobs and opportunities created nature recovery could also help to reduce crime rates.[6]

Nature and the Climate and Environment Plan

The Climate and Environment Plan has an objective for a climate-resilient and nature-rich region. It sets out actions for nature recovery and climate resilience, including the publication of this strategy.

Nature and the Local Transport Plan

The Local Transport Plan has cross-cutting themes that reflect the strategy's objectives to benefit the environment in general, and to reverse the decline in biodiversity in particular. Creating high-quality and healthy places for people along transport routes will provide opportunities to enhance nature and climate resilience.

Nature and the Local Growth Plan

The Local Growth Plan is an opportunity to boost the green economy with more environmental/nature recovery projects and green skills.

Nature and the emerging Spatial Development Strategy

This Local Nature Recovery Strategy will provide an evidence base and an opportunity map for nature that will steer the environmental elements of the Spatial Development Strategy.

Nature and the emerging West Yorkshire Infrastructure Strategy

The West Yorkshire Infrastructure Strategy includes a theme for environment and climate resilience, and sub-themes for nature recovery and climate adaptation. Water management is another theme, including flood risk management. The Infrastructure Strategy will identify the region's environmental assets and consider the region's vision for the environment alongside wider themes, such as housing and employment, over the next 10 to 15 years. The Infrastructure Strategy will also cover health and wellbeing, urban and rural, and the climate and environmental emergency. This Local Nature Recovery Strategy will help to shape all of these.

[6] Smith, A. Hafferty, C. and Seddon, N. (2023) *Embedding nature recovery in the Levelling-up and Regeneration Bill.* Report to Agile Initiative. [Online.] [Accessed 04/09/2025.] Available at: https://www.agile-initiative.ox.ac.uk/

How nature affects policy

Basic natural processes, such as the carbon cycle, water purification and soil formation, generate many ecosystem services that all living things rely on. To understand more about how nature supports humans in particular, analysts looked at six areas: economic resilience, Net Zero, climate adaptation, food security, health and wellbeing, and water security[7].

Then they identified some key public ecosystem services:

Icon	Explainer – how/why	Icon	Explainer – how/why
 Clean air	Clean air through the uptake, deposition, and interception of air pollution by plants.	 Clean water	Clean water through the natural dilution, degradation, and decomposition of pollutants, including by plants and animals.
 Climate regulation	Natural carbon stores and sinks contributing to reducing greenhouse gas emissions.	 Cultivated crops	Food such as cereals, vegetables, fruit.
 Cultural benefits	The ways nature enriches our lives, for example outdoor activities, creativity, learning, and our sense of health and wellbeing.	 Erosion control	Slowing of the erosion of land and soil, such as vegetation preventing soil erosion.
 Flood protection	Reduced flood risk due to ecosystems, such as by slowing flows, and increasing water infiltration.	 Noise regulation	Lowering of urban noise levels due to buffering by plants.
 Pest and disease control	Natural control of agricultural pest species and diseases.	 Plentiful water	Water supplies for drinking, irrigation, livestock, industrial use including cooling, energy production, wildlife and drought resistance.
 Pollination	Supporting crops dependent on insect pollination for example field beans, apples, plums, pears, cucumbers, strawberries, oilseed rape.	 Reared animal and outputs	Products from animals such as meat, dairy products, honey.

[7] Lusardi J., Rice P., Craven J. et al (2024) *State of Natural Capital Report for England 2024: Risks to nature and why it matters*. Report to Natural England. [Online.] [Accessed 04/09/2025.] Available at: https://publications.naturalengland.org.uk/

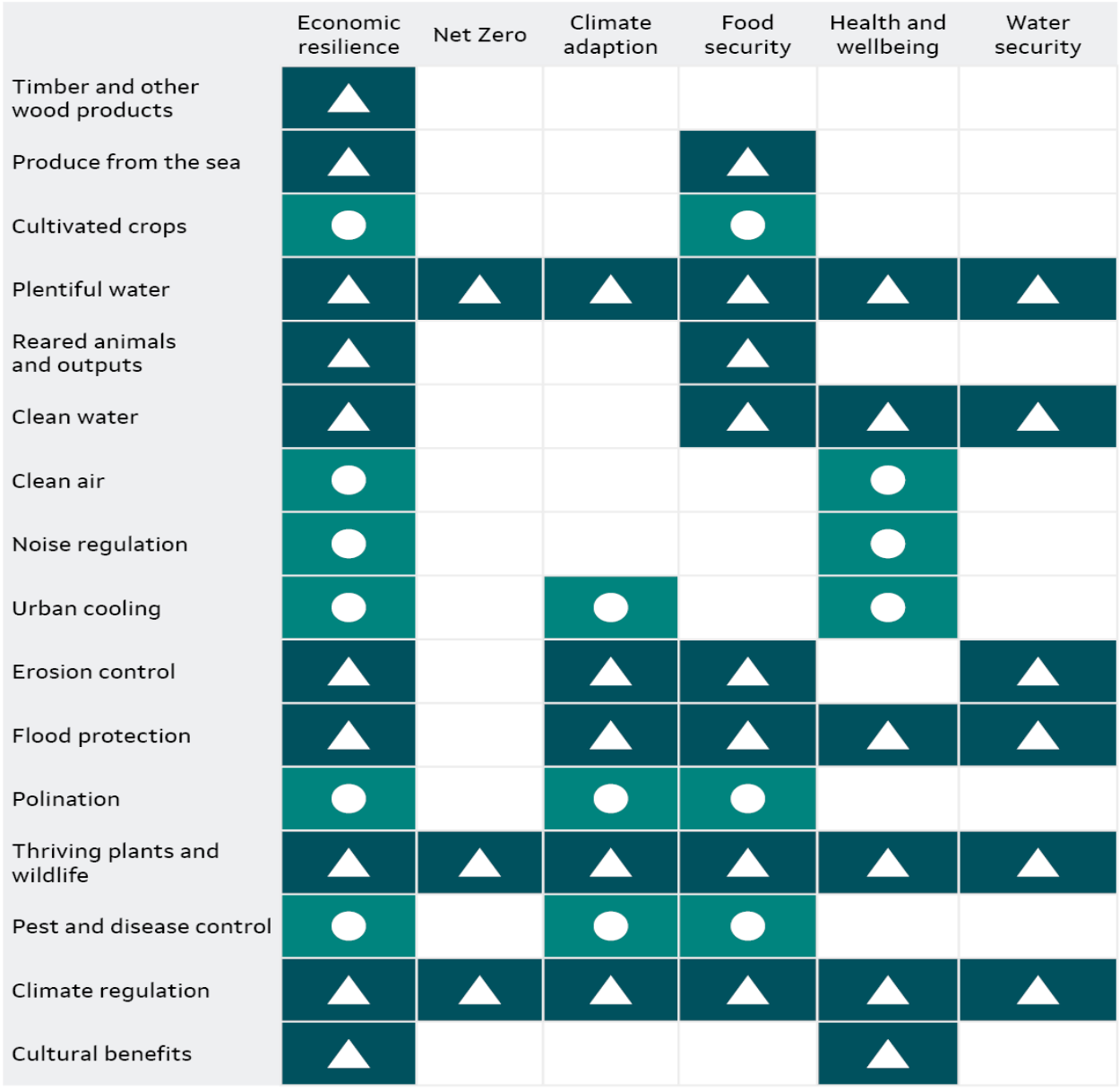
 Thriving animals, fungi and plants	Biodiversity, in its own right, and underpinning all other benefits.	 Timber and other wood products	Timber, paper and other products from wood.
 Urban cooling	Nature helps to lower temperatures, especially in towns and cities, through shade; soils, surfaces and plants 'sweat' (through evaporation and transpiration).		

[8]

Finally, the analysts looked at which benefits these policy areas rely on – but that nature is increasingly unable reliably to supply. This is what they found:

- **Economic resilience** depends on all these benefits from nature.
- Thriving animals, fungi and plants, climate regulation and plentiful water – ecosystem services that are all at high risk – contribute to **all policy areas**.
- **Climate adaptation** relies on the ecosystem services of erosion control and flood protection, both of which are at high risk. Climate adaptation also depends on urban cooling, and on pest and disease control.
- **Food security** is supported by the ecosystem services of produce from water, reared animals and outputs, clean water, erosion control, and flood protection – all at high risk. It also depends on cultivated crops, pollination, and pest and disease control.
- **Health and wellbeing** depend on clean water, flood protection, and cultural benefits (high risk), as well as clean air, noise regulation, and urban cooling.
- **Water security** is underpinned by clean water, erosion control, and flood protection; all these ecosystem services are at high risk.

[8] Lusardi J., Rice P., Craven J. et al (2024) *State of Natural Capital Report for England 2024: Risks to nature and why it matters*. Report to Natural England. [Online.] [Accessed 04/09/2025.] Available at: https://publications.naturalengland.org.uk/



Policy areas dependent on goods and services from nature that are at highest risk. Only those at high or medium-high risk are shown.

The West Yorkshire Local Nature Recovery Strategy is essential for these policy areas. It supports them by focusing action on priorities that pull together, in different combinations, to generate these critical public ecosystem services. Here are some of the ways that the nature recovery priorities will 'team up' to help.

Urban cooling will, for example, be supported by these priorities:

- B1 – High-quality, accessible nature in towns and cities

- B2 – Green and links through, between and beyond towns and cities
- B3 – Brownfield and other previously developed sites

These priorities will help **clean air**:

- B1 – High-quality, accessible nature in towns and cities
- B2 – Blue and green links rich in nature through, between and beyond towns and cities
- B3 – Species-rich brownfield and other previously developed sites
- B4 – Nature-friendly transport infrastructure
- B5 – Nature-friendly buildings and developments
- Q2 – More healthy, biodiverse soils

And almost all the priorities will join forces for **flood protection:**

- B1 – High-quality, accessible nature in towns and cities
- B2 – Blue and green links rich in nature through, between and beyond towns and cities
- B3 – Species-rich brownfield and other previously developed sites
- B4 – Nature-friendly transport infrastructure
- F1 – Nature-friendly farming
- F2 – Species-rich hedges, edges and corners
- G1 – Acid and ancient grasslands rich in species
- G2 – Biodiverse Magnesian Limestone habitats
- G3 – Ecologically diverse meadows and other neutral grasslands
- Q2 – More healthy, biodiverse soils
- T1 – Nature-rich ancient and veteran trees, and ancient woodlands
- T2 – Other trees and woodland full of wildlife
- T3 – Biodiverse wood pasture and historic parkland
- U1 – High-quality peatlands
- U2 – Other upland and moorland habitats full of wildlife
- U3 – Nature-rich upland hay meadows
- W1 – Nature-friendly habitats next to and between water bodies
- W2 – Aquatic habitats full of wildlife
- W3 – Biodiverse catchments and floodplains
- W4 – Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows

Working together, in different combinations, the priorities in the Local Nature Recovery Strategy will reduce the significant risks that important West Yorkshire policy areas face from a natural environment that is degraded and failing. See Appendices for complete list table of how the priorities in this strategy pull together to generate many different public ecosystem services.

The three examples below go deeper into what we stand to gain – or lose[9].

Example 1: Water

Priority W2: Aquatic habitats full of life

The priority is to boost significantly the biodiversity within rivers and other water bodies by ensuring those rivers and other watercourses attract and support an abundance of aquatic species, and to support leisure activities where appropriate.

[9] Lusardi J., Rice P., Craven J. et al (2024) *State of Natural Capital Report for England 2024: Risks to nature and why it matters*. Report to Natural England. [Online.] [Accessed 04/09/2025.] Available at: https://publications.naturalengland.org.uk/

Measures include: Re-wiggle streams. Reduce pollution of rivers and other water bodies. Increase nesting sites for birds, for example sand-martin banks, osprey platforms and kingfisher burrows.

Ecosystem services include: plentiful water, clean water, thriving animals, fungi and plants, erosion control, flood protection, climate regulation, pest and disease control, cultural benefits.

Benefits include: Enough water to drink, wash with and for other domestic uses; water for irrigation and for livestock; water to use in industry (for example cooling); water for wildlife, public health benefits such as sanitation, safe drinking water, better control of water-borne diseases.

Some of the many risks of failing to do this include: more pressure on water supplies to meet demand†; higher risk of significant infection from swallowing dirty water, higher resistance to antibiotics; murkier, smellier water, higher clean-up costs‡, loss of water-based recreation economy; knock-on impacts across the food and health sectors.

Example 2: Uplands

Priority U1: High-quality peatlands

The priority is to restore peatlands to full health, boosting biodiversity to maximise their ability to store carbon, retain water and control fire.

Measures include: Stabilise and rewet damaged blanket bog. Reintroduce lost plant species. Engage volunteers in peatland restoration.

Ecosystem services include: climate regulation, flood protection, clean water, plentiful water, reared animals, erosion control, thriving animals, fungi and plants, cultural benefits

Benefits include: carbon sequestration by soil/vegetation, greenhouse gas fixing, reduced risk of drought, flood and extreme weather events, cooler summers.

Some of the many risks of failing to do this include: increased carbon emissions, impacts of extreme weather on fire risk, human health and wellbeing; risks to housing, businesses and infrastructure, transport disruption; social and mental impacts of these.

Example 3: Trees and woodlands

Priority T2: Other trees and woodland full of wildlife

The priority is significantly to increase canopy cover and improve all woodland types to support nature recovery at landscape scale across West Yorkshire and beyond to support plants, animals and fungi, manage flood risk, mitigate the impact of climate change and create happier, healthier places for all of us.

Measures include: Plant trees to create new woodland to contribute to White Rose Forest draft target of 18.5 per cent tree and woodland cover by 2050 and create new community orchards.

Ecosystems services include: Clean air, noise regulation, urban cooling, flood protection, thriving animals, fungi and plants, climate regulation, cultural benefits, erosion control, timber and other wood products.

† To make supplies resilient to drought in England, an extra 1,150 million litres of water per day is needed for public water supply up to 2050. Electricity generation uses over half of our abstracted water each year, based on the average use between 2000-2018. Reduced supply puts pressure on the energy, agriculture and industry sectors, which could make water, and products that rely on it, more expensive.

Some of the many risks of failing to do this include: economic costs to construction, biomass energy, clothing fibre, and bio-based plastics sectors; chronic health impacts of polluted air (cardiovascular and respiratory diseases, lung function, worse asthma, more hospital admissions, higher mortality). Psychological and social impacts of these. Loss of opportunities for recreation, spirituality, sense of belonging/identity, aesthetic pleasure, tranquillity, discovery, escape, legacy, tourism, research, education opportunities, exacerbated inequalities, health impacts of noise pollution, heat-related health impacts, including heat exhaustion and heat stroke, disproportionately affecting vulnerable groups like the very old/young; heat stress and polluted air affecting those suffering from chronic and severe illness including heart or lung conditions, diabetes, renal insufficiency, Parkinson's disease, or severe mental illness.

Pricing nature

There are attempts to draw attention to the economic contributions of some public ecosystem services, as a way of highlighting their value to society[10].

- Every cubic metre of water taken from nature to use in industry is worth around £1.45 to the national economy. Wetlands are worth £292 per hectare in terms of their ability to clean water.
- Urban trees are environmental powerhouses, removing carbon dioxide, nitrogen oxides and sulphur oxides worth £5,762 per hectare annually, and providing urban cooling services valued at an average of £504 million per year, especially vital during heatwaves.
- The flood regulation value of woodlands is worth between £133 and £322 per hectare.
- Restoring peatlands to reduce carbon can deliver climate benefits worth between £664 and £4,313 per hectare.
- Healthy soil, often overlooked, provides erosion control services worth up to £241 per hectare. Meanwhile, recreation in nature is a major contributor to wellbeing and the economy, with a combined value of £29.7 billion per year across England and Wales.
- Nature also boosts property values by 2.8 per cent. Educational trips to nature are valued at £21.03 per pupil, and volunteering in conservation is worth £14.79 per hour.

These figures make the case that investing in nature is not just about conservation, it's about securing economic, social, and environmental prosperity – 'national wealth'[11] – for generations to come. The Dasgupta review[12] concluded that the economic benefits of strong and early action to reduce biodiversity loss far outweigh the economic costs of not acting.

Monetary evidence can be a powerful tool for engaging stakeholders and informing decisions about the natural environment. However, some benefits, particularly those with market values such as food or timber, are easier to quantify than others. Valuing the benefits we get from nature, including but not limited to monetary values, can help us to understand how we are part of nature, not external to it. A broader understanding of 'value' can support more holistic decision-making for the benefit of nature and people and helps ensure we don't overlook benefits that cannot be priced, but are still vital to our society, economy, and wellbeing.

[10] Department for Environment, Food, and Rural Affairs (2023, updated 2025) *Enabling a Natural Capital Approach guidance*. Guidance document. [Online.] [Accessed 05/09/2025.] Available at: https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs

[11] Lusardi J., Rice P., Craven J. et al (2024) *State of Natural Capital Report for England 2024: Risks to nature and why it matters*. Report to Natural England. [Online.] [Accessed 04/09/2025.] Available at: https://publications.naturalengland.org.uk/

[12] Dasgupta, P. et al (2021) The Economics of Biodiversity: The Dasgupta Review. Independent report. [Online.] [Accessed 16/10/2025.] Available at: https://www.gov.uk/government/publications/

What motivates people to look after nature?

Some people argue that pricing the benefits of nature clarifies the scale of the devastating consequences (such as flood, fire, crop failure) of failing to look after biodiversity and habitats. Treating nature as an asset that generates calculable benefits† persuades people to invest in nature recovery, to avoid economic losses and thus get a return on investment.

Others say that this way of thinking may have unintended consequences. There is the risk of overlooking benefits that are difficult to quantify (creativity, for example), struggle to define (such as meaning) or don't yet know about (medical discoveries). It encourages us to see ourselves as separate from the rest of nature; this may make it easier to exploit and destroy it.

This strategy takes a broadly 'nature first' approach, while recognising that the health and wellbeing of humanity and the environment are inseparable. People may be motivated to look after nature because of the high economical cost of not doing so, but other pathways, such as those that increase nature connectedness, are also known to lead to pro-nature behaviour[13].

The next section explains more about Local Nature Recovery Strategies and how they are meant to work.

† In 2021, the ONS estimated UK's natural wealth to be worth £1.5 trillion.

[13] [13] Martin, L. et al (2020) *Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours*. Journal of Environmental Psychology. [Online.] [Accessed 05/09/2025.] Available at: https://pearl.plymouth.ac.uk/

Local Nature Recovery Strategies

Local Nature Recovery Strategies suggest where and how to create and enhance habitats to help wildlife, achieve wider environmental benefits (such as water management) and other co-benefits (health and wellbeing, for example). They identify what, in practice, can be done to restore, enhance or create habitats so there is more nature, and it is bigger, better and joined-up locally, regionally and nationally.

The strategies propose actions in places where this will achieve the best environmental outcomes. They create a starting point, by putting the right measure in the right place. This reduces the risk of doing things that won't work or will work less well – such as creating habitat where this could have unintended consequences. They also focus on actions that will have the biggest impact, guiding decisions, funnelling funding, informing planning and prioritising nature-based solutions.

People can use the strategies to work out how best to help nature in a way that aligns with what others are doing: a shared sense of purpose and coordinated action.

A Local Nature Recovery Strategy is:	**A Local Nature Recovery Strategy is not**
• a strategic view of the natural environment • a tool that end-users can use to identify opportunities • agreed priorities on nature recovery • suggested activities to help nature	• a delivery plan, but it will shape and inform delivery • binding • lines on a map that confer any protection or land use • permission to create habitat • a process for designating sites or land

Local Nature Recovery Strategies comprise two parts.

Part 1: Statement of Biodiversity Priorities This is what you are reading. It describes what is already in West Yorkshire, the challenges we face, and the many opportunities available, and identifies nature-recovery priorities. The full table of measures suggests specific, practical, actions that would get us there; many of these are about conserving, restoring, creating or enhancing habitat. Many of the measures could be done across the region are too widespread to map. There are also many important supporting actions (such as education, communication, research) that will help to maximise the impact of habitat measures.

Part 2: Local Habitat Map The strategy also pinpoints where it would be restoring, creating or enhancing habitat could be particularly important. The map includes the following layers, which can be toggled on and off:

- *Areas of particular importance for biodiversity.* This layer picks out places that already have a degree of protection, including national conservation sites, local nature reserves, local wildlife sites and areas of irreplaceable habitat.
- *Measures.* This layer indicates the mappable practical actions that, if done, would help the biodiversity priorities agreed in this strategy.
- *Areas that could become important for biodiversity.* This layer reveals where effort should be concentrated over the next few years, by identifying where mappable measures would have a significant impact – but do not (generally) overlap with those sites that are already

designated. This neither directs nor precludes other uses for any given site but provides additional insight to those making decisions about land use (such as plan-making, development proposals, agricultural land, private estates, business sites, private gardens). This will help to ensure that land use in West Yorkshire contributes positively to environmental outcomes, with decisions based on the best available evidence.

Delivery

Here are some of the ways the strategies could be used.

Land-use planning

Nature needs space, and so the strategies fit in with the bigger planning picture, specifically the areas below.

2025 Planning and Infrastructure Bill The Bill outlines Natural England's role in developing Environmental Delivery Plans for developments, which must take account of Local Nature Recovery Strategies. The Bill's Nature Restoration Fund intends to allow developers to work at pace while meeting their environmental obligations.

Environmental Improvement Plan 2023 for England This explains how government will work with landowners, communities and businesses to help the environment (such as targets to help nature and reduce environmental pollution). And across the UK, the Blueprint for Halting and Reversing Biodiversity Loss outlines how England, Northern Ireland, Scotland and Wales will work together to address biodiversity loss.

National Planning Policy Framework This sets out government planning policies for England and how to apply these. Chapters on natural environment, climate, flooding and the green belt all link with nature recovery. It states that planning proposals should support Local Nature Recovery Strategies suggestions for habitat creation or nature recovery and reinforces the importance of protecting irreplaceable habitats, such as ancient woodland, from development.

Land Use Framework The Government has consulted on a new approach to land use. This will help decision-makers protect the most productive agricultural land and boost food security. Using the most sophisticated land use data ever published, the Land Use Framework will provide the principles, advanced data and tools to support decision-making by local government, landowners, businesses, farmers, and nature groups. This will help deliver the different objectives, including growing food, building 1.5 million homes this parliament, and restoring nature.

Protected Landscapes Duty
Relevant authorities such as the Peak District National Park must to apply this duty when considering land within the National Park and ensure that the proposals consider and align with the Protected Landscape Management Plan, the description of the special qualities and key characteristics which comprise its natural beauty, and the targets and objectives for the designation. Local Nature Recovery Strategies will provide a key evidence base for this.

Biodiversity Net Gain (BNG)[†] This requires developers to leave habitats at least 10 per cent better after development. The aim is to provide BNG uplifts on-site, but a developer can purchase off-site units or pay into the national credit system. This will broadly cost more the

[†] BNG is mandatory in England under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). For the purposes of biodiversity net gain (BNG) in the planning process, mappable measures will be eligible for the high strategic significance multiplier in the statutory biodiversity metric only if the specific measure/s that apply to that location are clearly referenced in the BNG assessment/report submitted as part of the planning application, *and* the appointed ecological consultant justifies (to the satisfaction of the local planning authority) that the outcomes are highly likely genuinely to result in an appropriate biodiversity uplift for habitat, hedgerow or watercourse biodiversity units.

further away it is. Developers can mitigate that extra cost to some extent if they meet their off-site BNG obligations in areas mapped by Local Nature Recovery Strategies. Off-site BNG should, if done as intended, reflect what is best for nature.

Local Plans These set out council visions for future development, such as housing and infrastructure. They are legally binding documents and have an influence on local planning decisions.

Developers and local planning authorities will therefore use the strategies to:

- integrate the West Yorkshire Local Nature Recovery Strategy with Local Plans, supplementary planning documents and other strategies;
- direct Biodiversity Net Gain (BNG) action;
- provide a framework for the existing Biodiversity Duty (local planning authorities have to consider how they can conserve and enhance biodiversity when carrying out their functions; the government will publish guidance on this).

Farmers, landowners and land managers are likely to use the strategies to:

- decide what to do on land they own or manage;
- collaborate with others;
- identify opportunities for Landscape Recovery projects; including Environmental Land Management (ELM) schemes for large-scale, long-term habitat restoration and land-use change.

Private companies might use the strategies to:

- decide how to make corporate donations;
- improve their corporate, social and environmental responsibilities;
- guide investment in natural processes (such as the carbon cycle, water purification and soil fertility) that produce clean water, shade and food and so on;
- retain staff, improve reputation and increase business.

Environmental organisations, community groups and members of the public can use them to:

- decide what to focus their own efforts on;
- collaborate with others;
- apply for funding.

The Government may use the strategies to:

- assess funding applications;
- inform the work of arm's lengths bodies (Environment Agency, the Forestry Commission and Natural England);
- identify areas that could contribute to its 30-by-30 commitment;
- develop required criteria in future nature recovery funding schemes.

National Parks will use the strategies to:

- shape their Protected Landscape management plans;
- inform their nature recovery plans, policies and targets.

Responsible authorities and their partners will use the strategies to:

- target funding for environmental projects
- support wider plans and strategies (see 'Nature recovery and other regional ambitions' section above) to ensure opportunities to benefit from nature are no longer overlooked;
- guide private finance investments in nature and carbon markets.

We have yet to hear exactly what the government expects responsible authorities to do to deliver Local Nature Recovery Strategies. We think it might ask us to:

- lead and convene a regional nature recovery delivery partnership;
- build on existing governance and partnerships, including Local Nature Partnerships;
- make links with other parts of the authority and supporting authorities to promote the use of the strategy in other areas (such as Spatial Development Strategies, Local Growth Plans, public health, climate resilience and adaptation);
- identify, develop and publicise projects;
- track other activities or projects.

We will share more information on how different people use the strategy in due course.

Headline targets for nature recovery

To know whether the strategy is effective, we need to evaluate its impact using existing datasets that align with the strategy's priorities. The following five headline targets are proposed, and being developed, with **details still to be agreed**. They reflect the strategy's three objectives (see above) around species and habitats, ecosystem services, and people.

Target 1: A decrease in the number of species at risk in West Yorkshire. Dataset: Yorkshire Wildlife Trust 'Yorkshire Species of Concern'.

Target 2: An increase in canopy cover in West Yorkshire. Potential datasets: Bluesky Tree Canopy Cover' (White Rose Forest); Trees Outside Woodland and National Forest Inventory (Forestry Commission).

Target 3: An increase in the area of active peat-forming blanket and lowland bog in West Yorkshire. Dataset: England Peat Map.

Target 4: An increase in the ecological status of rivers in West Yorkshire. Potential dataset: Water Framework Directive River, Canal and Surface Water Transfer Waterbodies Cycle 2 (limitations); other data for non-linear water bodies and catchments.

Target 5: An increase in access to greenspace in West Yorkshire. Dataset: ANGSt Local Walkable Greenspace Standards ('Access to Greenspace Standards) criteria (percentage of people meeting all six).

If the work you do moves West Yorkshire closer to one or more of these targets, then it will be broadly in line with this strategy and will reflect the law (the Environment Act) and the government's commitments.

Strategic context

There are already many different local, regional, national and international regulations, plans and strategies designed to support nature and the environment in various ways. Local Nature Recovery Strategies should help, not hinder, these. Here are a few of the key ones.

Global: The '30by30' commitment is for 30 per cent (or more) of land and ocean area to be protected by 2030.

National: The 2023 Environmental Improvement Plan for England sets out how government will work with landowners, communities and businesses to help the environment.

Regional: In the West Yorkshire Plan to 2040, the mayor has committed to creating a nature-rich and climate-ready region. The Combined Authority's Climate and Environment Plan set out its ambition to create a Net Zero carbon region by 2038; its forthcoming Spatial Development Strategy will provide the spatial framework for local planning decisions, investment, and place-making.

Local: All West Yorkshire councils have climate emergency and/or biodiversity plans as well as Local Plans. New planning laws are also relevant (see 'Land-use planning' section above).

To find out more about the wider strategic context and details of many other relevant regulations and plans, please see the Appendices.

Part 2: Nature in West Yorkshire

Introduction

West Yorkshire supports important habitats and species and is a vital wildlife corridor that links the upland Pennines with lowland floodplains, connecting moors, bogs and woodland to rivers, streams and major urban centres.

Many threats contribute to the widespread decline and loss of natural habitats and wildlife, and West Yorkshire's environment is, overall, in poor health. This is due to complex factors that include habitat loss, pesticides, disease, pollution, climate change, and human impacts.

The result is that much of nature in West Yorkshire is patchy. There are islands of habitat, some bigger, many smaller, some designated in some way, some not, some in good condition (improving this is a key government target), others not. However, spaces for nature are fragmented, isolated, disconnected, biodiversity is in decline, and this is partly why the region struggles to cope with environmental pressures such as flood, fire and drought.

Despite the challenges, the opportunities to achieve a nature-rich region are abundant. Our region already has the foundations for nature recovery: hills, forests, moors, lakes, rivers, farmland, gardens, allotments, urban becks, streets and verges (road and rail), parks, brownfield sites, private estates, hospital and university grounds, fields, and buildings too (churches, houses, school rooftops and businesses premises). The often-forgotten snickets and ginnels could provide even more of a nature 'top up' and a bit of shade in a sea of hot, grey urban concrete and tarmac. There is plenty for all of us – councils, members of the public, developers, businesses, political leaders, community groups, key partners as well as the Combined Authority – to work with, in addition to all the great work already happening (see Case Studies in Appendices).

And, together, if we all pull together, there is every reason to believe we could make a huge difference and turn this tanker of biodiversity decline around. We can actively manage, restore, enhance and create habitats to boost the abundance of different fungi, plants and animals (biodiversity), re-wet West Yorkshire, revitalise natural processes and create a comfortable, blue-green, wildlife-rich place. This supports a key government target to create or restore more than 500,000 hectares of wildlife-rich habitat outside protected sites by 2042.

To better understand this context and be clear about what needs to be done to help nature, Local Nature Recovery Strategies first need to know as much as possible about their own local and regional landscapes, environments and species, the challenges, and what opportunities are available to help nature. We asked the Yorkshire Wildlife Trust to do this research[14]; if you are interested, please look at the comprehensive report they produced (see Appendices).

The following maps (to be added) provide a high-level indication of the different habitats in West Yorkshire, the main threats to these, and some of the opportunities. For full descriptions, please refer to the appropriate chapters in the Habitats and Species section.

Map 1: Built environment

- West Yorkshire has a particularly high overall 'urban density near nature' profile, with more than four-fifths of citizens living in dense urban centres including Leeds, Bradford and Wakefield close to open landscapes.
- Much-loved local beauty spots include Ilkley Moor, Baildon Moor, Shipley Glen, St Ives Estate, Harden Moor, Bingley Bog North, Penistone Country Park, Hardcastle Crags.

[14] Yorkshire Wildlife Trust (2025) Nature in West Yorkshire: Description, threats and opportunities for recovery.

- Only 23 per cent of residents have natural greenspace (such as parks) within a five to 10-minute walking distance. More people will be able to access nature as action to protect biodiversity increases in the South Pennine Gateway National Nature Reserve in Bradford (declared in 2025), which connects habitats.
- Heatwaves are increasingly likely; Wakefield recorded temperatures of 36°C in 2019, while Leeds reached 35.1°C in 2022[15].
- Bringing thriving blue and green environments into the built environment will turn our towns and cities into urban nature reserves.

Map 2: Farms and agriculture

- Farmers are already planting more hedgerows and are changing how they manage their land to help reduce pollution/improve soil condition; if we can help more to do the same, West Yorkshire could show how food and nature work together.
- Hedges, edges and corners offer opportunities for wildlife.

Map 3: Grasslands

- The grasslands of the South Pennines attract global attention because of the rare fungi living there – with names such as matt pinkgill, black magic, jubilee waxcap and dark velvet fanvault.
- Important grasslands include upland hay meadows, Magnesian Limestone and species-rich grasslands.

Map 4: Trees and woodlands

- We are part of the White Rose Forest. Tree-planting is already underway to increase canopy cover for more shade and woodland.
- A fragment of rare temperate rainforest site near Todmorden is of global importance. It supports ancient plant life and migrating birds like pied flycatchers and tree pipits.
- Middleton Woods is the region's largest semi-natural ancient woodland site.

Map 5: Uplands

- The Pennine Hills (England's rocky spine) runs along the northern and western moorland edges of West Yorkshire, cloaking these in a belt of blanket bog and other habitats that support internationally rare birds, help to control water, and offer spectacular recreation. It links the Peak District National Park in the south to the Yorkshire Dales National Park and Nidderdale National Landscape in the north – a vast connected upland landscape.
- This stunning natural resource is no more than a daytrip away – including options by bus or train – for many of the 2.3 million people in West Yorkshire living close to the moorlands, such as in Hebden Bridge, Ilkley, Holmfirth, Leeds, Bradford, Halifax and Huddersfield.
- Degraded uplands release carbon and fail to hold water.
- Upland peat locks in carbon and reduces downstream flooding; restoring upland habitats will reboot the hydrology of the uplands, so that more water stays up there.
- The peatlands in West Yorkshire are of international importance for Mesolithic archaeological remains such as flint scatters and temporary camp sites used by hunter-gathers.

Map 6: Water and wetlands

- Only 13.7 per cent of surface water bodies are in a good ecological condition.

[15] BBC News (2022) *UK heatwave: Yorkshire and Lincolnshire set record temperatures.* News article. [Online.] [Accessed 05/09/2025.] Available at: https://www.bbc.co.uk/news/

- Flooding has devastated West Yorkshire: the 2015 Boxing Day floods cost an estimated £500 million[16].
- Stretches of rivers are polluted, making them inhospitable to wildlife and unpleasant for people.
- More straight rivers could be re-wiggled and re-connected to their original floodplains, like the one at Chellow Dene, to protect towns from flooding.

Map 7: Quality and condition

- Noise pollution and light pollution from West Yorkshire's dense urban centres harms wildlife.
- Invasive species such as Japanese knotweed and Himalayan balsam harm ecosystems, particularly along rivers.
- Infrastructure works can damage soil health.

Map 8: Species

- Specialist species thrive in different parts of the region, including Magnesian Limestone; red squirrels (on borders), rare black-necked grebes (St Aidan's RSPB reserve), white-clawed crayfish, otters, southern marsh orchid (Mickletown Ings), galium carpet and bilberry pug moths (in wooded uplands).
- Just 1.5 per cent of the region's scientifically important sites are in favourable conditions (below the 37 per cent national average).
- About 3,000 species are at risk of extinction in Yorkshire.
- 32 fungi are vulnerable to extinction.
- With the right habitats, species such as red squirrels and water voles could return or increase.

Big Blue Thread: Re-wetting West Yorkshire for the benefit of wildlife and people

Nature recovery in West Yorkshire and beyond could stand or fall depending on how we think about, respond to, and live with water, and so 'water' runs as an overarching theme throughout this strategy. Water emerged as such a significant feature for the West Yorkshire Local Nature Recovery Strategy that those involved wanted to look more closely at water as a 'blue thread'. This would also reflect the Yorkshire Wildlife Trust's *State of Yorkshire's Nature* report, which found that re-wetting landscapes would be one of the most impactful things we could do.

As well as adding a water focus to each habitat theme, our partners helped to paint a picture of what could be achieved in relatively short time, if we were to 're-wet' West Yorkshire for nature, environment and people. They helped us to imagine what West Yorkshire would be like if water worked for us, one huge, natural machine, ready to usher in the next historic, blue-green revolution. This landscape-scale system, self-powering and self-renewing, would need multiple strong, well-maintained parts; from rivers to ponds, wet woodlands to sustainable urban drainage systems, upland bogs to floodplains

If kept in good condition, this self-sustaining water machine would deliver wonders for West Yorkshire that may be hard to visualise but are well within our gift.

[16] West Yorkshire Combined Authority (2016) *Significant progress made since 2015 Boxing Day floods but 90,000 homes still at risk without further investment.* Media release. [Online.] [Accessed 05/09/2025.] Available at: https://news.calderdale.gov.uk/

Let's fast-forward a few years.

- Towns and cities are cool, clean and blue-green: urban nature reserves, thanks to a network of garden ponds, rain gardens, swales, wetlands and open becks acting not only as sustainable urban drainage systems but also doubling up as water features for biodiversity and the enhancement of our urban environments. It's always comfortable enough to be out and about.
- The moors hold vast amounts of water high in the uplands, dramatically reducing the risk of flood and fire, and helping keep communities safer.
- Allowed to behave naturally, rivers have reconnected with old friends – oxbow lakes, floodplains, ghost ponds, holding more water in the landscape and protecting other places.
- Carbon in peat stays locked up.
- Healthy soils, conditioned by water, are covered in rich grasslands with flowers, pollinators and birds to control pests naturally; habitats and crops flourish, less vulnerable to temperature extremes.
- Sparkling rivers, clean and safe to bathe in, teem with aquatic life: biodiversity has soared. Salmon, trout and other fish travel to spawning grounds without difficulty.
- People spend time in, around and near water; they feel better; the health service has noticed.
- The river network, flowing generally from west to east, provides a literal and cultural connection between urban settlements and the uplands, as well as physical connectivity to waterside experiences and/or surrounding countryside.
- More trees and wet woodlands cover priority landscapes, stabilising soils and providing shade for people, livestock, and wildlife during hotter summers, enhancing climate resilience and ecological function.
- Impacts of increasingly hot, dry summers and mild, wet winters are mitigated.

This is all entirely possible, if we manage water positively for the benefit of people and wildlife. That means going beyond reducing usage and wastage to actively restoring water quality and ecosystems.

We know from existing work that this would be effective (see also the case studies in the Appendices):

- The charity *Slow the Flow* in Calderdale uses natural flood management, sustainable drainage and other renewable methods to retain water in the landscape.

- *Friends of Bradford Becks* work to restore the Bradford becks river system, for clean, visible accessible becks. It is turning a concrete culvert into a naturalised stream to reduce flood risk, create habitats such as wildflower meadows, wetlands and areas of woodland and help wildlife.

- Leeds City Council and White Rose Forest are planting trees and creating woodlands across West Yorkshire, with a focus on re-wetting and natural flood management. This involves planting trees in key river catchments and urban areas, to reduce flood risk, improve water quality and enhance biodiversity.

- Chellow Dene Re-wiggling is a project the Combined Authority worked on with the Aire Rivers Trust, alongside the Environment Agency, City of Bradford Metropolitan District Council, the Rivers Trust and Friends of Bradford Becks, to create meanders in the beck, bypass a weir and help water to flow more naturally.

Historic water management favoured hard structures: pipes, culverts, overflows, locks, weirs, sluices, embankments, reservoirs. Some of these centuries-old structures have archaeological and cultural value but impede the movement of fish and other species.

That's why other projects in West Yorkshire now focus on dismantling redundant structures at important post-industrial sites. Other initiatives turn old industrial sites into nature reserves.

During the industrial revolution, a huge weir installed on the River Aire, for example, controlled upstream water levels to power Salts Mill, then a textile factory. This prevented fish from moving around the river to feed, rest and breed. Today, a fish pass allows them to bypass the weir, and populations of brown trout, salmon and barbel have increased. And nature reserves at Fairburn Ings and St Aidan's show how former coal mining sites can become important landscapes for wetland birds, such as goldeneye, pochard, and shoveler and rare black-necked grebes.

STRONGER WITH WATER

- **Protects:** Nature recovery will help hold more water in the landscape, for natural flood management, cleaner water, drought management, reduced fire risk, more resilient agriculture, cooler cities. It will provide psychological reassurance, enjoyment and, through amenity and activity, health protection.
- **Enables:** Every form of life needs water. Almost half of plant species now extinct in Yorkshire were found in wetlands. Re-wetting the region would have huge biodiversity benefits thanks to bigger, better, more connected water-based habitats.
- **Captures:** Peatlands, grasslands, woodlands and other habitats need water. They can hold water, reduce flooding and halt erosion, all while capturing and holding on to carbon.
- **Unites:** Local wetlands and favourite river spots contribute to local sense of place and bring people together. Volunteers work with scientists on citizen science projects to gather data, developing valuable local expertise, shared purpose and meaningful action.
- **Inspires**: Water inspires art and culture. Turner painted Kirkstall Abbey and the River Aire, Henry Moore designed sculptures to be placed within or near water, and the Bradford 2025 City of Culture celebrated the uplands, the city centre Mirror Pool and Bradford Beck.

Guiding principles

The process of developing the Local Nature Recovery Strategy was based on key principles that reflect the government's statutory guidance of transparency, inclusivity and communication. The steering group agreed that the final strategy should:

- put the needs of nature first, recognising that nature's health is inseparable from ours;
- build on the 'Lawton Principles'[17] for more, bigger, better, and joined-up nature;
- present a realistic, practical, resilient vision;
- support action where this could also reduce social inequality;
- highlight a catchment-based approach, healthy natural processes, resilience and adaptation;
- reflect the interface between nature and other systems such as social (such as health) and technological (agriculture, for example);
- create a high-quality, strong, future-proof foundation upon which future iterations will be based;
- build a community of action to take it forward to delivery.

[17] Lawton, J.H., et al. (2010) *Making Space for Nature: a review of England's wildlife sites and ecological network.* Report to Defra. [Online.] [Accessed 04.09.2025.] Available at: https://www.researchgate.net

The next section introduces, with gratitude, some of the many stakeholders who have helped to shape this strategy.

Partners and engagement

Supporting authority partners

The following supporting authorities played an active and welcome role in helping to develop the strategy to ensure that it works for West Yorkshire as well as aligning their own priorities (see Strategic Context in Appendices).

- Local authorities: Calderdale Council, City of Bradford Metropolitan District Council, Kirklees Council, Leeds City Council, Wakefield Metropolitan District Council
- Peak District National Park
- Natural England

Wider engagement

Many people already do great work in West Yorkshire to support nature. From big organisations with resources and experts working on specific habitats, species or issues to small local community groups running on little more than volunteer energy and commitment, there is a rich seam of expertise and material to draw on.

We engaged with:

- habitat and wildlife experts
- farmers, farm-managers and landowners
- public (general)
- public (specific demographic groups)
- public (special interest/community groups)
- businesses.

For some of this work, we commissioned experts in participatory approaches to help us to ensure that the priorities and measures reflect what local people want and need.

Conclusion

Partners do different things and in different ways, but they share the overarching ambition to safeguard nature for ethical, practical and economic reasons. Broadly, most agree that West Yorkshire needs to increase street trees, protect ancient woodlands, restore the water tables in the uplands, improve river quality, use land in a nature-friendly way, and preserve existing high-quality habitats.

Our engagement made it abundantly clear that many people in West Yorkshire cherish nature, understand the need to support wildlife, and support action to help the environment. A lot of people know a huge amount about specific things, indicating a vast (largely untapped) resource of knowledge, skills, passion and determination in the region.

People already do a lot and are willing to do much more but need the right support and opportunities. Overall, there was broad agreement on the following:

- Nature needs space: the needs of nature and those of people are sometimes compatible, if this is carefully handled. That said, nature also needs some space away from humans, so species and habitats can recover as quickly as possible.
- Nature in towns and cities: people want West Yorkshire's towns and cities to be bluer and greener, with more nature at the heart of streets and local community spaces.
- Agency and recognition: people want their skills, expertise and commitment recognised and valued. They need information and resources to take existing action to the next level.

- Share learning: people want to hear about what else is going on. They suggest case studies, education about local projects, and prefer face-to-face communication.
- Fairness: people want us to involve neighborhoods in the greatest socio-economic disadvantage, so that the benefits of nature recovery are practical, visible and beneficial to more communities.
- Time is a challenge: some individuals/demographic groups have more of it than others.
- Accessibility: as well as physical access to green space, many other factors affect whether people can 'access' nature; these include cultural, social and personal (such as confidence) factors.

The following sections reflect the insights generated by this work.

Part 3: Key themes, habitats and species

Introduction

This is formed of priorities and measures.

Priorities are the end results that we want to achieve: aquatic habitats full of life, for example.

Measures are the practical things we can do in the short term, to get those end results: such as reducing water pollution.

There are three kinds of measures. These interact, support and amplify each other in different ways and are ***all*** important for wider nature recovery across West Yorkshire; the order in which they are listed does not imply any kind of hierarchy.

1. Mapped measures

Creating or enhancing these specific habitats in these specific places, shown on the West Yorkshire habitat map, will help nature the most right now. They may be worded quite broadly, but the mapping process used a huge amount of data, constraints, and the help of experts to narrow these down to where we really need them to happen, as soon as possible. This map will change when we publish the next strategy as we get more information and see what changes over time. These measures could be financially beneficial for those who need to fulfil their duties under biodiversity net gain (BNG) legislation, which is intended to be an incentive to do the right thing in the right place. These measures would be good for nature whether or not financial incentive is sought.

Mappable measures and biodiversity net gain (BNG)

For the purposes of biodiversity net gain (BNG) in the planning process, mappable measures will be eligible for the high strategic significance multiplier in the statutory biodiversity metric only if:

1. the specific measure/s that apply to that location are clearly referenced in the BNG assessment/report submitted as part of the planning application, *and*
2. the appointed ecological consultant justifies (to the satisfaction of the local planning authority) that the outcomes are highly likely genuinely to result in an appropriate biodiversity uplift for habitat, hedgerow or watercourse biodiversity units.

The mapped measures suggested on the Local Habitat Map neither direct nor preclude other uses for any given site. Instead, they provide additional insight to those making decisions about land use (such as plan-making, development proposals, agricultural land, private estates, business sites, private gardens). The Local Nature Recovery Strategy means that developers and other end-users can ensure that land use in West Yorkshire contributes positively to environmental outcomes, with decisions based on the best available evidence.

A handful of measures will be added to the map *after* public consultation. These relate to: calcareous woodland plants, Magnesian Limestone plants, upland birds, Magnesian Limestone quarries, and existing neutral grassland.

2. ‘Not mapped’ measures

These are habitat actions that are just as important as mapped measures but have not been mapped in this first version of the strategy. That could be because we don’t have enough data to map them or could be done in too many places to map effectively. Or people may have said that they would prefer to have options about what to do. Not mapped measures are the habitat

creation and enhancement actions that many more people could do; following what the strategy suggests may also help with grant applications.

3. Supporting measures

These measures relate to, and amplify the impact of, habitat measures. Often relating to things such as communication, education and research, they should be treated as integral to nature recovery efforts, particularly where they could help bring communities and decision-makers together.

Methodology

The Yorkshire Wildlife Trust provided a full technical description of the strategy area[18] and developed a methodology to shortlist priority species[19]; both reports are available. It also led a series of specialist workshops that generated the early stages of drafting priorities and measures.

Data came from a wide range of sources, including Natural England's online portal, the West Yorkshire Ecology Service and numerous datasets supplied by organisations and individuals. Small groups of theme experts then helped to generate this first iteration of the Local Habitat Map and create a bespoke approach for every mapped measure. A report on the mapping approach will be published in due course.

The draft priorities and measures were further refined against the findings from the wider engagement (see above): 50 of these are mapped habitat measures, the remainder not mapped habitat measures, and supporting measures.

The remainder of this document covers the themes in detail with examples of measures. The full set of measures is in the Appendices.

[18] Yorkshire Wildlife Trust (2025) *Nature in West Yorkshire: Description, threats and opportunities for recovery.*

[19] Yorkshire Wildlife Trust (2025) *Priority Species List.*

Cross-cutting themes

Introduction

Cross-cutting themes capture the overarching ‘soft’ measures that are relevant throughout.

C1 Cross-boundary thinking

Habitats such as woodlands, rivers and hillsides straddle administrative boundaries, and species move or travel. Actions should take account of what is happening elsewhere to ensure alignment and maximise the impact of both the West Yorkshire strategy and those published by our neighbours: North Yorkshire, South Yorkshire, Derbyshire, Lancashire and Greater Manchester.

C2 Landowner engagement

People who own and/or manage land face many challenges, from changing conditions (more floods, heat and droughts) to uncertain and complex funding processes and an unclear future. They need support, high quality advice and encouragement from experts and strategy partners. Engage early to ensure that nature recovery action is likely to address their concerns, involve them in decision-making, meet their ambitions and secure their support.

C3 Nature connectedness

Nature connectedness (feeling part of nature) is associated with multiple health, wellbeing and other benefits. It is also causally linked to pro-nature behaviour[20] such as recycling and sustainable travel. This offers a clear line of sight between Local Nature Recovery Strategies and the ambitions of other policy areas – health, transport, economy and supports key government targets in the Environmental Improvement Plan of reducing waste and using resources sustainably.

C4 Enabling conditions

Habitat creation, restoration and enhancement will achieve their potential for nature and people only if they are supported by a framework of ‘enabling’ conditions such as data, funding and leadership.

Click here for the full Table of Priorities and Measures

[20] Martin, L. et al (2020) *Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours*. Journal of Environmental Psychology. [Online.] [Accessed 05/09/2025.] Available at: https://pearl.plymouth.ac.uk/

Built environment

Description, threats and opportunities

West Yorkshire's significant urban and built environment covers around a quarter of the region, with most people (85 per cent) living in dense, historically industrial towns and cities such as Leeds, Bradford and Wakefield†. There are established public parks, many paid for or donated by local philanthropists, including Roberts Park in Saltaire, Bradford (Sir Titus Salt), People's Park in Halifax, Calderdale (Sir Francis Crossley) and Roundhay Park in Leeds (Sir John Barran). Other spaces for nature include green belts, riverside greenspaces and nature reserves, street trees and other wooded areas, as well as canals and quarries.

West Yorkshire took space from nature to support it through its industrial development, leaving behind spoil tips, former quarries and mineral extraction sites, many within or close to towns and cities. Another legacy is the weirs in rivers that now prevent fish from moving as they need to. Some land has subsided because of past mining activity. Old buildings such as factories provide important habitats, particularly for roosting bats. Some of the small, artificially created water bodies such as mill ponds and previous extraction sites have become safe havens for amphibians.

While generally lower in biodiversity than non-built areas, urban areas can nonetheless support a wide range of species and habitats, some of which could be called 'urban specialists', such as swifts or hedgehogs. Peregrines have recently bred successfully in several cities across West Yorkshire.

Urban blue and green spaces are often fragmented: separated by physical barriers of metal, concrete and asphalt (buildings, roads, railways), or other obstacles such as noise, traffic or other human disturbance. Plants can't easily spread, animals struggle to find food and mates, birds can't hear each other's songs. Modern developments in housing, transport and renewable energy take even more space away from nature and split habitats into yet smaller fragments.

It's not just wildlife that can't get to green spaces; humans face barriers, too. In West Yorkshire, only two-fifths of the population can easily and safely walk to a natural greenspace within 10 minutes. This figure varies greatly between districts‡: almost twice as many people who live in Leeds district have local access to greenspace (28 per cent) compared to Kirklees (15 per cent)[21]. Barriers also need to be understood, for example good quality facilities, recreational zoning, links to public transport and active transport routes, and the danger (and perceived danger) of the surrounding roads, in line with Vision Zero. Other barriers include the design and quality of the blue or green spaces[22] and barriers such as confidence, experience and concerns about safety.

Many people are unable to take full advantage of West Yorkshire's unusual 'urban density near nature' profile. Nature is, in principle at least, just a daytrip away for many, but factors including access to transport, income and time conspire to make this more difficult.

West Yorkshire's built environment offers one of the greatest opportunities to generate ecosystem services for significant benefits. The building blocks are largely already there,

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† Of neighbouring regions, only Greater Manchester has a higher urban/rural split (90%). In North Yorkshire, most people (65%) live in more dispersed, rural areas (ONS).

‡ The Green Infrastructure Standards for England recommend that everyone should have access to and benefit from good quality green and blue space, within 15 minutes' walk from home. The Woodland Trust's Accessible Woodland Standards state that everyone should live or work within 500 metres of an accessible woodland of at least two hectares, and four kilometres from at least 20 hectares.

[21] West Yorkshire Combined Authority (2025), *State of the Region 2024/25*. Report to West Yorkshire Combined Authority. [Online.] [Accessed 04/09/2025.] Available at: https://www.westyorks-ca.gov.uk/

[22] Barker, A., Holmes, G., Alam, R., et al. (2022) *What Makes a Park Feel Safe or Unsafe? The views of women, girls and professionals in West Yorkshire.* University of Leeds. Report. [Online.] [Accessed 04/09/2025.] Available at: https://eprints.whiterose.ac.uk/

namely the large urban parks, nature reserves and rivers that sit among residential and community gardens, cemeteries, pocket parks, ponds, orchards, allotments and the verges alongside roads, railways and canals, rain gardens, urban wetlands and urban trees.

Nature has already reclaimed many former industrial sites and would rapidly rewild much more, given the chance. Housing, transport and energy initiatives could help to create more, bigger, better, and joined-up environments, if they genuinely consider what nature needs, too, and unlock the benefits of greener, more attractive developments. Habitats can be created in and on walls and roofs: nature is 3D. Transport infrastructure, shopping centres, business premises, homes, schools, universities, bridges, hospitals can all find ways to provide for nature.

These habitats would attract more wildlife into the built environment† and encourage it to stay. People in West Yorkshire's cities and towns could, as a matter of routine, see more bats in parks, more swifts nesting on buildings, more birds, butterflies and bees, a kingfisher in the local river on the walk to school.

Given that West Yorkshire's towns and cities also contain some of the most deprived areas in England, the region has a unique opportunity to use the built environment and help ecosystem services get into good shape. These include climate regulation, clean air and clean water. It could achieve significant uplift in terms of inequality (such as health) by increasing access to, and time with, nature – both within towns and cities, and the countryside on the doorstep‡. This could align with the Combined Authority's wider work to address accessibility across the region, as outlined in the Local Transport Plan, and consider cultural, social and personal barriers too.

Where there is nature, people work and learn better, stay longer, feel happier, and are healthier. Our towns and cities could, if we wanted, become urban nature reserves – cool, comfortable, healthy, safe and pleasant biodiversity hotspots.

Leeds is one of the greenest 'core cities' in England – when the large areas of farmland and woodland in the outer areas are included. Look only at natural space in city centres, and Leeds ranked fifth worse for 'greenness' out of 68 large towns and cities. The same study also found Bradford West to be one of the 20 constituencies with the lowest area of publicly accessible natural space. This highlights the large variations in access to greenspace within as well as between districts[23].

Built environment and water

Water offers opportunities to work, rest and play. We need clean water to drink and are drawn to water and inspired by water, using it for work and recreation – boats, barges, kayaks, paddleboards, fishing rods, swimming and paddling spots and, in Leeds, a river taxi. Currently, water in urban places is often contaminated from sewerage and drainage from highways activities. Becks are hidden under culverts, away from sight and light. Litter clogs up streams. If local streams are polluted, bathers and paddlers may head to more dangerous sites when it's hot.† Wildlife needs clean water, too. Animals, fungi and plants find food and shelter in wet urban habitats such as ponds, ditches, meadows, rain gardens, wetland parks, boggy areas, becks, streams and rivers. Even the smallest urban spaces offer opportunities to create mini-water habitats – ponds, bird baths and boggy patches, every space is, effectively, a potential urban mini-catchment.

† If Biodiversity Net Gain law (see previous Planning section) works as intended, it will help to bring nature into the built environment.

‡ Greater Manchester has good access to the Peak District, but is more built-up overall. South Yorkshire is near the Peak District, but has less green belt.

23 Wildlife and Countryside Link (2023), Mapping Access to Nature. Report. [Online.] [Accessed 04/09/2025.] Available at: https://www.wcl.org.uk/

† In 2022, all designated bathing water rivers in England were classified as 'Poor'.

For the West Yorkshire Local Nature Recovery strategy, the priorities agreed for the built environment are:

- B1 High-quality, accessible nature in towns and cities
- B2 Blue and green links rich in nature through, between and beyond towns and cities
- B3 Species-rich brownfield and other previously developed sites
- B4 Nature-friendly transport infrastructure
- B5 Nature-friendly buildings and developments

B1 Built environment: High-quality, accessible nature in towns and cities

Parks, gardens, business spaces, urban farms, sports pitches, playing fields, pocket parks, churchyards, cemeteries, orchards… West Yorkshire is peppered with greenspaces. These are great for ecosystem services such flood protection and clean air, as well as health and wellbeing. Some are in better shape than others: wealthier areas tend to be greener but not always more biodiverse. We need more, bigger, better, and joined-up nature, so that villages, towns and cities are significantly more biodiverse and resilient to environmental challenges such as floods and droughts, especially in areas of deprivation with less existing access to nature. Some of the proposed actions are very localised but doing them at scale could have a truly transformational impact, and within a short space of time.

The priority is to fill West Yorkshire's towns and cities with nature, using creative and innovative approaches to create new high-quality habitats and enhancing existing ones near to where people live, for an abundance of environmental and social benefits.

Mapped habitat measure: example (see Habitat Map)

Significantly increase the number of trees and woodlands in urban areas for the long term. Plant and maintain resilient species, particularly in areas where there is less or no existing canopy cover. Prioritise areas of high social deprivation. Look for existing land-use opportunities or areas where land-use change would create 'stepping stones' and 'corridors' to link habitats. Where people use an area in different ways, focus on wider edges and margins, as well as small groups of trees (copses), to recognise and increase the value (social, cultural, recreational etc) of open spaces for communities.

Not mapped habitat measure: example

Increase biodiversity in towns and cities with more, bigger, better, joined-up 'doorstep' habitats so wildlife can find food and water throughout urban spaces. Prioritise bringing nature close to the places that people routinely use, such as surgeries, shops, transport hubs, community and leisure centres, schools and colleges, as requested in particular by young people. Think '3D' - window boxes and green roofs so that buildings and other structures attract plants, invertebrates and birds. Include interpretation to highlight the value of biodiversity friendly areas and how local communities can support wildlife in their neighbourhood.

Supporting measure: example

People want to live in neighbourhoods that are and feel looked after. Promptly address antisocial behaviour and issues such as litter and fly-tipping, which featured strongly in the public survey as significant local environmental concerns. Find ways to explain that nature-friendly spaces are evidence that the quality of their neighbourhood matters. Communicate (face-to-face where possible), explain, put signs up, mow a few edges to indicate deliberate, nature-friendly management.

Click here for the full Table of Priorities and Measures

B2 Built environment: Blue and green links rich in nature through, between and beyond towns and cities

Wildlife needs ribbons of habitat and/or stepping-stones, but blue and green places are often isolated by roads, walls, fences, and developments, leaving animals and plants stranded. We need to fill up gaps in blue-green infrastructure and join up patches of woodland, grassland and wetland so that nature can exploit opportunities to spread. Continuous biodiverse-rich habitats will function much more effectively to help reduce flood risk, improve air quality and keep urban heat islands cool. Nature-rich links will provide more people with more opportunities to encounter nature as they go about their daily lives, especially in areas of deprivation and near to where children and young people spend time, for an abundance of health and wellbeing benefits.

The priority is to join up patches of woodland, grassland, wetland into networks of connected habitat so that nature is free to spread easily. Create new high-quality linking habitat or significantly enhance existing linking habitat, especially where this will also give more people better access to nature. This will create a bigger, better connected nature network that is easier for both nature and people to use.

Mapped habitat measure: example (see Habitat Map)

Create and maintain new habitat corridors and stepping stones to connect and extend existing blue and green places. Use wetlands, ponds, planting, and tree and hedgerow species to 'join the dots' through the urban fringe and into the wider countryside.

Not mapped habitat measure: example

Create blue-green links for animals to move along; add habitat to snickets and ginnels; sustainable urban drainage systems. Think ‘3D’: create habitat on vertical and above-ground linear links such as green walls, fences, bus-stop roofs, hedgerow strips and tree canopies in key places. Do this especially where it could help to join up larger green and blue places such as rivers, canals, ponds, parks or playing fields.

Supporting measure: example

Create more opportunities for more people to connect to nature more often as they go about their daily lives, walking to and from school, work, transport hubs or for leisure etc. Use these opportunities to educate (how pesticides can harm wildlife; why nectar-rich flowering plants are better for pollinators rather than those that have been bred to look attractive; the importance of offering food-rich habitats for wildlife).

Click here for the full Table of Priorities and Measures

B3 Built environment: Species-rich brownfield and other previously developed sites

Places that have been previously developed (brownfield sites, quarries, former industrial sites, railway sidings), have huge potential to play in helping nature to recover. With nature-friendly management, even the most depleted sites could become rich habitats and provide local ecosystem services such as cooling and water retention. We need to enhance, connect and manage these as 'open mosaic' habitats: patches of bare ground with different vegetation. This provides food and shelter for many different animals and plants. The benefits include resilience to climate change, less risk of flood, better air and water quality and social value close to where people live. As stepping stones, these sites make it easier for nature to spread and can be managed to support specific species, such as little ringed plovers, or dense populations of invertebrates, such as pollinators, for more sustainable food production. Their impact will be amplified even further if they are close to, or connected to, other urban 'nodes' (such as gardens, allotments, orchards). Work to create habitats on brownfield and other previously developed sites should start as soon as possible; this is particularly important for mineral sites, which can be active for many years before they are finally restored.

The priority is to create urban nature reserves near to where people live and work, using previously developed sites (such as 'brownfield') to build new homes for wildlife and create more, bigger, better and joined-up green and blue networks in and through towns and cities, benefiting nature and people.

Mapped habitat measure: example (see Habitat Map)

Enhance (rather than replace) existing habitats on some areas of brownfield so they become high-quality, diverse, wildlife-rich spaces or urban parks (taking site allocations into account). This will help species that rely on brownfield habitats, such as the dingy skipper butterfly. Allow significant areas to develop naturally. These will also help to control water during excess rainfall.

Not mapped habitat measure: example

When redeveloping brownfield land, maintain a viable resource of open mosaic habitats, for the species that depend on them. Plan for nature, and plan for mosaic habitats at the site masterplan stage so it functions coherently for wildlife and is a real asset to the development as a whole, rather than assigning the ‘left-over’ bits of land for nature.

Supporting measure: example

Visual appeal matters. Tackle misconceptions around regrowth by reframing natural revegetation as a deliberate act of environmental care. Signage can make people feel welcomed, highlight the need for respect for each other, and educate people about the wildlife in their neighbourhood.

Click here for the full Table of Priorities and Measures

B4 Built environment: Nature-friendly transport infrastructure

Journeys, whether by bus, bike, on foot or by car, are more enticing if they are safe and pleasant: high-quality blue-green infrastructure can help. Vegetation next to roads absorbs pollution and intercepts noise. Segregated pavements and cycle routes are safer, especially for children, and can be designed with green infrastructure. Joining up cycle/wheeling lanes and pedestrian routes is part of the wider West Yorkshire Local Transport Plan vision of an integrated, inclusive and affordable transport network.[24] Developing successional shrubland next to roads, paths and tracks in urban areas will attract plants and animals, help with water quality and encourage more people to travel actively. It will also contribute to national legal targets to cut fine particulate pollution levels, reduce the amount of particulate matter (such as PM2.5) we are exposed to, and halve the health harms caused five damaging air pollutants by 2030.

The priority is for existing and planned infrastructure to support nature's mobility and people's access to nature, by creating new high-quality habitat and significantly enhancing existing habitat along roads, pavements, cycle tracks, bus corridors and railway lines, so that nature, too, can travel easily and safely.

Mapped habitat measure: example (see Habitat Map)

Create and maintain new biodiverse-rich habitats along existing and new highways, cycleways and other transport infrastructure (lines of resilient urban trees, buffer strips of successional scrubland, grassland, heathland, wetlands with open mosaic habitats, sustainable urban drainage systems, nature-rich roundabouts, pollinator corridors, hedgerows alongside paths.) Use native locally appropriate species where possible and aim to make a real contribution to habitats through maximising area and quality. Take account of air quality, accessibility and public safety.

Not mapped habitat measure: example

Transport infrastructure disrupts the movement of invertebrates, amphibians, mammals such as hedgehogs, badgers, foxes, deer and other animals. Reallocate road space to prioritise active travel and public transport and give more space to blue-green infrastructure and the wildlife that needs it. Identify barriers to wildlife in existing and planned infrastructure and add passing points such as green bridges, tunnels, toad-crossings etc. This will de-fragment nature networks, connect habitats and help wildlife to travel and spread easily and safely. Use wider bridge structures where watercourses run under roads, rather than narrow concrete culverts. Maintain at least one side free from human disturbance. Incorporate wildlife-friendly infrastructure design into existing and planned development to avoid killing or injuring animals. For example, retrofit wildlife kerbs to existing gullies, particularly near existing nature sites, and install wildlife kerbs on new gullies as standard.

Supporting measure: example

Make it easy and safe for people of all ages and abilities to get to nearby nature-rich spaces (avoiding areas where there are sensitive/rare species), particularly where busy roads make access difficult for many and impossible for some, in line with the West Yorkshire Vision Zero commitment to eliminating deaths and serious injuries on the road. Focus efforts on improving access for communities with limited access to good-quality nature-rich spaces.

Click here for the full Table of Priorities and Measures

[24] West Yorkshire Combined Authority, (2025), *Local Transport Plan* (Draft for consultation). Report. [Online.] [Accessed 04/09/2025.] Available at: https://www.yourvoice.westyorks-ca.gov.uk/

B5 Built environment: Nature-friendly buildings and developments

Urban structures can be thoughtfully designed or retrofitted to ensure they incorporate the needs of nature. We need to increase and manage these habitats to provide more long-term places for animals to shelter, nest and roost in the urban environment. Many surfaces, corners, edges could provide habitats: green roofs or walls, roundabouts planted for pollinators, hedges instead of fences or walls, swift bricks, bat boxes and bug hotels are some examples. We need to turn as many nooks and crannies into places nature could use.

The priority is to ensure that existing and planned buildings and developments and their grounds seize every opportunity to attract animals and plants to boost biodiversity in towns and cities and support ecosystem services such as flood protection, urban cooling and thriving animals, fungi and plants.

Not mapped habitat measure: example

Safeguard existing nest sites for building-dependent bird species such as swifts and house martins and mitigate all losses. Swift bricks are a 'universal' nest habitat; they can accommodate many varieties of small urban birds such as starlings and house sparrows, as well as swifts and are a permanent maintenance free feature of the building. Retrofit swift boxes on existing buildings. Install swift bricks in all new developments including extensions, in accordance with best practice guidance. Avoid placing them above doors etc, where droppings could cause problems.

Supporting measure: example

Work with anchor institutions such as the NHS and universities and understand how biodiverse-rich buildings and grounds could support the health and wellbeing of their staff, service-users and students, as well as providing other ecosystem services such as shade, water control and clean air.

Click here for the full Table of Priorities and Measures

Built environment: Summary

Species

- Peregrines
- Swifts
- Hedgehogs

Habitats

- Brownfield land
- Roadside verges
- Urban structures

Ecosystem services

- Clean water
- Climate regulation
- Clean air

Benefits

- Health
- Communities
- Nature connectedness

Farmland and agriculture

Description, threats and opportunities

Agriculture is integral to the West Yorkshire landscape: almost half of each of the districts in West Yorkshire[25] are covered in a mixture of intensive, arable and livestock and extensive livestock on the moors and associated grasslands. Farms in the Bradford, Calderdale, and Kirklees districts (i.e. those in the west) are mostly grazing and livestock, while arable farming dominates the districts of Leeds and Wakefield.

Agricultural land provides essential food production and is also a key habitat for many important species, including farmland birds such as tree sparrows, yellowhammers and skylarks, and mammals such as brown hares and harvest mice. Many farmers already support nature in challenging circumstances, and many others would like to do more for nature,[†] and there is no shortage of ideas for nature-friendly farming, from wetlands for breeding wading birds, mosaic habitats, more trees and grazing regime changes to beetle banks, ponds, surveys and piles of material for animals to hibernate in. Livestock allows use of land that is unsuitable for other forms of farming, and sustainable grazing helps to maintain habitats such as heathlands and grasslands.

Historic initiatives encouraged agricultural intensification, including the use of machinery and pesticides, as well as the shift to single-crop systems. This increased the food supply but, in the process, threatened natural habitats and wildlife, which were removed to make way for crops.

Agri-environment and other incentive-based payment schemes can support and encourage farmers and other landowners to protect and enhance the environment while supporting agricultural production, and the adoption of stewardship schemes has, on average, increased across Yorkshire in recent years. Understanding and applying for these schemes can be confusing and time-consuming, and many farmers feel uncertain about the future and what support will be available to help them work with, and for, nature as well as food.

It is vital to balance agricultural practices and ensure that the right processes are used in the right places. The more farmers and landowners there are who see nature as a partner (and nature-based solutions as practical and valuable), the greater the potential positive impact on both individual businesses and the wider environment. It is essential to celebrate and support those leading the way in nature-friendly farming, so that those who own or manage land, and those they interact with, can, together, reverse the decline in biodiversity associated with historic farming practices.

Farms and agriculture, and water

The bees and other invertebrates that pollinate crops need flowers, and flowers need water to develop. Birds eat insects, including pests. A dry spring, which delays flowering, reduces pollinators and increases the risk of pests. Damp patches of land create natural firebreaks and reduce the need for irrigation. As well as needing water to grow food and other crops, agriculture also has a huge role to play in preventing soil, nutrients and animal excrement from entering watercourses. Farms that hold on to more water in the landscape suffer less when it comes to flood and drought, and their businesses are more resilient.

For the West Yorkshire Local Nature Recovery strategy, the priorities agreed for the farms and agriculture are:

- F1 Nature-friendly farming

[25] Yorkshire Wildlife Trust (2025) *Nature in West Yorkshire: Description, threats and opportunities for recovery.*

[†] Please see the report of commissioned engagement undertaken as part of the development of this strategy in the Appendices.

- F2 Species-rich hedges, edges and corners

F1 Farmland and agriculture: Nature-friendly farming

Many farmers have already found ways to let nature take the strain; nature can help reduce the impact of floods or droughts, boost pollinator numbers and support soil health for higher crop yields. They want to find a balance between helping the environment and producing food. With the right information, support and investment, those who own or manage land could help to cut the impacts of agricultural practices on grassland and farmland and make it easier for nature to recover. This supports a key national target to bring at least 60 per cent of England's agricultural soil into sustainable management by 2030. Please see Appendices for the report on the engagement work commissioned for this theme.

The priority is to ensure that farmers and landowners, their families and communities benefit from ecosystem services such as plentiful water, erosion control and thriving animals, fungi and plants, to increase business resilience to climate shocks such as drought and flooding, with farms and farming practices that work for nature, food and people.

Mapped habitat measure: example (see Habitat Map)

Expand and enhance existing priority habitats or create new wetlands on farms and suitable land, supporting biodiversity, water management, and climate resilience, while aligning with productive, sustainable land use. For example, a crop irrigation reservoir, with marginal wetland planting and a dividing dam, will ensure that some water can always be retained in the wetland.

Not mapped habitat measure: example

Encourage new orchards where suitable and improve existing ones; use traditional, local fruit and nut tree varieties. Support agroforestry approaches that generate productive harvests from both trees and surrounding crops or pasture, offering added value and resilience.

Supporting measure: example

Find ways to offer people the chance to get involved in nature-friendly farming – help build drystone walls, re-seed nature edges, build leaky dams etc. Look into opportunities for partners to work together (find volunteers, supply sites, share resources and so on).

Click here for the full Table of Priorities and Measures

F2 Farmland and agriculture: Species-rich hedges, edges and corners

Animals need corridors, tunnels and strips of vegetation to find food, shelter and each other; however the high agricultural productivity in the far east of West Yorkshire has generally left semi-natural habitats more fragmented and smaller here compared to the uplands. Hedgerows and field margins are two important farmland habitats that can help to create a mosaic of habitats and connections across the farmland landscape. Well-managed field margins provide an important refuge for plant species once largely regarded as weeds (such as cornflowers), while providing habitat for small mammals[26]. Longer, wider, high-quality hedgerows will help to connect woodlands to each other and to other habitats such as heathland, grassland and wetlands, maximising biodiversity and landscape-scale connectivity. Buffer strips along rivers and streams support species that live close to water, soak up excess nutrients and prevent livestock from directly accessing watercourses.

The priority is to help the many farms in West Yorkshire link up into more, bigger, better and joined-up species-rich spaces for nature.

Mapped habitat measure: example (see Habitat Map)

Plant new hedgerows using a mix of native shrub and tree species, connecting existing hedgerows and filling gaps where possible. Choose suitable for the soil type and site.

Not mapped habitat measure: example

Drystone walls are important landscape features, especially in the uplands, where it is difficult to establish and maintain hedgerows. Create new habitat by replacing fences and walls with drystone walls. Fill these with rubble to create cavity habitats inside for wildlife such as wrens, voles and stoats, allow water to pass through and maintain the heritage character of the uplands. Use locally available materials that withstand the environment. Repair existing drystone walls.

Supporting measure: example

Use citizen science and technology (such as smartphone apps) to identify, map ancient and species-rich hedgerows, and fragmented patches of woodland that could be connected with hedgerows. Feed data back to experts (West Yorkshire Ecology Service, local expert recorders, wildlife groups, local and national government).

Click here for the full Table of Priorities and Measures

[26] Yorkshire Wildlife Trust (2025) *Nature in West Yorkshire: Description, threats and opportunities for recovery.*

Farmland and agriculture: Summary

Species

- Cornflowers
- Harvest mice
- Voles
- Grey partridge

Habitats

- Hedgerows
- Field margins
- Drystone walls

Ecosystem Services

- Climate regulation
- Clean water
- Flood protection

Benefits

- Food security
- Health
- Economic resilience

Grasslands

Description, threats and opportunities

Species-rich grasslands were once common in Britain, but more than 97 per cent have been lost in less than a century.

The profile of different grasslands reflects the different conditions such as type of soil, altitude, drainage and how the land is (or has been) managed. In West Yorkshire, soils tend to be lime-rich in the east, where they overlie the Magnesian Limestone, and acid to the west where they overlie the sandstones and shales of the Coal Measures, and these extremes support their own specialist species; other wildlife communities flourish on neutral grasslands.[†]

Like the rest of the country, many grasslands here were turned into agriculturally productive grassland and arable land. Sulphur and lime were used to make soil more neutral, while drainage, pesticides, artificial fertilisers and reseeding also reduced biodiversity. The movement from hay-making and grazing in the fields to silage cutting and livestock reared in barns also had a significant impact on nature.

Grasslands that remain in a natural state with no agricultural improvement are 'ancient', and species that have disappeared elsewhere cling on here. 'Priority habitat'[‡] grasslands (those that are particularly important for wildlife) typically exist as small scarce fragments, making them particularly vulnerable. They cover only around 720 hectares (or 0.4 per cent) in total land area in the region.

Despite their size, these remaining highly significant priority grasslands help to support regionally important species such as nationally vulnerable lilac pinkgill fungi. Some places in the South Pennines support rare waxcap fungi that thrive only when conditions are just right – Calderdale is an internationally important area. West Yorkshire therefore has an opportunity to play a leading part on the global environmental stage and inspire local pride.

Grasslands also help to maintain soil health, capture and store carbon, regulate flash floods after heavy rainfall, and reduce the amount of silt being flushed into becks. Both over-managing, and under-managing, publicly owned grassland such as road verges, parks and school playing fields is bad for biodiversity.

Grasslands and water

Water weathers, erodes and breaks down rocks, releasing minerals and organic matter that combine to create unique soil conditions. In the right amounts, it helps to condition the soil and makes it healthy. Grasslands help with water storage (Church Fields in Boston Spa is a flood water attenuation basin with species-rich grassland mix). Grassland also reduces fertiliser, pesticide and silt input into becks and streams.

For the West Yorkshire Local Nature Recovery strategy, the priorities agreed for grasslands are:

- G1 Acid and ancient grasslands rich in species
- G2 Biodiverse Magnesian Limestone habitats
- G3 Ecologically diverse meadows and other neutral grasslands

G1 Grasslands: Acid and ancient grasslands rich in species

The Yorkshire South Pennines is globally significant for rare fungi such as spindles, club and coral fungi, waxcaps, pinkgills, earthtongues and crazed caps. Together, these are known as

[†] It can be difficult to make clear divisions between acid, neutral and calcareous grasslands

[‡] Some grasslands are 'priority habitats' under the UK Biodiversity Action Plan.

CHEGD† fungi. Of the 200 CHEGD fungi species found across Europe, 124 have been recorded in Calderdale[27]. A site with 40 CHEGD species recorded over several years is considered exceptional; one local Calderdale site recorded 74 species in a single day. Two species are endangered and 32 vulnerable to extinction[28], making Calderdale an internationally important area. Many of these fungi thrive in acid grassland, a distinctive and ecologically significant habitat found particularly within West Yorkshire's upland and moorland areas. Lowland heath, with its open areas of gorse, heather, grasses, and supporting animals such as hares, weasels and stoats, adders, black grouse and woodcock, is also ecologically significant.

The priority is to enhance West Yorkshire's diverse acid meadows and pastures and ancient grasslands with rich communities of plants and grassland fungi, some of which are internationally important.

Mapped habitat measure: example (see Habitat Map)

Enhance the biodiversity of existing species-rich grasslands particularly where they support rare or diverse grassland fungal communities that can be of international and national significance.

Supporting measure: example

Celebrate West Yorkshire's international status as a stronghold for rare grassland fungi. Use these as 'flagship' species to encourage public and political awareness and support for wildlife in West Yorkshire generally.

Click here for the full Table of Priorities and Measures

† CHEGD stands for the key fungi groups of conservation importance: spindles, club and coral fungi (Clavarioids), the waxcaps Hygrocybe genus, pinkgills (Entoloma), earthtongues (Geoglossum and relatives), and crazed caps (Dermoloma and relatives).

27 Hindle, Steve (2022), Fantastic fungi of the South Pennines. Article. [Online.] [Accessed 28/10/24]. Available at: https://southpenninespark.org/

28 International Union for the Conservation of Nature, IUCN Red List of Threatened Species. [Online.] [Accessed 28/10/24]. Available at: https://www.iucnredlist.org/

G2 Grasslands: Biodiverse Magnesian Limestone habitats

Many rare and threatened species are found on limestone, with almost half of the Yorkshire Species of Concern associated with limestone habitats. Some of those, such as squinancywort, pasqueflower and macro-moth species, are found mostly in West Yorkshire, particularly on the sliver of Magnesian Limestone that runs east of Leeds and Wakefield. Despite their small size, these remaining highly significant priority grasslands support regionally important species. It is imperative that we conserve what limestone grasslands are already good quality and restore the rest. Focusing conservation efforts on limestone habitats is likely to be particularly beneficial, and West Yorkshire's Magnesian Limestone offers great opportunities to protect, manage and restore nature. Many of the best remaining sites are associated with disused limestone quarries and now support semi-natural calcareous grassland habitat; these could be fully restored to grassland habitats.

The priority is to maximise the potential in West Yorkshire's small area of important Magnesian Limestone (a National Character Area) grasslands for specialist species to thrive.

Mapped habitat measure: example (see Habitat Map)

Enhance the biodiversity of existing species-rich grasslands particularly where they support rare or diverse grassland fungal communities that can be of international and national significance.

Supporting measure: example

Avoid infrastructure works on species-rich grassland wherever possible. If unavoidable, use a minimum working width and restore using crushed Magnesian Limestone (with no - or as little as possible - local soils), and use grassland seed of local provenance. Do not plant trees or scrub in this Priority Habitat.

Click here for the full Table of Priorities and Measures

G3 Grasslands: Ecologically diverse meadows and other neutral grasslands

Neutral grasslands cover soils that are neither acidic nor alkaline. Usually in the lowlands, they host a huge diversity of grasses, herbs and other plants that, in turn, support many invertebrates, reptiles, amphibians, birds and mammals. These grasslands were often used as hay meadows. These days they are found more often in places that are not (or cannot) be used by agriculture – churchyards, verges, riverbanks. It is important to keep these grasslands 'unimproved' by chemicals such as pesticides and herbicides, which can destroy biodiversity. These important grasslands can be created, improved and managed to support specific species and species assemblages; grassland on farmland can support breeding wading birds.

The priority is to enhance neutral grasslands found mostly on Coal Measures (a National Character Area).

Mapped habitat measure: example (see Habitat Map)

Create species-rich grasslands as part of mixed habitat creation and enhanced habitat structure for a variety of locally typical species. Link to population centres with cycleways and footpath networks, ideally away from roads. Including diversification of amenity grasslands, such as playing fields, golf-courses, and equestrian land.

Supporting measure: example

Manage amenity grasslands such as sports pitches, playgrounds and golf courses in a wildlife-friendly way.

Click here for the full Table of Priorities and Measures

Grasslands: Summary

Species

- Wading birds
- Rare fungi
- Adders

Priority habitats

- Lowland calcareous grassland
- Lowland dry acid grassland
- Lowland meadows
- Purple moor grass and rush pastures

Ecosystem services

- Climate regulation
- Plentiful water
- Thriving animals, fungi and plants

Benefits

- Food and resourcing
- Health
- Economic benefits

Trees and woodlands

Description, threats and opportunities

Trees support a huge variety of life; a single oak can provide food and/or shelter for more than 2,300 different species of animals, fungi and plants[29]. Trees absorb pollution, filter water and intercept rainfall for cleaner air and water and reduced flood risk. In towns and cities, trees reduce traffic noise. They mitigate the impact of urban 'heat islands', where roads and buildings cause towns and cities to become hotter than rural areas, causing discomfort and distress in hot weather, preventing people from being able to go about their daily lives and increasing the likelihood of heat-related illness and death.

Trees matter to people: tree-planting activities unite volunteers, communities gather to plant and manage gardens and orchards, and the model of community ownership of woodlands is of increasing interest.

Woodland is a distinct type of habitat characterised by the dominance of trees, with at least 20 per cent canopy cover. It can include ponds, grassy and heathery edges, rides, and other associated habitats[†]. About eight per cent of the region is woodland, which is below the national average of 10 per cent across England.

Canopy cover is the percentage of ground covered by branches and foliage of trees and shrubs[‡]. This includes individual trees or small groups of trees, as well bigger woodlands. The government set a legally binding target to increase the amount of land across England that is covered by canopy to 16.5 per cent (in West Yorkshire that translates to around 360 square kilometres of cover compared with current coverage of around 319 square kilometres) by 2050.[30] Overall, Leeds district enjoys the highest coverage (17 per cent). Calderdale has the lowest (12 per cent[31]), due partly to their fundamentally different landscapes. To meet the target, West Yorkshire needs additional canopy cover of roughly the area of Huddersfield.

The contrast between rural and urban canopy cover in West Yorkshire is stark. The amount of woodland in the city of Leeds is just four per cent of the canopy cover across the whole of the Leeds district, and other West Yorkshire cities fare even worse. For West Yorkshire as a whole, where nearly nine out of 10 people live in towns and cities, the lack of urban canopy cover is particularly noteworthy.

There are several different kinds of woodland in West Yorkshire.

- Most (73 per cent) of woodland is West Yorkshire is deciduous (trees that shed leaves annually), often along steep slopes that follow watercourses, and on low-lying ground within the river valleys, is the most widely found. Some is in towns and cities, providing greenspaces for local communities, along with health and wellbeing benefits, cooling and better air quality.
- There are also some highly significant areas of 'long-established woodland' within – deciduous woodlands that have been present and wooded continuously since at least 1893.

[29] Action Oak, *Why UK oaks are so special*. Webpage. [Online.] [Accessed 03/09/25]. Available at: https://www.actionoak.org

[†] For the full technical definition of 'woodland', see Environment Act.

[‡] Woodland (an area dominated by trees but where there may be open canopy to let the light in) covers around eight per cent of West Yorkshire. This is below the average coverage across England of 10 per cent.

[30] Department for Environment, Food and Rural Affairs (2023) *Environmental Improvement Plan 2023*. Report to UK Government. [Online.] [Accessed 04/09/2025.] Available at: https://www.gov.uk/government/publications/

[31] White Rose Forest (2021) *Planting For Our Future: White Rose Forest Action Plan 2021-2025*. Strategy document. [Online.] [Accessed 04/09/2025]. Available at: https://whiteroseforest.org/

- Some long-established woodland qualifies as 'ancient' woodland – wooded continuously since at least 1600. Ancient woodland covers around 2.4 per cent of West Yorkshire†, higher than the average coverage of 1.6 per cent across all of Yorkshire, but marginally below the UK average coverage of 2.5 per cent. The most extensive areas of ancient woodland in West Yorkshire are to the south and east of Huddersfield in Kirklees and around Hebden Bridge on the upper stretches of the River Calder.
- There are some plantations on ancient woodland (PAWS).
- Conifer and mixed conifers comprise 12.6 per cent of woodlands in West Yorkshire. Managed well, these can support nature recovery for species such as red squirrels and help with natural flood management, potentially helping to reduce peak flows in areas that flood.
- The areas of wood pasture and parkland within West Yorkshire are also of regional and national importance.
- West Yorkshire also has some temperate (Atlantic) rainforest, a rare habitat of global importance that often supports significant concentrations of oceanic lichens, mosses, liverworts, and lichens. This is thought to be even more threatened than its tropical counterpart, with small fragments in the upper Calder valley[32].
- The region also has areas classed as woodland habitat outside of the native priority habitats and irreplaceable woodlands, including areas of young trees, assumed woodland, felled areas, and conifer woodlands.

For wildlife, ecological quality also matters, and substantial areas of West Yorkshire's woodlands are already designated as important for nature. They include the clough valleys of the South Pennine Moors, Shipley Glen (Bradford, Meanwood Valley and Hetchel Wood (Leeds), Hardcastle Crags (Calderdale), Honley Wood (Kirklees) and Seckar Wood (Wakefield). There are pockets of ancient woodland‡ and smaller, dispersed sites such as at Hebden Bridge and Middleton Woods support vital habitats and wildlife.

Each of these woodlands can support nature if managed sustainably and with long-term resilience in mind; trees can generate sustainable woodland products and timber, and woodlands can be productive landscapes, comparable to the farmed environment. According to the Forestry Commission, around 62 per cent of all woodland in West Yorkshire is unmanaged, and so there is a significant opportunity to identify opportunities to manage woodland better for biodiversity and wider benefits. (The White Rose Forest has a target to increase the percentage of sustainably managed woodland from 62 per cent to 70 per cent by 2050.)

Both the 2021 Environment Act and the Environment Improvement Plan include targets for increasing tree and woodland cover, and local nature recovery strategies should identify opportunities to expand areas of woodland and trees outside woodland where this will benefit biodiversity and other environmental outcomes. Tree-planting and woodland creation (including natural colonisation, supported by sustainable herbivore management) needs to follow the 'right tree, right place' approach and be in line with current government guidance, regulations and targets.

To understand which species and types of woodland are most resilient to climate change – and how species composition might naturally shift – we need to examine woodlands around two degrees of latitude south of West Yorkshire; this can help us to understand which mix of tree species will be most suitable for the region in the future.

† This figure is derived from the revised Ancient Woodland Inventory mapping for West Yorkshire. The Ancient Woodland Inventory update has not yet been completed for all of Yorkshire or the UK.

32 Lost Rainforests of Britain (2022) Public create map of Britain's Lost Rainforests. Interactive map. [Online.] [Accessed 04/09/24]. Available at: https://lostrainforestsofbritain.org/

‡ 'Ancient woodland' refers to woods that have been continuously present since 1600AD.

Given West Yorkshire's high urban density profile, this strategy also uses the Woodland Trust's Tree Equity Score to ensure that actions for trees and woodlands include communities with less access to nature.

Partners such as the White Rose Forest (WRF), the Forestry Commission and the Woodland Trust have distinct strengths and remits and work together to increase trees and woodlands across West Yorkshire. The ongoing work by the White Rose Forest† and its partners has the potential to increase average canopy cover across North and West Yorkshire from 11 per cent to 19 per cent by 2050, helping to meet the national target of increasing tree and woodland cover to 16.5 per cent in England by 2050[33]. This presents a major opportunity to expand both rural and urban tree cover in West Yorkshire. As well as helping species, this work will also mitigate the impacts of urbanisation and climate change. The WRF's Green Streets project aims to plant more trees along urban roads for green, healthy, cool neighbourhoods.

Trees, woodlands and water

The way that trees and shrubs grow reflects and shapes how water behaves. Those that live next to waterfalls and craggy streams such as clough woodlands need to be able to cling to steep-sided valleys with fast-flowing water. In flatter areas, where water moves more slowly, trees grow as 'wet woodlands' with their own humid micro-climates. Tree cover in urban areas helps with sustainable urban drainage, which slows water run-off. The roots of every tree and shrub help to anchor the soil; water settles, conditions the soil and forms a multitude of tiny pools and mini wetlands. Where there are trees and shrubs, water lingers, instead of rushing through, so trees and shrubs reduce erosion and flood risk. This is particularly relevant to West Yorkshire, given that around four per cent of the residential properties fall within a flood risk zone, a figure that rises to more than six per cent in Calderdale[34].

For the West Yorkshire Local Nature Recovery strategy, the priorities agreed for trees and woodlands are:

- T1 Nature-rich ancient and veteran trees, and ancient woodlands
- T2 Other trees and woodland full of wildlife
- T3 Biodiverse wood pasture and historic parkland

† The White Rose Forest is one of four northern community forests that aim to increase tree and woodland cover throughout the north Together, these community forests will form the Northern Forest, which will stretch from Merseyside across Manchester and Yorkshire. The White Rose Forest has outlined in its Strategic Plan (2025-2050) how it will reach (and potentially exceed) its canopy target.

[33] Department for Environment, Food and Rural Affairs (2023) *Environmental Improvement Plan 2023*. [Online.] [Accessed 04/09/2025.] Report to UK Government. Available at: https://www.gov.uk/government/publications/

[34] West Yorkshire Combined Authority (2025), *State of the Region 2024/25*. Report to West Yorkshire Combined Authority. [Online.] [Accessed 02/08/2024]. Available at: https://www.westyorks-ca.gov.uk/

T1 Nature-rich ancient and veteran trees, and ancient woodlands

Areas that have been continuously wooded for hundreds of years develop rich, often specialist, communities of plants, fungi and invertebrates, including rare or threatened species; they shelter everything from beetles, fungi and lichens to moths, bees and spiders. As dead wood decays, invertebrates and specialist fungi feed birds, amphibians and mammals. Ancient and veteran trees are keystone structures that support unique microhabitats – genetic banks that support healthier soil ecosystems than other woodlands. They capture and store carbon, clean the air and regulate water.

Woodlands close to each other may differ significantly in terms of their wildlife, partly as a result of historic human activity (making charcoal, for example). Actively managing a wood, such as through coppicing, helps to ensure its long-term health and value, both economically and ecologically.

Trees matter to people and wildlife, especially those that are gnarled and ancient ('veteran'); local monuments that are often irreplaceable, historically, materially and culturally. Their biodiversity value, along with their meaning, cannot be overstated.

The priority is to maximise opportunities to unlock the significant biodiversity and cultural value of irreplaceable, ancient, veteran and otherwise notable trees, particularly existing mature urban trees and small ancient woodlands, and ensure these trees are protected and well-managed to facilitate this.

Mapped habitat measure: example (see Habitat Map)

Create new high-quality wooded habitats to buffer and connect existing ancient woodlands and ancient/veteran trees. Use a combination of natural colonisation and planting resilient species.

Not mapped habitat measure: example

Plant trees (especially street trees) and shrubs for natural flood management for streets, driveways and gardens. Do this particularly in flood-prone areas or those with 'over-stretched' sewage treatment works (in consultation with bodies such as the Environment Agency and Yorkshire Water). Plant trees and shrubs in areas with a priority 'tree equity score' (Woodland Trust) to ensure they will have the most impact and help to increase access to nature. Add to planning policies.

Supporting measure: example

Safeguard and celebrate ancient woodland heritage, and West Yorkshire's old, iconic and otherwise important trees, for their cultural as well as biological value. Increase awareness about the genetic and biodiversity value of urban trees, particularly older, long-lived trees, and the risks of losing these. Create stories and case studies around ancient woodlands to build a wider narrative and express urgency for action. Increase awareness about the damage done to soils through inappropriate recreational activities and car-parking.

Click here for the full Table of Priorities and Measures

T2 Trees and woodlands: Other trees and woodland full of wildlife

Trees in orchards, street trees, allotments, parks and gardens, particularly existing mature urban trees and small woodlands, all contribute to the green canopy in villages, towns and cities and offer great environmental and social value. They provide shade, biodiversity and above-ground habitat connectivity. They manage carbon, water and stabilise soil, connect people with the seasons, food systems and wildlife, replace lost trees, supply sustainable domestic woodland products and offer aesthetic and cultural value. The White Rose Forest supports planting that maximises the benefits to communities and focuses on those areas where the health and investment benefits are likely to be greatest[35]. Increasing tree cover across West Yorkshire will play an integral role in mitigating impacts of climate change, as trees help to sequester atmospheric carbon, improve air and water quality, absorb pollutants and runoff, and help reduce the risk of flood.

The priority is significantly to increase canopy cover and improve all woodland types to support nature recovery at landscape scale across West Yorkshire and beyond to support plants, animals and fungi, manage flood risk, mitigate the impact of climate change and create happier, healthier places for all of us.

Mapped habitat measure: example (see Habitat Map)

Extend and connect tree and woodland cover across the White Rose Forest area in West Yorkshire to contribute to base target of 16.5% and stretched target of 18.5% by 2050 using 'right tree, right place' principles. Do independent ecological assessments to identify any conflicts with other habitat types and check the suitability of species. Seek professional advice to help you do this (from the Forestry Commission, White Rose Forest or private sector woodland/forestry agents).

Not mapped habitat measure: example

If you have a garden or other private land, plant resilient shrubs and hedgerows (trees is the space if big enough), taking current and predicted climate change into account. Enhance biodiversity of existing hedgerows and other garden habitats. Include trees in hedges that can be managed and nurtured into standard trees for structural diversity. Choose species that will not grow too big and need to be removed. Support may be available from organisations in your area.

Supporting measure: example

Maintain good footpath networks to help reduce the impact of human activity on sensitive areas.

Click here for the full Table of Priorities and Measures

35 White Rose Forest (2021) Planting For Our Future: White Rose Forest Action Plan 2021-2025. Strategy document. [Online.] [Accessed 04/09/2025]. Available at: https://whiteroseforest.org/

T3 Trees and woodlands: Biodiverse wood pasture and historic parkland

From much-loved local parks to grand country estates, people often interact with nature through heritage: archaeology, architecture, beauty, views, history, tourism, culture and landscape. These existing deep bonds with the past, and a sense of passing heritage to future generations, can serve as springboards for nature recovery. Wood pasture and parkland priority habitat covers around one per cent of West Yorkshire, of which almost 300 hectares is irreplaceable ancient wood pasture and parkland. Large grassland areas of historic parkland on sites of cultural importance, such as Nostell Priory, Kirkstall Abbey and Shibden Hall, have developed from traditional low-intensity livestock grazing and designed for a mosaic of habitats, from dense groves and open grassland spaces to scattered ancient trees that shelter many species. Managed well, wood pasture and parkland habitats help with climate resilience and biodiversity and encourage engagement with nature recovery. Sites include Bramham Park, Bretton Park and Harewood House estates, the latter two supporting a high number of ancient and veteran trees listed on the Woodland Trust Ancient Tree Inventory.

The priority is to conserve and improve large grassland areas of wood pasture and historic parkland on sites of cultural importance for benefits ranging from biodiversity and leisure to sustainable food production, leisure, tourism and culture.

Mapped habitat measure: example (see Habitat Map)

Create new resilient wood pasture, focusing on restoring former sites and /or extending existing woodpasture sites. Look for suitable sites next to mature/ancient woodland to get maximum benefits from proximity to ancient, veteran and over-mature trees.

Not mapped habitat measure: example

Create biodiverse scrubland, including through amending grazing regimes, specific planting, and natural regeneration.

Supporting measure: example

Use existing historic and cultural 'gateways' to relationships with nature and maximise support for habitat creation/enhancement efforts.

Click here for the full Table of Priorities and Measures

Trees and woodlands: Summary

Species

- Fungi
- Bees
- Beetles

Priority habitats

- Deciduous woodland
- Traditional orchard
- Wood pasture and parkland†

Irreplaceable habitats

- Ancient woodland
- Ancient and veteran trees
- Ancient wood pasture

Ecosystem services

- Climate regulation
- Flood protection
- Erosion control

Benefits

- Health
- Heritage
- Economic – timber/tourism

† Included here but not on the Priority Habitats Inventory

Uplands

Description, threats and opportunities

The sweeping moorland landscapes of the South Pennines, including a small part of the Peak District National Park that falls in West Yorkshire, support ecologically sensitive habitats. Blanket bog spans more than 12,600 hectares – around 18 per cent of the blanket bog in Yorkshire. Ecologically functional blanket bog can hold carbon and water, protecting both climate and lowland communities.

These uplands support populations of an internationally important assemblage of breeding moorland and moorland fringe birds. Rare birds such as merlins and short-eared owls live across the South Pennines moors, which act as a critical green corridor.

The area also hosts the most diverse and extensive examples of upland plant communities in West Yorkshire, with a significant coverage of blanket bog, upland heath, upland acid woodland and acid grassland. As a result, these upland areas of West Yorkshire are particularly important for biodiversity. Sphagnum mosses are particularly important because they can absorb and hold large amounts of water, helping peat bogs to form. The uplands also host flowers such as chickweed wintergreen and pale forget-me-not, alongside species such as marsh fern and water violet.

These iconic uplands, with their windswept moors, steep waterfalls and glorious views, are some of the region's most accessible and culturally significant wild places, inspiring creativity from the writing of the Brontë sisters in the nineteenth century to the Wild Uplands sculpture project of Bradford City of Culture 2025.

Evidence of human activity is inscribed, sometimes literally, across these uplands. They are internationally important for Mesolithic (10,000-4,000 BC) archaeological remains such as flint scatters and temporary hunter-gather camp sites. The puzzling cup-and-ring rock art in the uplands date from more recent Neolithic times (4,000-2,500 BC[36]), and hill-walkers now follow the packhorse trails once used to transport lime from North Yorkshire and Lancashire to the sandstone quarries.

Many upland areas already receive legal protections for their environmental significance. Large sections are degraded, impacted by multiple pressures such as drainage, air pollution, burning, overgrazing, afforestation, footfall, recreational activities and climate change. This disrupts the hydrology of the landscape – that is, how water moves through the soil and rocks, where it soaks down, oozes up, how it evaporates, and how it flows over land. Peatlands have eroded, releasing carbon into the atmosphere, which further heats the planet. Native upland birds, such as the twite, are at risk of extinction, and invasive Molinia grasses colonise eroded areas.

The key to the health of upland habitats is restoring its hydrology and extending the coverage of other habitats. This would grant multiple benefits. It will reduce the risk of flood, wildfire, improve water quality, increase resilience to drought and heat and reduce carbon emissions, as well as preserve and expand habitats to support biodiversity. Restoration efforts are already underway thanks to groups such as Moors for the Future and Yorkshire Peat Partnerships. Peat continues to dry out and oxidise for years after remedial action has been taken, and so the uplands need continued investment.

Towns such as Slaithwaite, Meltham and Hebden Bridge nestle between the hills, gateways to much-loved places. The uplands are however ecologically delicate and nationally important and will stay that way only if humans enjoy them sensitively, to minimise environmental impacts. West Yorkshire can ensure that spending time in the uplands (as well as being good for health and wellbeing) encourages people to look after them.

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[36] Spencer, Ray (2016) *Cup-And-Ring Marked Rocks on Rivock Edge, Near Riddlesden, West Yorkshire*. Webpage. [Online.] [Accessed 04/09/2025.] Available at: https://thejournalofantiquities.com

Uplands and water

The inter-connected water systems of the uplands help to keep peatlands in good condition, keeping harmful carbon locked up. The peatlands are fed mostly by rainwater, which interacts with the landscape and vegetation to create bogs, mires and flushes, each with its own habitats. Water from the peat bogs then soaks into the groundwater system. When heavy rain falls, the uplands will, if they are in good ecological condition, be able to hold onto much more water, release it in a controlled way, reducing the risk of flash floods, lowering the risk of fire and improving drinking water quality.

For the West Yorkshire Local Nature Recovery strategy, the priorities agreed for uplands are:

- U1 High-quality peatlands
- U2 Other upland and moorland habitats full of wildlife
- U3 Nature-rich upland hay meadows

U1 Uplands: High-quality peatlands

Peat is the fragile surface layer of organic matter that is so water-logged it can't completely decompose. It retains twice as much carbon as rainforests, and it covers 12,600 hectares, or 6.2 per cent of West Yorkshire. While much of the West Yorkshire area of the South Pennines is deep peat in various states of condition, there is some shallow peat too, which also needs attention. (‘Blanket bog’ refers to large areas with a continuous layer of peat.) Over the past decades, many peatlands have been drained for agriculture. As peat dries out and degrades, the organic matter decomposes and harmful carbon escapes. The landscape is less able to hold rainwater, increasing the risk of flooding. West Yorkshire’s peatlands need help to recover, to boost biodiversity, improve water quality, increase carbon storage, protect the uplands against wildfires and fulfil the potential of peatlands to respond in multiple ways to climate change.

The priority is to restore peatlands in West Yorkshire to full health, boosting biodiversity to maximise their ability to store carbon, retain water and control fire.

Mapped habitat measure: example (see Habitat Map)

Fully restore the hydrology of all peatlands so West Yorkshire's uplands can hold more water. Revive peatlands back to active and healthy bog ecosystems. Block drains, ditches, grips and gullies, build bunds and dams. This will help to restore permanent high-water tables, prevent soil loss, help more peat to form and improve landscape resilience to wildfires. Ensure that actions to re-wet peat consider the landscape-scale hydrological needs of the wider peatlands. Add 'lag' habitat using *Phragmites australis* where peat is being damaged by erosion at the margins of peatlands. Use the Decision Support Framework for Peatland Protection to ensure bog restoration in areas that have been previously planted with trees is carefully targeted.

Supporting measure: example

Engage people in peatland restoration. Citizen science activities such as *Sphagnum* planting, arts and culture, and education will help to build a wider community that champions this internationally important West Yorkshire habitat. Volunteers can help to monitor the activities and impacts of people pressure on the moors. Use funds from housing development to undertake targeted remediation measures.

Click here for the full Table of Priorities and Measures

U2 Uplands: Other upland and moorland habitats full of wildlife

West Yorkshire's open, hilly upland moorland landscapes include many different habitats. This includes heathland, with low-growing vegetation such as heather and bilberry, acid grassland, and mixed deciduous woodlands of ash, rowan, oak and other trees where lichens, ramsoms, ferns and mosses can flourish. Here, abandoned limekilns tell the story of the ongoing importance of these woodlands to people. Then there are the bogs, mires and flushes that receive water from several directions (water sits at the ground surface, fed by the water tables below and the rain above). They ooze water, creating swampy habitats, with mats of mosses and liverworts that provide food and shelter to many invertebrates such as craneflies, beetles and spiders, supplying wheatears, owls, ring ouzels and other upland birds with a rich source of food, some of whom nest among rocky outcrops. Here, different animals, fungi and plants can, if they have the right mosaics of habitats, develop strong, resilient networks that help the region withstand and recover from environmental shocks such as heavy rain, fire and drought.

The priority is to create more, bigger, better and joined-up spaces for nature in moorland and upland habitats, helping them more effectively to store carbon, retain water and control fire.

Mapped habitat measure: example (see Habitat Map)

Help new healthy mosaics of upland habitats to form: encourage existing ones (peatlands, heathlands, clough woodlands, ancient grasslands and upland hay meadows) to extend and connect.

Not mapped habitat measure: example

Significantly boost the biodiversity of all existing upland habitats. Do this particularly where they already buffer and connect existing blanket bog. Create conditions to support the different needs of upland and wetland species such as black grouse, short-eared owls, curlews, lapwings, golden plovers and hen harriers.

Supporting measure: example

Some sites and species are extremely sensitive to human disturbance. Recreational pressure from walkers, cyclists and horse-riders can impede wider efforts to boost biodiversity, restore upland habitats and help achieve healthy ecosystem services. Increase the appeal of areas that are beautiful and biodiverse but less sensitive, to encourage people to go there instead: e.g. good footpaths, clear signs, information boards, prompts to notice nature etc. People want to know how to enjoy the uplands without inadvertently harming the places they love. Provide a more joined-up strategy across the local authorities and managers for the South Pennines to improve guidance to visitors to the area.

Click here for the full Table of Priorities and Measures

U3 Uplands: Nature-rich upland hay meadows

As far as English countrysides go, it may not get more culturally iconic than upland hay meadows: rare, species-rich grasslands. When managed using traditional, non-intensive techniques such as mid-summer hay-cutting followed by grazing, these provide food for livestock in winter and teem with wildlife in the summer; invertebrates, bats and other mammals, fungi and birds all find refuge here. Hay meadows, full of plants such as sweet vernal-grass, pignut, great burnet and lady's mantle, also help to slow water flow and increase the productivity of the land. These rare and ecologically important habitats need careful restoration and management to ensure their survival.

The priority is to create new and improve the species richness of existing upland hay meadows, reducing fragmentation so that species such as curlew and grey partridge can thrive.

Mapped habitat measure: example (see Habitat Map)

Create new species-rich upland hay meadows; buffer, connect and extend existing ones where suitable so that birds such as curlews, grey partridges, invertebrates such as bees and butterflies, and specialist plants can thrive.

Supporting measure: example

Engage with farm advisors, farmers, landowners etc to understand their interest in identifying and preserving upland hay meadows. Set up farmer network groups to share enthusiasm, experience, livestock, machinery etc. Capture knowledge and experience from traditional and progressive (not necessarily mutually exclusive) farmers before it is lost.

Click here for the full Table of Priorities and Measures

Uplands: Summary

Irreplaceable habitats

- Blanket bog
- Lowland fen

Priority habitats

- Lowland heathland
- Upland flushes, fens and swamps
- Upland heathland
- Upland hay meadow

Species

- Sphagnum mosses
- Curlew
- Lapwing
- Snipe
- Wheatear
- Sundew

Ecosystem services

- Plentiful water
- Clean water
- Clean air

Benefits

- Nature connectedness
- Community resilience
- Health

Water

Description, threats and opportunities (see also 'Big Blue Thread' section above)

Water provides homes for countless species. From fish, frogs, dragonflies, butterflies and beetles to water voles, otters, micro-organisms, kingfishers, herons, spiders, newts. They all need healthy, clean, free-flowing rivers, ponds, lakes and ditches.

Main rivers in West Yorkshire are the Wharfe, the Aire, the Calder, the Colne, the Dearne, the Holme, and the Went. They flow and merge mostly eastwards, carving out distinctive profiles, from the steep, plunging valleys in the west to the wider river basins of the east. Eventually, they drain into the Humber Estuary. These major river corridors played a significant role in driving the industrial success of the area. Well into the 20th century, many watercourses were diverted, straightened, canalised, over-deepened and polluted as industry and settlements expanded. Historic efforts to control rivers used structures such as weirs to divert water to power watermills or for electricity, and rivers were artificially straightened to make their navigation easier to transport raw materials and goods. Locks, weirs and sluices were added, and reservoirs also stored water and acted as recreational attractions.

The slow-moving canals (and the reservoirs that help to feed them) such as the Leeds-Liverpool Canal and the Calder and Hebble Navigation lie alongside the faster-flowing rivers. They add to the diversity of wetland structures, each providing a distinct opportunity for different aquatic species. Alongside the rivers, streams and canals, huge swathes of river valley wetland and riparian habitats have equally been lost after being not only 'improved' for agriculture but also drained to support urbanisation and to power widespread industrial expansion[37]. Land here was also used for tipping colliery waste and landfilling. Other mineral extraction activities included sand and gravel, and opencast coal mining, particularly significant in the Wakefield district.

Together, these industrial and agricultural modifications have had substantial and wide-reaching impacts:

- Biodiversity within water. Modifications inhibit the downstream movement of sediments and lead to the loss of natural riverbanks and the habitats they support. These reduce habitat complexity, availability, and connectivity for many freshwater and riparian species such as otters, kingfishers, and fish such as Atlantic salmon, which ordinarily migrate into upstream areas.
- Biodiversity on land near water. The extensive loss and alteration of wetland habitats have had catastrophic impacts on many species that rely on functional wetland ecosystems.
- Flood. We haven't always taken a holistic approach to our attempts to manage water and remove it from where it's not wanted. Historic approaches that tried to constrain waterways may have given short-term flood-risk reduction benefits to areas along defined reaches of river but, in the longer term, water often reacts badly to such attempts at control. Unable to use the floodplains they formed with, rivers carry their surplus water and flood sediments elsewhere – including into our towns and cities.
- Water quality. This is an issue of great public concern and a key government target: litter pollution, agricultural run-off, sewage overflows, urban run-off and drainage from construction, veterinary treatments (such as flea treatments), all affect leisure water quality. Polluted water cannot support healthy aquatic life and threatens activities such as bathing, paddling and kayaking.

[37] Wakefield Metropolitan District Council, West Yorkshire Archaeology Advisory Service and Historic England (2017), *Bradford Historic Landscape Characterisation Final Report.* Report to Historic England. [Online.] [Accessed 29/10/2024.] Available at: https://www.wyjs.org.uk/

- Farming. Shallow scrapes can hold temporary pools of water. Where they were filled in and extensive field drainage installed, this has often led to water being removed from the land faster. This results in larger volumes of water entering our rivers more quickly, increasing flood risks. These same management practices can also mean that when rain is less plentiful the soil dries out faster and so there is more need for irrigation and higher risk of crop failure.

Despite considerable improvements to water quality in recent decades, watercourses and wetlands remain heavily impacted by human modifications and influences. Both current and former industrial corridors therefore present opportunities to enrich the natural environment.

Many ongoing efforts aim to restore natural floodplains and hydrology across West Yorkshire. Among others, the Environment Agency, Aire Rivers Trust, Calder and Colne Rivers Trust, and Yorkshire Dales Rivers Trust are all involved in previous and ongoing river, canal, and wetland restoration work. The Great Yorkshire Rivers project, a catchment-based approach, aims to tackle barriers to fish[†]. Water could also offer options to get freight back onto waterways in a way that mitigates environmental impact.

West Yorkshire's cities and towns grew around water, as maps and place names show. There's Bradford (from the Old English, 'broad ford', which refers to a crossing place on Bradford Beck; Calderdale, named for the river Calder, and Leeds, from the Celtic word Lādenses[‡] – 'people living by the strongly flowing river'.

Future flood risk mitigation actions need to be more holistic and include nature-based solutions. Any new habitat creation or enhancement should consider water resilience as a matter of routine to avoid the risk of exacerbating issues such as flood, water quality and drought. This will support national legal targets to reduce nutrient, phosphorus, and sediment pollution from agriculture and wastewater and restore 75 per cent of water bodies to good ecological status.

For the West Yorkshire Local Nature Recovery strategy, the priorities agreed for water are:

- W1 Nature-friendly habitats next to and between water bodies
- W2 Aquatic habitats full of wildlife
- W3 Biodiverse catchments and floodplains
- W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows

W1 Water: Nature-friendly habitats next to and between water bodies

Shrubs, trees and other plants that grow next to, along or near flowing water (rivers, streams and canals) and static water (ponds, lakes scrapes, pools, ditches) play a key role in natural flood management, water quality and disease resistance. They also form corridors of habitats for species such as kingfishers and toads and offer food and shelter for otters, birds and bats. These strips of habitat also act as a protective buffer between the river and the fields beyond, preventing polluting run-off and reducing the fine sediments and run-off that get into water. This improves habitats, stabilises riverbanks, reduces flood risk, improves water quality and increases species diversity. Trees next to rivers also provide shade for livestock and, when they overhang the water, shade and food for fish and other aquatic species. Their shade also keeps water temperatures down, generating more widespread cooling effects in high temperatures. Creating and restoring wetland features in this riparian zone and generally diversifying the vegetation here also contributes to healthy watercourses.

[†] The Great Yorkshire Rivers project is a partnership between Yorkshire Water, The Rivers Trust and the Environment Agency
[‡] Later, this became Loidis, then Leeds.

The priority is to ensure that the areas next to both flowing (rivers, streams and canals) and static water bodies (ponds and lakes) are high-quality wildlife habitats, to boost biodiversity, reduce the amount of nutrient and sediment pollution that gets into water, control, manage and restore natural water functions and create more, bigger, better and joined-up spaces for nature.

Mapped habitat measure: example (see Habitat Map)

Create new, wider, high-quality habitat corridors and 'stepping stones' along canals and standing water. Soft banks provide good links to marginal woodlands.

Not mapped habitat measure: example

Protect all water courses from further encroachment by development and sediment load from soil so that floodplains can function. Significantly enhance existing near-natural habitat meeting the edge of the water ('riparian') and surrounding terrestrial habitats along natural linear water bodies such as becks, streams, rivers and cloughs. Allow natural regeneration.

Supporting measure: example

Engage proactively with landowners and farm groups to create and/or enhance habitat along and between rivers, streams, becks, canals, ponds, lakes, scrapes etc.

Click here for the full Table of Priorities and Measures

W2 Water: Aquatic habitats full of wildlife

Every pond, river, bog, lagoon, mire, waterfall, beck and burble has the potential to teem with life. When in good shape, water bodies support intricate, complex aquatic wildlife communities that generate critical water-based ecosystem services for multiple benefits. To achieve this, nature recovery needs to address three main factors. First, historic structures such as weirs and canalised channels. Second, pollution – both point-source (comes out of pipes and ditches) and diffuse (from field muckspreading, silt from run-off, phosphate and nitrogen, and persistent pesticides). And third, water bodies that have been filled in, either deliberately or through neglect. All these need to be addressed to generate clean, clear water, help with climate resilience and flood mitigation, provide amenity, and support an abundance of different aquatic species.

The priority is to boost significantly the biodiversity within rivers and other water bodies by ensuring watercourses attract and support an abundance of aquatic species, and to support leisure activities where appropriate.

Mapped habitat measure: example (see Habitat Map)

Consider removing weirs and other structures that hide historic natural features, where appropriate and where this will not have negative unintended consequences (such as on water behaviour patterns, invasive species spread). This will reinstate natural processes, create high-quality aquatic and floodplain habitats and improve linear connectivity for fish and other aquatic species. This would help to support a range of fish species such as Atlantic salmon and brown trout.

Not mapped habitat measure: example

Embed biosecurity/biofouling measures for both public and operators (e.g. in contracts for services, washdown stations at key leisure sites; good signage). Control and monitor invasive species in the water (such as floating pennywort, signal crayfish) to enhance biodiversity where other habitat action/barrier removal is taking place, as long as doing so will be effective (i.e., it will increase the likelihood of the area becoming important for biodiversity in the future), without being undermined by lack of action elsewhere (e.g. invasive species from further upstream travelling into a recently cleared site). These actions are essential in supporting vulnerable species such as white-clawed crayfish. See also 'Ecological balance' priority.

Supporting measure: example

Many people are deeply concerned about river pollution. Build on this existing momentum to highlight the many other actions that can help keep rivers clean. Flea/worm treatments for cats and dogs, for example, contain pesticides that also harm dragonflies, damselflies, mayflies, snails, pond skaters and other aquatic invertebrates (and their predators). Use signs so people understand why they should keep dogs out of water bodies. Involve people and groups wherever possible in initiatives such as river-health citizen science, volunteering etc. Share case studies of successful clean-ups.

Click here for the full Table of Priorities and Measures

W3 Water: Biodiverse catchments and floodplains

Rivers that are connected to their floodplains allow the wider landscape to hold more water, more often, for longer. If there's heavy rain, and the river bursts its banks, the floodplain steps into action, mopping up and holding excess water. Historic efforts to straighten rivers disrupted this natural back-up flood management. Re-wiggling streams will help them to reconnect to their floodplain meadows and re-establish the sideways connectivity of watercourses. The wider landscape will hold more water, more often, for longer, if catchments and floodplains are tapestries of wet habitats such as ditches, ponds and marshes. A variety of different temperatures, light levels will support greater biodiversity, generating other ecosystem services such as clean water and protecting habitats (including human ones such as towns and cities) downstream. Integrated catchment management approaches consider environmental, economic and social factors, to maximise the benefits of other management interventions.

The priority is to create and enhance nature-rich habitats for key wetland species, helping to slow the flow of water in the upper catchments and hold water in lower catchments.

Mapped habitat measure: example (see Habitat Map)

Allow becks and streams space to 're-wiggle' (re-meander) where appropriate.

Not mapped habitat measure: example

Create species-rich meadows to boost floodplain biodiversity.

Supporting measure: example

Integrate all aspects of the river management at the point of any intervention. Adopt a catchment-based approach: this considers wider environmental, economic and social factors.

Click here for the full Table of Priorities and Measures

W4 Water: Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows

Myriad permanent and seasonally wet habitats are also water habitats. Lowland fens at the bottom of valleys, reedbeds, marshes, wet grasslands, wet woodlands, scrapes, ditches and meadows … these habitats form on poorly drained or seasonally flooded soils, along rivers and streams, on floodplains and on the edges of bogs. Some are on free-draining soils and linked to ground-water levels. At times sodden, soggy, damp, or dry, they soak up water, regulate moisture levels and play their part in the intricate ecosystems of wider river systems, with water seeping through the landscape in webs of blue-green habitats, above and below ground. Together they produce some of the most diverse and distinctive habitats, from tough tussocks or mats of moss to tall rushes and sedges, with complex communities of birds, invertebrates and amphibians, including iconic species such as bitterns. They also reduce the risk of flood and the impact of heat/drought. Nature recovery actions to create and restore wetland habitats of all shapes and sizes will boost biodiversity, provide sanctuary for rare and declining species, build habitat resilience and help mitigate the impacts of climate change.

The priority is to reinstate lots of wetlands within habitat corridors, to encourage breeding, wintering and passage birds, invertebrates and other animals.

Mapped habitat measure: example (see Habitat Map)

Create new permanent and ephemeral wetlands to restore natural water cycle processes by providing flood and drought resilience. This includes surface water, seasonal flooding and draining, flood mitigation and groundwater infiltration, carbon sequestration, and enhancing the quality of flowing water. Create new lowland fen habitat, particularly where this is near areas that have been drained, cultivated or next to existing fen. Do not allow hay meadow priority habitats to degenerate to fen.

Not mapped habitat measure: example

In highly polluted areas, create settlement ponds, reedbeds and tree or scrub barriers to improve water quality.

Supporting measure: example

Adopt biodiversity-friendly maintenance to unlock the full impact of habitat creation and enhancement efforts. Create and follow a nature-friendly management plan. This should reflect both local realities and this strategy's wider aims, missions and ambition for species, the wider environment and people, and be regularly reviewed. Invest in this.

Click here for the full Table of Priorities and Measures

Water: Summary

Species

- Otter
- Water vole
- Kingfisher
- White-clawed crayfish

Habitats

- Rivers
- Riparian corridors
- Floodplains
- Wetlands

Ecosystem services

- Flood protection
- Clean water
- Thriving animals, fungi and plants

Benefits

- Amenity
- Health
- Nature connectedness

Quality and condition

Description, threats and opportunities

Habitat creation and enhancement actions will achieve their full potential only if other, associated issues are addressed at the same time. This means making conscious choices about consumption, waste reduction, and resource usage, as well as supporting sustainable practices (such as sustainable travel[38]) and advocating for positive change. Wildlife experts highlight three areas where quality and condition is particularly important for nature.

Light and noise

West Yorkshire is one of the most 'built-up areas' in the country, with much of the land covered by cities, towns and villages. High levels of human activity and infrastructure create light and noise pollution, and damage soil health. Towns and cities have 'skyglow' – the orange glow from thousands of lights that rarely switch off. While sometimes necessary for safety and security, many artificial lights disturb and isolate nocturnal animals; traffic noise drowns out birdsong and frog calls.

Together, light and noise pollution make animals disorientated or frightened, disturb their natural rhythmns and cause stress, hearing damage, decreased immune response, sleep disruption, changes in habitat use. These same forms of pollution also result in less efficient foraging, communication, mating and anti-predator behaviours, which affect survival rates, reproductive success and more. Efforts to restore or create habitats will not achieve their full biodiversity potential if they suffer from light and noise pollution.

Light and noise pollution harm people, too, depriving people not just of sleep, but of the other joys, including spectacular dark skies covered in sparkling stars and the pleasure of bird song and other natural sounds. Noise pollution is a rapidly growing problem, particularly in cities. It can further lead to hearing loss, and negative effects on the cardiovascular and metabolic systems.

Soil health

Biodiverse soils help with nutrient-cycling, restore groundwater and provide food for plants, invertebrates and larger organisms. Soils impacted by human activity such as building roads, development, recreation and uses such as farming, can become contaminated, depleted and otherwise damage. It becomes less able to regulate water, carbon or support plants.

Ecosystem balance

Non-native species are those that have been introduced to a country, whether deliberately or accidentally. Most have no or minor impacts on the local environment. Some have negative impacts on native species and habitats, usually through the spread of disease, resource competition, direct competition, parasitism, or hybridisation. Invasive non-native species are one of the top five drivers of biodiversity loss globally, and one of the top five drivers of risk to ecosystems in England[39]. Some of the most damaging invasive species in West Yorkshire are *Hymenoscyphus fraxineus* (the fungus that causes ash dieback), Himalayan balsam, floating pennywort, American skunk cabbage, New Zealand pigmyweed, rhododendron, grey squirrel, signal crayfish, American mink, Japanese knotweed, giant hogweed and water fern.

[38] West Yorkshire Combined Authority (2025) *West Yorkshire Electric Vehicle Infrastructure Strategy.* Draft report to West Yorkshire Combined Authority. [Online.] [Accessed 04/09/2025.] Available at: https://www.yourvoice.westyorks-ca.gov.uk/

[39] Lusardi J., Rice P., Craven J. et al (2024) *State of Natural Capital Report for England 2024: Risks to nature and why it matters*. Report to Natural England. [Online.] [Accessed 04/09/2025.] Available at: https://publications.naturalengland.org.uk/

These three key issues around quality and condition offer many opportunities for this strategy. As well as being essential for wildlife, darker skies and quieter places could be a free, frequent way for people to connect to nature and feel better (darkness helps to controls our body clocks so we sleep better) and enjoy their places more. Soils could be treated, restored and managed carefully to avoid being degraded. Ensuring that ecosystems are balanced, by removing invasive species, helps to keep water clear and healthy. Invasive alien control, if done by well-coordinated strategic action and harnessing public interest in the form of citizen science projects, might have a chance of success: some small catchments have had relatively positive results with Himalayan balsam control. It needs more effort to obtain landowner access permission, repeated weeding over a sustained period to avoid missing plants appearing from the seed bank, well timed active removal and sound public information.

Conversely, there are initiatives looking at how carefully reintroducing species in the right places (beavers, for example) might help with ecosystem balance.

Quality and condition, and water

Wildlife is more likely to use riparian corridors and other habitats near rivers if these are not noisy or brightly lit. The leisure value of water bodies also increases if there is less noise/light pollution. Water conditions soil, keeping it healthy, and healthy soil is better able to manage water. Many invasive species are associated with riverbanks. Efforts, including by volunteers, to remove them locally are often frustrated by lack of action elsewhere because seeds from further upstream rapidly re-colonise areas that have been cleared. A catchment-scale approach is needed.

For the West Yorkshire Local Nature Recovery strategy, the priorities agreed for quality and condition are:

- Q1 More dark, quiet places for wildlife
- Q2 More healthy, biodiverse soils
- Q3 Better ecosystem balance

Q1 Quality and Condition: Dark, quiet places for wildlife

From street lights and intrusive security lights to dazzling spotlights and commercial buildings, artificial lights cause havoc for nocturnal animals; bats, toads and many insects struggle to navigate, feed and breed, and other animals become disorientated or frightened, their natural rhythmns disrupted. Nuisance light affects people's wellbeing too, causing sleep loss and stress. Noise pollution can also be a problem for nature[40] and stressful for wildlife, as well as for humans. Many species communicate, navigate and detect predators or prey using sound. Traffic noise drowns out bird warning calls and frog mating calls, and causes stress, hearing damage, decreased immune response, sleep disruption, changes in habitat use, less efficient foraging, communication, mating and anti-predator behaviours, with impacts on survival rates, reproductive success and more. If pollinators are affected by noise, plant reproduction could be affected, along with the overall ecosystem health.

Darker, quieter places and corridors through built environments will help to minimise light and noise, so that animals are able to make full use of otherwise good habitats on offer; people benefit, too. This needs to balance with broader Local Transport Plan policies to encourage safe active travel, as well as broader safety considerations in dark places.

The priority is to create more dark, quiet places and corridors to help wildlife make full use of otherwise good habitats on offer.

[40] European Environment Agency (2025) *Impacts of environmental noise on biodiversity (Signal)*. Report. [Online.] [Accessed 04/09/2025.] Available at: https://www.eea.europa.eu/en

Mapped habitat measure: example (see Habitat Map)

In existing dark sky areas, avoid any lighting where at all possible.

Not mapped habitat measure: example

Plant hedges in double rows to create darker, quieter corridors.

Supporting measure: example

Retain dark corridors within development sites. Where possible, housing development should be set back from riverbanks (generally a requirement of planning permission). Orientate buildings so that light spillage over water is minimal. Provide clear guidance for developers.

Click here for the full Table of Priorities and Measures

Q2 Quality and Condition: Healthy, biodiverse soils

Healthy soils are living habitats, full of animals, fungi, plants and other organisms[41]. They are well-structured, with good texture (not compacted) and with good levels of soil organic matter. Soil that is healthy is more resilient to drought, flood and other environmental shocks such as pests and diseases than unhealthy soil. Healthy soil is better able to support plants. It makes farming more profitable, because it is better able to support crops, reduces the need for pesticides, improves the use of fertilisers, and cuts pollution to other nearby habitats.

The soils in West Yorkshire vary depending on factors such as climate, topography and the acidity and permeability of the underlying bedrock. Other historical influences from agriculture, industry, roads and other developments have also had wide-ranging and significant impacts, from drainage, air pollution and waste-tipping to compaction, and cultivation.

Most soils in West Yorkshire are associated with farming, including on the moors and associated grasslands (see Farming and Grasslands sections). Some soils are associated with woodlands of various ages in both urban and rural settings. Others are linked to recreational open spaces such as parks, playing fields, allotments, golf courses and private gardens. The verges along transport corridors support significant soil reserves, with differing uses, demands and potential benefits for people and wildlife.

Soil is a complex, dynamic world: to stay healthy and productive, this critical habitat must be nurtured and handled lightly. Healthy soil will support pollinators and biodiversity, supporting legal targets to mimimise chemical pollution and use pesticides safely and sustainably.

The priority is to ensure all soils function well, whether they are in the countryside or urban areas, by protecting, improving and managing soil health to retain ecosystem services, support and create habitat opportunities and minimise carbon release.

Mapped habitat measure: example (see Habitat Map)

Significantly enhance the quality of the habitats in existing Local Wildlife Sites, supported by ongoing monitoring and maintenance.

Not mapped habitat measure: example

Enhance the biodiversity in existing soil habitats further with nature-friendly measures.

Supporting measure: example

Understand the scale and impact of highways runoff and pollution and prioritise mitigation. Apply professional guidance and codes of practice.

Click here for the full Table of Priorities and Measures

[41] These include bacteria, and protists (other single-celled or multi-celled organisms).

Q3 Quality and Condition: Balanced ecosystems for different species

Non-native species are animals and plants that have been introduced to the environment, often by humans, either on purpose or by accident. Some of these are relatively harmless, such as plum trees and rainbow trout. Others become invasive: they out-compete other species, changing habitats to such a high degree that native species can decline or disappear, causing economic as well as ecological harm. Signal crayfish outcompete and spread crayfish plague to the native white-clawed crayfish, while also disrupting the wider ecosystem functioning. Himalayan balsam smothers native plants, reducing biodiversity and causing habitat loss; when it dies back in winter, it leaves lots of bare ground, which increases flood risk. American mink have led to a sharp national decline of the native water vole, and giant hogweed can cause severe burns to human skin.

A balanced ecosystem – one where no one species dominates – is essential to preventing the loss of biodiversity. This includes prevention (not spreading harmful organisms) and action (removing them) as well as education. Addressing the problem will often require a catchment-level approach. Measures to control and monitor invasive species such as Japanese knotweed, giant hogweed and floating pennywort are appropriate, as long as doing so will increase the likelihood of an area becoming important for biodiversity without being undermined by lack of action elsewhere. Protecting wildlife, livestock, and plants from diseases and invasive species is a key target in the Environmental Improvement Plan 2023.

The priority is effectively to manage the risks associated with invasive non-native species so that habitats have a healthy balance of wildlife communities, increasing the resilience of ecosystems.

Not mapped habitat measure: example

Plant native species and/or allow natural regeneration.

Supporting measure: example

Promote practices that minimise risk of spreading invasive species.

Click here for the full Table of Priorities and Measures

Quality and condition: Summary

Species

- Bats
- Toads
- Water vole

Habitats

- Moorland
- River banks
- Woodland

Ecosystem services

- Clean air
- Climate regulation
- Clean water

- **Benefits**

- Noise regulation
- Light pollution
- Health

Species

Description, threats and opportunities

Otters, badgers, swifts, ladybirds, hedgehogs, toads, water voles… many of the species that live in West Yorkshire have a special place in people's hearts and minds. Others – less charismatic or colourful perhaps – might go largely unnoticed, but attract global attention (rare fungi found in the South Pennines) and are also important. And there are species that, if we get our house in order, might return (red squirrels are already established in northern West Yorkshire).

Nearly 2,000 species have disappeared from Yorkshire over the past 200 years. Of those that remain, the populations of one in five have crashed by more than 25 per cent over the past 20-30 years. There are many factors behind this, including small, low-quality and fragmented habitats, poor habitat management and pollution. Weather, temperature and water extremes make normal development, survival and interactions more difficult. For animals, it affects things such as hibernation, physiology, breeding, caring for young and finding food. The young, old and weak are at risk from heat stroke, just like people. Plant growth and flowering times suffer. When the temperature goes over 32 degrees, many grass species, including those used to make silage, stop growing.

All animals, fungi and plants will benefit considerably if there are more habitats, and these are bigger, better and joined-up. By taking a habitat-based approach in line with Natural England guidance, the strategy can start to reverse the decline in biodiversity across our region.

The Yorkshire Wildlife Trust led work to generate a 'long list' for this strategy. These are species that are high risk of extinction in England; species that don't live here now but could feasibly become established; and other species of local significance. We need more data about many of these to understand more about their status and how this changes; local recording and ongoing monitoring will help.

From this long list, experts then identified species that need additional, targeted recovery measures. This 'priority list' consists of animals, fungi and plants that this strategy could feasibly help within five to 10 years. It consists of:

- 27 individual species (such as red squirrels, water voles and adders).
- 13 groups of species (such as farmland birds, light-averse bats and freshwater fish).

If the targeted priorities and measures identified for these priority animals, fungi and plants are delivered at pace, we could see a real turnaround in their fortunes in West Yorkshire within a decade, or perhaps even sooner.

Please refer to the Priority Species Report for full details.

Species and water

The reintroduction, in the right places, of missing 'keystone' or 'ecosystem engineer' species such as beavers is being considered and tested to restore the natural processes and help to re-wet West Yorkshire. Beavers create a variety of unique wetland habitats that often support a wide variety of other species and help with things such as flood-risk mitigation. Some smaller species can also be considered as ecosystem engineers. White-clawed crayfish[†], for example, are highly significant in river ecosystems: they help with nutrient cycling, create burrow micro-habitats, and act as both predator and prey, helping to regulate the species composition of watercourses that they occupy.

[†] Supported in the region by the Yorkshire Crayfish Forum.

For the West Yorkshire Local Nature Recovery strategy, the Priority Species list is:

- S1 Bees, wasps and ants: bilberry bumblebee, large carder bee, deadwood insects assemblage†
- S2 Bees, wasps and ants/butterflies and moths assemblage; brownfield insects
- S3 Butterflies and moths: white-letter hairstreak
- S4 Molluscs: depressed river mussel
- S5 Plants: baneberry, floating water-plantain, fly orchid, juniper, marsh helleborine, moonwort, northern spike-rush, opposite-leaved pondweed, petty whin, river water-crowfoot, small white orchid, yellow star-of-Bethlehem, calcareous woodland plants, Magnesian Limestone plants
- S6 Birds: barn owl, curlew, lapwing, redshank, snipe, yellow wagtail, farmland birds, reedbed birds, upland birds, urban birds, wetland birds
- S7 Reptiles: adder, common lizard, slow-worm
- S8 Mammals: hedgehog, red squirrel, water vole, light-averse bats
- S9 Crustaceans: white-clawed crayfish
- S10 Amphibians: common toad, great crested newt
- S11 Fish: freshwater fish
- S12 Fungi: ancient grassland/CHEGD fungi

The priority is to increase the abundance of different animals, fungi and plants in West Yorkshire, including those this strategy could realistically help within five to 10 years.

Mapped habitat measure: example (see Habitat Map)

Species: Magnesian Limestone plants.

Habitats: Grassland; Limestone.

Measures:

* Conserve existing sites where these species are found.

* Adopt specific conservation grazing management strategies.

* Manage the species-rich grasslands where these plants occur through targeted scrub clearance to limit encroachment.

* Evaluate the feasibility of targeted reinforcement to bolster existing small populations and consider reintroduction to new sites where suitable.

* Communicate, engage, educate and otherwise involve the public.

Not mapped habitat measure: example

Species: Brownfield insects that rely heavily on the provision of brownfield habitats.

Habitats: Urban/built. Sandy habitats such as brownfield sites with varying microtopography. Bare, usually dry areas.

Measures:

* Identify and monitor important sites.

* Develop landowner and land manager engagement and support to ensure that brownfield sites are managed in a way that protects and enhances biodiversity.

† For further details on species included in assemblages, see Appendices.

* Hairy-saddled colletes bee – inland conservation would benefit from brownfield site targeted management as the species relies on sandy habitats and varying microtopography such as sand banks.

* Dingy skipper butterfly – would benefit from more bird's foot trefoil in these areas.

* Communicate, engage, educate and otherwise involve the public.

Click here for the full Table of Priorities and Measures

Species: summary

Species

- Red squirrel
- Great crested newt
- Pasqueflower

Assemblages

- Brownfield insects
- Farmland birds
- Fish species

Habitats

- Brownfield sites
- Deadwood
- Canals

- **Ecosystem services**

- Thriving animals, fungi and plants
- Clean water
- Pollination

- **Benefits**

- Doorstep nature
- Nature connectedness
- ‘Flagship’ species

Part 4: Priorities and measures table

Click here for the full Table of Priorities and Measures

Part 5: Appendices

Appendix: Strategic context

This section contains the key plans and strategies considered for this Local Nature Recovery Strategy. We also want to make sure that the Local Nature Recovery Strategy is considered as part of the development of the following Combined Authority strategies in the future: Mass Transit, Climate Risk Assessment and Adaptation Planning, Spatial Development Strategy, and Infrastructure Strategy.

Strategic context: Global ambition

30by30.
This is the global commitment to reverse biodiversity loss and protect at least 30 per cent of land and seas area by 2030. It was made at Biodiversity COP 15 in Montreal by almost 200 nations, including the UK.

Paris Agreement on Climate Change.
Adopted in 2015, this international treaty committed to holding global warming to well below two degrees Celsius above pre-industrial levels, and striving for increases of no more than 1.5 degrees.

Strategic context: National ambition

2021 Environment Act.
This law set out legally binding targets for restoring and enhancing nature across England. The priority issues it tackles include air and water quality, waste, recycling and species decline, as well as targets for increasing tree and woodland cover. Ambitions are set in interim targets for 2028 and longer-term statutory targets. Local Nature Recovery Strategies are a key part of this.

2023 Environmental Improvement Plan for England.
The Plan sets out how government will work with landowners, communities and businesses to help the environment. Targets include nature restoration, increasing tree and woodland cover, and reducing environmental pollution. It is the first revision of the 25-Year Environment Plan.

Blueprint for Halting and Reversing Biodiversity Loss.
This outlines how England, Wales, Scotland and Northern Ireland will work together to address biodiversity loss.

Local Investment in Natural Capital (LINC)
The LINC pilot programme is a DEFRA-initiated programme, led by the Environment Agency and delivered through Local Authorities. The aim is to develop a pipeline of investment-ready natural capital projects and associated finance mechanisms that will generate revenue and returns for investors, while also directing investment to local priorities for protecting and enhancing the domestic natural environment.

Strategic context: Regional ambition

West Yorkshire Plan to 2040
In 2023, the West Yorkshire Mayor and five district leaders set out the region's vision and five missions for 2040 in this Plan. Mission four is: ‘A Sustainable West Yorkshire – Making Lives Greener’. The overarching action is to deliver a fair and just Net Zero economy, while creating a sustainable, nature-rich and climate ready region.

West Yorkshire Combined Authority's Climate and Environment Plan
Our Climate and Environment Plan has been refreshed to deliver mission 4 of the West Yorkshire plan, with the commitment to be a Net Zero economy by 2038. The key areas of focus of the plan are on clean energy, transport, resilience and nature, low carbon homes and decarbonised businesses. The Local Nature Recovery Strategy will help us deliver our objective of being a climate resilient and nature rich region.

West Yorkshire Combined Authority and supporting authorities – other plans

The government wants the strategy to be used in other decision-making (for example Spatial Development Strategies), Local Growth Plans, public health, climate resilience and adaptation).

White Rose Forest Plan 2025-2050

White Rose Forest Plan 2025 – 2050 highlights the approach to its ongoing work to increase tree and canopy cover across the Northern Forest[†].

Yorkshire Wildlife Trust *State of Yorkshire's Nature* report
The first ever region-wide report analyses data and information on Yorkshire's wildlife. It gives an in-sight into how nature is fairing and crucially where action is needed to create healthier, resilient and more abundant landscapes.

Peak District National Park and *State of Nature* report

All Local Authorities have a duty to 'further the purposes' of Protected Landscapes and ensure that the measures align with the purpose and help to deliver its targets and objectives. The *State of Nature* report tells us that a considerable amount of conservation and restoration work has been done, but there is still a long way to go.

The West Yorkshire strategy shares its border with five other Local Nature Recovery Strategies: Greater Manchester, York and North Yorkshire, South Yorkshire, Derbyshire and Lancashire.

Strategic context: Local ambition

There are five local authorities in West Yorkshire: Bradford, Calderdale, Leeds, Kirklees and Wakefield. Each of these has various local plans and climate/environment plans (which the councils develop). The Local Plans are listed below and will act as key delivery mechanisms for this strategy: Bradford District Local Plan, Calderdale Local Plan, Kirklees Local Plan, Leeds Adopted Local Plan, Wakefield District Local Plan.

Environmental groups, as well as local neighbourhoods and parishes often also have locally relevant climate, environment or nature plans.

The West Yorkshire Local Nature Recovery Strategy must find its place in this complex 'strategic context', so that it can have a big as impact as possible to help nature. This will help to make sure that the strategy's local priorities and actions align with everyone else's efforts, helping to support the work we all do separately, and together.

[†] The Northern Forest was founded by a partnership of six organisations: four of England's Community Forests, the Woodland Trust and the Community Forest Trust. It was launched in 2018.

Appendix: Targets and evaluation

To be developed alongside final draft of LNRS (details to be agreed).

Target 1: A decrease in the number of species at risk in West Yorkshire. Dataset: Yorkshire Species of Concern (Yorkshire Wildlife Trust).

Target 2: An increase in canopy cover in West Yorkshire. Potential datasets: Bluesky Tree Canopy Cover' (White Rose Forest); Trees Outside Woodland and National Forest Inventory (Forestry Commission).

Target 3: An increase in the area of active peat-forming blanket and lowland bog in West Yorkshire. Dataset: England Peat Map.

Target 4: An increase in the ecological status of rivers in West Yorkshire. Potential dataset: Water Framework Directive River, Canal and Surface Water Transfer Waterbodies Cycle 2 (limitations); other data for non-linear water bodies and catchments.

Target 5: An increase in access to greenspace in West Yorkshire. Dataset: ANGSt Local Walkable Greenspace Standards ('Access to Greenspace Standards) criteria (percentage of people meeting all six).

Appendix: Priorities and public ecosystem services

Plentiful water
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B5 Nature-friendly buildings and developments
G1 Acid and ancient grasslands rich in species
G2 Biodiverse Magnesian Limestone habitats
G3 Ecologically diverse meadows and natural grasslands
U1 High-quality peatlands
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
W1 Nature-friendly habitats next to and between water bodies
W2 Aquatic habitats full of wildlife
W3 Biodiverse catchments and floodplains
W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows
F1 Nature-friendly farming
F2 Species-rich hedges, edges and corners

Clean water
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B5 Nature-friendly buildings and developments
G1 Acid and ancient grasslands rich in species
G2 Biodiverse Magnesian Limestone habitats
G3 Ecologically diverse meadows and other neutral grasslands
U1 High-quality peatlands
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
W1 Nature-friendly habitats next to and between water bodies
W2 Aquatic habitats full of wildlife
W3 Biodiverse catchments and floodplains
W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows
F1 Nature-friendly farming
F2 Species-rich hedges, edges and corners

Clean air
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B4 Nature-friendly transport infrastructure
B5 Nature-friendly buildings and developments
Q2 More healthy, biodiverse soils

Noise regulation
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B4 Nature-friendly transport infrastructure

B5 Nature-friendly buildings and developments
Q1 More dark, quiet places for wildlife
Q2 More healthy, biodiverse soils

Urban cooling
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites

Flood protection
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B5 Nature-friendly buildings and developments
F1 Nature-friendly farming
F2 Species-rich hedges, edges and corners
G1 Acid and ancient grasslands rich in species
G2 Biodiverse Magnesian Limestone habitats
G3 Ecologically diverse meadows and other neutral grasslands
Q2 More healthy, biodiverse soils
T1 Nature-rich ancient and veteran trees, and ancient woodlands
T2 Other trees and woodland full of wildlife
T3 Biodiverse wood pasture and historic parkland
U1 High-quality peatlands
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
W1 Nature-friendly habitats next to and between water bodies
W2 Aquatic habitats full of wildlife
W3 Biodiverse catchments and floodplains
W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows

Thriving animals, fungi and plants; pollination
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B4 Nature-friendly transport infrastructure
B5 Nature-friendly buildings and developments
T1 Nature-rich ancient and veteran trees, and ancient woodlands
T2 Other trees and woodland full of wildlife
T3 Biodiverse wood pasture and historic parkland
G1 Acid and ancient grasslands rich in species
G2 Biodiverse Magnesian Limestone habitats
G3 Ecologically diverse meadows and other neutral grasslands
U1 High-quality peatlands
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
W1 Nature-friendly habitats next to and between water bodies
W2 Aquatic habitats full of wildlife
W3 Biodiverse catchments and floodplains
W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows
F1 Nature-friendly farming

F2 Species-rich hedges, edges and corners
Q2 More healthy, biodiverse soils
Q3 Better ecosystem balance
S1 Species measures

Climate regulation
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B4 Nature-friendly transport infrastructure
B5 Nature-friendly buildings and developments
T1 Nature-rich ancient and veteran trees, and ancient woodlands
T2 Other trees and woodland full of wildlife
T3 Biodiverse wood pasture and historic parkland
G1 Acid and ancient grasslands rich in species
G2 Biodiverse Magnesian Limestone habitats
G3 Ecologically diverse meadows and other neutral grasslands
U1 High-quality peatlands
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
W1 Nature-friendly habitats next to and between water bodies
W2 Aquatic habitats full of wildlife
W3 Biodiverse catchments and floodplains
W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows
F1 Nature-friendly farming
F2 Species-rich hedges, edges and corners
Q2 More healthy, biodiverse soils

Cultural benefits
B1 High-quality, accessible nature in towns and cities
B2 Blue and green links rich in nature through, between and beyond towns and cities
B3 Species-rich brownfield and other previously developed sites
B4 Nature-friendly transport infrastructure
B5 Nature-friendly buildings and developments
T1 Nature-rich ancient and veteran trees, and ancient woodlands
T2 Other trees and woodland full of wildlife
T3 Biodiverse wood pasture and historic parkland
G1 Acid and ancient grasslands rich in species
G2 Biodiverse Magnesian Limestone habitats
G3 Ecologically diverse meadows and other neutral grasslands
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
F1 Nature-friendly farming
F2 Species-rich hedges, edges and corners
Q3 Better ecosystem balance
S1 Species measures

Erosion control
T1 Nature-rich ancient and veteran trees, and ancient woodlands
T2 Other trees and woodland full of wildlife
T3 Biodiverse wood pasture and historic parkland

U1 High-quality peatlands
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
W1 Nature-friendly habitats next to and between water bodies
W2 Aquatic habitats full of wildlife
W3 Biodiverse catchments and floodplains
W4 Nature-rich lowland fen, reedbeds, marshes, wet grasslands and meadows
F1 Nature-friendly farming
F2 Species-rich hedges, edges and corners
G2 Biodiverse Magnesian Limestone habitats

Timber and other wood products
T1 Nature-rich ancient and veteran trees, and ancient woodlands
T2 Other trees and woodland full of wildlife
T3 Biodiverse wood pasture and historic parkland

Cultivated crops, reared animals, and pest and disease control
U2 Other upland and moorland habitats full of wildlife
U3 Nature-rich upland hay meadows
F1 Nature-friendly farming
F2 Species-rich hedges, edges and corners
Q2 More healthy, biodiverse soils

Appendix: Case studies

Bradford – Community – A city comes together to protect its peregrine falcons

High above the city streets of Bradford, a conservation success story is unfolding. The Bradford Peregrine Trail is a result of a unique partnership between Bradford Urban Wildlife Group, Bradford Council, Natural England and mill owners, all united by the goal of saving one of Britain's most spectacular birds of prey.

When peregrine falcons first began nesting in the heart of the city, their future was uncertain. Threats from disturbance, lack of suitable breeding spots and public misunderstanding loomed large.

The Bradford Urban Wildlife Group, a dedicated team of volunteers, stepped in to monitor the birds and raise awareness. Bradford Council offered practical assistance, helping the project to install a nest box and live-stream cameras on the chimney of Lister's Mill, which saw two chicks fledge this year under the eyes of a local and global audience. The council has also installed a nestbox and camera on the clocktower of City Hall, which could provide another successful breeding site in future. Funding for the project was provided from Natural England with support from local organisations, Mind-the-Gap and Urban Splash.

The result is a thriving peregrine population and an interactive urban trail that guides visitors to key vantage points around the city. Each stop offers insights into the birds' behaviour, their history in Bradford and the wider role of urban habitats in wildlife recovery.

To find out more about the Bradford Peregrine Trail, visit: www.bradfordperegrines.com/

Bradford – Public landowner – Reviving Ilkley Moor for people and the planet

Stretching above the Wharfe Valley, Ilkley Moor is one of West Yorkshire's most treasured landscapes and, thanks to a major restoration project, its future is looking brighter than ever. As the local authority landowner, Bradford Council has taken a leading role in protecting and restoring this vast area of publicly-owned moorland, recognising its importance not just for wildlife, but also for climate, natural flood management and the wellbeing of local communities.

Peatlands are natural carbon stores, vital for slowing climate change, and, when healthy, they hold water, reducing flood risk downstream. Years of wear, however, have left parts of Ilkley Moor degraded. Bradford Council's programme is reversing that damage by blocking old drainage channels to re-wet the peat, replanting native vegetation like sphagnum moss and creating conditions where wildlife can flourish.

Key to the project's success has been collaboration with the Friends of Ilkley Moor, whose volunteers bring local knowledge, passion and countless hours of hands-on support with managing and restoring the moor. Ilkley Moor's restoration shows how public land, when cared for in partnership, can be a powerhouse for nature, climate action and community pride.

To find out more about Ilkley Moor, visit: https://www.ilkleymoor.org/

Bradford – Urban environment – How City Park is revitalising Bradford's centre

In the heart of Bradford, a once under-used urban space has been transformed into City Park – a vibrant, landscaped public realm designed to regenerate the city centre and breathe fresh life

into its streets. Led by Bradford Council, with funding and support from the Combined Authority, the project has replaced concrete and tarmac with lush planting, colourful shrubs and elegant trees, creating a space that feels both modern and rooted in nature.

The greenery of City Park softens the city's architecture, improves and quality and offers shade and shelter, making it a welcoming destination in all seasons. Carefully selected plants provide year-round greenery and connectivity for bees, butterflies and other pollinators, while open spaces invite events and community gatherings.

The park's design is not only about beauty, but also about economic and social impact. Through creating an attractive, people-focused environment, City Park draws residents, visitors and businesses back into the city centre, boosting trade and fostering a stronger sense of community pride.

It also stands as a symbol of Bradford's commitment to urban renewal, proving that even in the busiest of places, nature and people can thrive together, side by side, in the heart of the city.

Calderdale – Community landowner – Bridestones Moor becomes Calderdale's first community-owned nature reserve

In a bold act of local stewardship, Bridestones Rewilded has seen the community come together to buy out a stretch of moorland, securing its future for both nature and people. The land, made up of degraded heath and peatland, is in urgent need of care. Now under community ownership, it is being restored into a thriving moorland that locks up carbon, supports wildlife and offers valuable outdoor space for recreation.

Peatlands are key to tackling climate change, storing vast amounts of carbon, while healthy heathlands provide habitat for rare birds, insects and plants. Years of overuse had left this moorland vulnerable, but the community's vision and action, with expert guidance from the Yorkshire Peat Partnership and the Moors for the Future Partnership, is reversing that decline by allowing natural processes to flourish once again.

Bridestones Rewilded isn't just about ecology, but also social equity. Through bringing the land into community hands, access is safeguarded, local people have a voice in its future and the benefits, including cleaner air and water, climate resilience, biodiversity and wellbeing, are shared by all. This grassroots initiative shows the power of community buyouts to turn damaged landscapes into restored, resilient and inclusive spaces for generations to come.

To find out more about Bridestones Rewilded, visit: https://bridestones.love/

Calderdale – Public landowner – Battle for survival: protecting native crayfish from invasive threats in Calderdale

In a remote rural watercourse at Jerusalem Farm, nestled in the Luddenden Valley in Calderdale, resides a population of white-clawed crayfish, a beacon of hope for the critically-endangered species in the UK.

These native freshwater crayfish face a perilous threat from the invasive American signal crayfish, which not only spread a fatal disease, but also compete for resources. Despite their crucial role in maintaining the cleanliness of our waterways, the white-clawed crayfish have struggled against the relentless advance of their more aggressive counterparts.

To safeguard the survival of this rare species, a collaborative effort spearheaded by Calderdale Council, alongside partners such as the Environment Agency, Natural England, Yorkshire Water

and the Yorkshire Wildlife Trust, aims to enhance the changes of survival for the white-clawed crayfish.

One key aspect has involved designating Jerusalem Farm as a Local Wildlife Site to ensure that the river where the species lives can be protected and enhanced. Enhanced biosecurity measures, including installing educational signs and boot-scrubbing stations, will help to prevent the spread of disease to the white-clawed crayfish population.

Across the wider valley, surveying is underway to uncover any previously undiscovered populations and guide the establishment of ‘arc sites’, designated areas free from invasive signal crayfish and with the right environmental conditions for reintroduction of white-clawed crayfish. Promoting rigorous biosecurity measures, such as the ‘Check, Clean, Dry’ protocol, is imperative to bolster their chances of survival within the interconnected web of river ecosystems.

Calderdale and Kirklees – Corporate landowner – Landscapes for Water brings back lost clough woodlands in the South Pennines

Landscapes for Water is an ambitious partnership involving the National Trust, Yorkshire Water, the Woodland Trust, White Rose Forest, West Yorkshire Combined Authority and Moors for the Future partnership. The initiative aims to restore and improve a significant area of uplands through a landmark programme of nature restoration.

The programme focuses on restoring five areas of the South Pennine Moors, including Ryburn and the neighbouring Baitings reservoir in Calderdale and Deanhead and March Haigh in Kirklees. This includes efforts to reverse historic loss of significant woodland areas by carefully restoring biodiverse clough woodlands in the steep-sided ravines on the edge of open moorlands.

By recreating clough woodlands, the project aims to rejuvenate these vital habitats, enhancing the diversity and condition of some of Calderdale’s most important upland nature sites. In the long term, it is hoped these new woodlands will provide homes for threatened species such as black grouse, pine marten and red squirrel. The initiative also aims to boost populations of birds such as redstart, pied flycatcher, ring ouzel and nightjar.

Beyond benefiting wildlife, the restored clough woodlands will capture carbon to tackle climate change, improve water quality and provide protection for homes and businesses in Calderdale and Kirklees by slowing the flow of water running off the moors.

To find out more about Landscapes for Water, visit:
www.nationaltrust.org.uk/visit/yorkshire/marsden-moor/landscapes-for-water

Leeds – Private landowner – Harewood Estate’s decade-long landscape restoration journey

The iconic Harewood Estate is embarking on a bold, 10-year landscape restoration project to breathe new life into its historic parkland, woodlands and gardens. The aim is to enhance biodiversity, sustainability and visitor experience, creating a living landscape that delivers more benefits for both wildlife and people.

Spanning 4,000 acres, the estate is a treasure trove of history and nature, featuring more than 100 listed strictures, two scheduled monuments, ancient woodlands, wood pasture parkland and productive farmland. The Grade I Listed park, designed by Capability Brown, sits alongside a nationally recognised conservation programme that priorities the restoration of historic buildings,

habitats and delivering sustainable land management. Large areas of the estate are designated as a West Yorkshire Local Wildlife Site primarily in recognition of the quality of woodland areas and presence of veteran trees.

Since the project began in 2023, Harewood has been restoring the landscape, creating new habitats and enhancing natural processes, such as water storage and carbon capture. Woodland management is a key part of this effort, with the estate boasting 800 acres of woodland, including ancient sites and veteran oaks. More than 40,000 native trees have been planted to form wildlife-rich scrub, riparian woodland the next generation of parkland trees.

A central part of managing Harewood's parklands and grasslands is conservation grazing. Across the estate, a variety of rare and native breeds, including Aberdeen Angus cattle, red and fallow deer, Wensleydale sheep and Oxford Sandy and Black pigs, roam the landscape. These animals help maintain the historic parkland and species-rich grasslands and enjoy wild foraged food sources for as much of the year as possible. This approach not only supports biodiversity and habitat regeneration, but also produces high-welfare, sustainable pasture-fed meat, demonstrating how heritage, nature and farming can work hand in hand.

On its arable land, Harewood Estate combines commercial crop production with environmentally friendly farming practices, delivering both high quality food and tangible benefits for wildlife and ecosystem services. Using regenerative and precision farming techniques, the estate grows wheat, barley, oilseed rape and maize. This is coupled with restoring more than 25 miles of hedgerows and creating flow-rich buffer strips around most field margins, making habitat for wildlife, protecting soils and improving water retention. These measures not only support threatened species, but also enhance the sustainability and resilience of the estate, reducing reliance on pesticides and fertilisers, while maintaining productive, high-quality crops.

Harewood's habitats support an astonishing array of wildlife. At least 24 mammal species, more than 160 birds (with around 80 breeding), more than 18 butterfly species and nationally important fungi, such as waxcaps and earthtongue mushrooms, call the estate home. This builds on the success of the reintroduction of red kites in partnership with the RSPB, Yorkshire Water and Natural England between the 1999 – 2001, with released birds quickly setting up and breeding, helping to repopulate large parts of Yorkshire. In more recent years, otters and barn owls have returned to the estate after many years of absence.

With a vast network of well-maintained public footpaths and permissive rights of way, Harewood ensures that people can connect with nature while exploring this remarkable landscape – truly a place where heritage, wildlife and the community come together.

To find out more about Harewood Estate's nature restoration and sustainable farming programme, visit: https://harewood-estate.co.uk/

Leeds – Community – Taking swift action for wildlife at homes in Leeds

A community-led conservation initiative is giving endangered birds a safe place to call home in a leafy suburb of Leeds. The Leeds Swift Group, working with residents and partners, is transforming parts of Gledhow into 'swift streets' by installing specifically designed swift boxes and bricks on homes across the area.

Swifts, which travel all the way from Africa each spring, have seen a dramatic 62 per cent decline in the UK between 1995 and 2021. Habitat loss, falling insect numbers and changing weather patterns have seen them struggling, resulting in them being listed as a national priority species.

Safe nesting sites are critical for conserving the species, as swifts tend to return to the same locations year after year. Through providing nesting boxes and bricks, the project ensures these remarkable birds can continue to return each April and May.

The Leeds Swifts initiative is part of a wider effort across West Yorkshire to support swift populations. Similar projects, as the Calderdale Swift Project in North Halifax and Todmorden, as well as Wakefield Swifts, are helping to create a network or welcoming habitats for swifts across the region.

Leeds – Environmental NGO in partnership with Leeds City Council – RSPB St Aidan's: From industrial wasteland to vibrant wetland reserve

Once an open-cast coal mine in the Aire Valley between Leeds and Castleford, the site that is now RSPB St Aidan's Nature Park was flooded in 1988 following a riverbank collapse. Leeds City Council's Minerals Planning Team guided the restoration of the land to be designed for nature and people and negotiated transfer of the land to the Council in order to lease it to the RSPB as a new nature reserve. Today, it has been transformed into a thriving wetland reserve that balances the needs of both people and wildlife.

Opened to the public in May 2013, St Aidan's offers a wide range of recreational activities, from birdwatching, cycling and walking to jogging, horse riding and responsible dog walking. While this access encourages people to engage with nature, it also presents challenges in managing human activity alongside sensitive wildlife and habitats.

Visitors can explore trails that wind through diverse areas, including reedbeds, wetlands, meadows and woodland. These habitats provide a sanctuary for a remarkable variety of birds. St Aidan's is home to species such as the Eurasian bitten, little owl, western marsh harrier and Eurasian skylark.

The reserve is designated as a West Yorkshire Local Wildlife Site and is also nationally important as it supports breeding populations of some of the UK's rarest birds. Around 25 per cent of the national population of black-necked grebes nest here, tacking cover near over one thousand pairs of black-headed gulls. Other breeding species include lapwing and common redshank, highlighting the site's importance for conservation.

St Aidan's is a shining example of nature restoration and public engagement working hand in hand. It is also a great example of creating a nationally important new nature reserve through the planning system.

Leeds – farmer and local authority landowners – Farmer and Leeds City Council join forces to restore Tyersal Beck

Flowing through farmland and public green space, Tyersal Beck is finding its natural rhythm again thanks to a partnership between a local farmer and Leeds City Council. Backed by funding from the West Yorkshire Combined Authority, steered by the Environment Agency and brought to life by the Yorkshire Wildlife Trust, the restoration is part of the Wortley Natural Flood Management project – a united effort to restore the river, enrich local wildlife and help protect communities from flooding.

Once straightened and constrained, parts of the beck are now being 're-wriggled', allowing it to follow a more natural, meandering course. Along its banks, a newly planted riparian buffer strip of native trees provides shade for aquatic wildlife, stabilises the riverbank and creates habitat, while fencing helps control livestock access to the river to reduce erosion of the bank.

The work extends beyond the water's edge. Volunteers monitor riverfly populations and water quality, offering valuable insights into the beck's health, while neighbouring woodland now hosts a series of leaky dams – slowing runoff and reducing the risk of downstream flooding.

Through blending traditional land management with innovative natural flood management solutions, the Tyersal Beck project shows how farmers, public bodies, conservation organisations and volunteers can come together to restore both the health of our rivers and resilience of our communities.

Leeds – Academic landowner – How the University of Leeds is creating space for nature on campus

In the heart of the city, the University of Leeds is transforming its campus into a thriving showcase of urban nature by blending biodiversity, sustainability and community connection.

Guiding this transformation is the University's Biodiversity Standard, a framework that puts people and nature side by side. It champions the importance of expanding green spaces, the creation of thriving wildlife habitats, and the integration of nature into the daily experience of students and staff.

The vision comes alive in the Sustainable Garden, a colourful public hub where wildflowers bloom, organic produce is grown and research pods trial community-focused climate solutions. Just a short walk away, the Campus Tree Trail also celebrates the campus's network of mature trees, which shelter wildlife, capture carbon and provide welcome shade during warmer months.

The university's commitment extends beyond the campus. In partnership with Brudenell Primary School, it has also planted a forest garden to connect children with the natural world. The Roger Stevens Pond, once a cooling pond, is now a biodiverse area used for research and relaxation, featuring floating islands and attracting local wildlife.

Meanwhile, high above the campus, peregrine falcons have nested on the iconic Parkinson Tower, raising fourteen chicks since 2018. A live webcam offers a window into their world, proof that even in a bustling city, nature can thrive.

To find out more about work by the University of Leeds to green its campus, visit: https://sustainability.leeds.ac.uk/biodiversity-at-the-university-of-leeds-in-2024/

Kirklees – Community conservation – Bringing water voles back to the Holme Valley

Once a familiar sight along Britain's streams, rivers and canals – and famously the inspiration for 'Ratty' in *The Wind in the Willows* – water voles play a vital role in keeping freshwater ecosystems healthy. By burrowing and grazing on riverside plants, they shape wetland habitats, create niches for other species and help maintain the balance of riverbank vegetation.

But in recent decades, these much-loved mammals have suffered steep declines. Pollution, habitat loss and predation by the invasive American mink have pushed water voles to the brink, with local extinctions across much of West Yorkshire and indeed the country.

Now, hope is returning to the Holme Valley. A local landowner, working hand in hand with water vole expert Derek Gow, have reintroduced the small mammals to a stretch of the river at Black Syke, where wetlands and freshwater provide ideal habitat conditions.

The new population is being carefully monitored. Conservationists are looking out for freshly

dug burrow entrances, nibbled vegetation and latrines containing water vole droppings, alongside the thrill of spotting the animals themselves. The project is also remaining vigilant for mink activity to ensure the voles have the best chance to grow their population.

The partnership marks an exciting step in restoring one of the UK's fastest declining mammals to the valley, while also strengthening the wider river ecosystem. If successful the return of the water vole will not only signal healthier waterways, but also reconnect the community with a species that is both ecologically important and culturally iconic.

Kirklees – Local authority landowner – Dewsbury's newest public open space restores land for people and nature

Dewsbury Country Park, once the site of the Lower Spen Valley Landfill, is being transformed into a vibrant green space where local communities can walk, cycle and connect with nature.

Led by Kirklees Council and partners, the project is reshaping the land into a mosaic of ecologically-important habitats. New woodlands, hedgerows and grasslands are stitching the landscape back together, while ponds and wetlands are bringing water and wildlife back to the valley. In recent years, three ponds have been extended, two more created and around eight hectares of meadows restored, providing a vital boost for biodiversity and carbon storage.

Access for people is at the heart of the Council's vision for Dewsbury Country Park. A network of footpaths, including fully accessible routes, ensures that the park can be enjoyed by everyone. In ana rea facing high levels of deprivation, having a safe, tranquil space to engage with nature makes a real difference to health, wellbeing and quality of life.

And there's more to come. Kirklees Council has secured support from the Water Restoration Fund, a national scheme that reinvests water company fines into local projects, to restore the river and associated habitats, improving water quality, enhancing the habitat and creating rich corridors of wildlife.

Kirklees – Local authority landowner – Reconnecting fragments of ancient woodlands in Kirklees

Just a stone's throw from the iconic Castle Hill are Mellor and Molly Carr Woods, two pockets of ancient woodland owned by Kirklees Council. Rich in history and biodiversity, they are carefully managed to protect and enhance their natural value. Yet, like many woodlands across West Yorkshire, they remain fragmented, isolated from each other and the wider landscape of the valley.

To tackle this challenge, Kirklees Council has joined forced with the White Rose Forest on an ambitious project to reconnect these precious habitats. Through planting native broadleaf trees and supporting natural regeneration, the aim is to create around 15 hectares of new woodland, weaving the sites together into a larger, more resilient landscape.

But the vision doesn't stop with trees. Plans also include new hedgerows and the restoration of species-rich meadows, building an interconnected mosaic of habitats across the valley. This will open up vital corridors for birds, mammals and other wildlife to move and thrive, while also unlocking benefits for people – from cleaner air and improved climate resilience to the simple joy of experiencing a richer, greener landscape.

Wakefield – Community Action – Digging deep to recreate a network of freshwater habitats

Freshwater has long shaped the landscape of Wakefield. The floodplains of the Rivers Calder and Aire are dotted with lakes, while old sand and gravel pits and areas of mining subsidence have created wetlands that now host wildlife. Yet, like much of England, the district lost around half of its ponds during the 20th century, as agriculture intensified, towns expanded and some were simply forgotten.

This loss matters. Ponds are small but mighty, supporting more species than rivers or lakes – around 70 per cent of all freshwater life in lowland landscapes, including many rare and protected species. Recognising this, Wakefield Council has made it a priority to bring ponds back.
Working with partners including the Environment Agency, Calder Rivers Trust, Froglife and local community groups, the Council has restored and created new ponds across its land. At Wrenthorpe Park and Alverthorpe Meadows Local Nature Reserve alone, 11 new ponds have been dug and two more restored, providing vital breeding grounds for common toads, alongside amphibians, invertebrates and aquatic plants.

Elsewhere across the district, new developments are incorporating ponds to manage surface water, reduce flood risk and provide green havens for communities. These efforts are helping to rebuild a network of freshwater habitats across Wakefield, giving wildlife space to thrive and people places to connect with nature.

Wakefield – Local authority – Growing a greener future in Wakefield

With just 3.8 per cent of woodland cover, compared to the national average of 10.5 per cent and Europe's 30 per cent, Wakefield is one of the least wooded districts in the country. To change that, Wakefield Council has joined the White Rose Forest partnership – part of the ambitious Northern Forest programme that will see 50 million broadleaf trees planted across the North of England. Together, these trees will capture carbon, reduce flood risk and create rich new habitats for wildlife.

Two new woodlands were planted in Gawthorpe, near Ossett, and Snapethorpe, near Lupset, in winter 2022/23. With the help of around 500 volunteers, more than 32,000 trees were planted across 19 hectares. Local residents also chose the names of these new landmarks, voting for Maypole Wood and Hope Wood, respectively.

The momentum continued in winter 2024/5, when 25,000 more trees went into the ground. At Walton Colliery Country Park, over 280 volunteers planted 11,000 trees across 28 days, creating a new 5.3 hectare woodland at the heart of the White Rose Forest.

Where possible, tree planting has been paired with complementary habitats, such as the creation of 3.5 hectares of species-rich meadow, ensuring a diverse mosaic of landscapes for wildlife.

These new woodlands are not only tackling climate change, but also making Wakefield greener, healthier and richer in biodiversity, leaving a living legacy for future generations.

You can view an interactive map of where Wakefield Council has planted trees at:
https://www.wakefield.gov.uk/environment-and-climate-change/climate-change/our-woodland-creation-programme

Wakefield – Local authority – Saving rare wet heath at Seckar Wood

Seckar Wood Site of Special Scientific Interest and Local Nature Reserve is one of Wakefield's most treasured landscapes. Known for its pockets of lowland heath, a rare habitat in the UK, it preserves what remains of Woolley North Moor, once a vast expanse of common land known locally as 'the Wastes of Woolley'.

While the better-known dry heath has long been managed to keep back scrub, a small patch of wet lowland heathland, hidden deep within the woodland, was at risk of being lost. Wet heath is exceptionally rare and ecologically valuable but difficult to maintain with machinery. Over time, scrub encroachment began to smoother this fragile habitat, raising concerns it might be drying out altogether.

In early 2024, Wakefield Council, supported by dedicated volunteers from the local Friends group, set to work. They cleared the entire wet heath of invasive scrub by hand, dragging cuttings into the woodlands to build a natural dead hedge. This barrier not only deters trampling but also creates extra habitat for insects, birds and small mammals.

The early results are encouraging. The ground remains as wet as ever and the heath is already showing signs of recovery. With careful stewardship, this hidden corner of Seckar Wood will continue to provide refuge for the rare species that depend on it.

Appendix: Glossary

Term	West Yorkshire Local Nature Recovery Strategy Definition
biodiversity	The abundance of different plants and animals; an indicator of nature's health.
Biodiversity Net Gain (BNG)	An approach to development, land and marine management that leaves biodiversity in a measurably better state than before the development took place.
blue-green infrastructure	A network of multi-functional green and blue spaces and other natural features.
benefits	The things all living things need to survive (food, clean water, comfortable temperatures, clean air, safe places to live) as well as those that make human life pleasurable, fulfilling and meaningful (such as health and wellbeing, strong communities, amenity, spirituality, culture).
ecosystem services	Natural processes (such as carbon and water cycles) generate ecosystem services: plentiful water, clean water, clean air, noise regulation, urban cooling, flood protection, thriving animals, fungi and plants, climate regulation, cultural benefits, erosion control, timber and other wood products, cultivated crops, reared animals, and pest and disease control.
endemic species	Found exclusively in that area.
habitat	The natural home or environment of a plant or animal or assemblages of plants or animals; includes blue-green infrastructure.
hectare	A space of 10,000 square metres, often used as a unit of measurement. A hectare is roughly the size of a rugby pitch (100x70 metres).
invasive species	Non-native species, some of whom damage native communities.
irreplaceable habitat	Definition forthcoming. Use BNG definition for now.
measures	The specific practical actions to achieve priorities.
must	A legal requirement taken from the Regulations.
native species	A species that has evolved locally without human intervention.
natural capital	The economic benefits that people can extract from nature (such as the price of timber).
natural processes	Interactions between plants, animals and the environment, such as photosynthesis, decomposition and pollination.
nature	'Nature' is a broad term and people define it in different ways. Here, it refers to landscapes and their features (for example catchments and rivers), habitats, humans and other animals (including birds), as well as fungi and plants. It also comprises natural systems such as pollination and the way water moves (along rivers, through soils, down hills) and the relationships within/between species (predator-prey, social bonds and other interactions).

nature-based solutions	Actions that support and draw on nature to provide wider environmental or societal benefits.
nature connectedness	An individual's sense of their relationship with the natural world.
nature connection	Contact with nature (being in a greenspace).
nature positive	Where nature is being restored and is regenerating rather than declining.
nature recovery	An ongoing process to create bigger, better, more connected habitats to improve and support nature's health.
non-native species	Species introduced/spread by humans.
priorities	The end results that the strategy is seeking to achieve.
realistic	Sensible, practical idea of what can be achieved or expected.
should	Requirement from the statutory guidance.
tree and woodland resilience	The ability of woodland ecosystems to cope with challenges such as pests, diseases, extreme weather, or climate change.
wildlife	Animals (including birds), fungi and plants.

Appendix: Further reading and resources

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Resources

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Part 6: Reports

Please click here to read the Nature in West Yorkshire Report

Please click here to read the Priority Species Report

Please click here to read the Report of Engagement

The final version of the West Yorkshire Local Nature Recovery Strategy will include a full report on the methodology to generate the Local Habitat Map

Part 7: User guides

We will develop user guides to accompany the publication of the Local Nature Recovery Strategy in 2026 to support delivery and following feedback from the public consultation. These may include the following:

User guide for planners and developers

User guide for farmers, landowners, and land managers

User guide for communities

User guide for businesses

User guide for public bodies and decision-makers.