



West
Yorkshire
Combined
Authority

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Mayor of
West Yorkshire



Local Nature Recovery Strategy



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Structure of this document

Part 1

Provides an overview of the wider West Yorkshire context and industrial past and what we stand to gain or lose.

Part 2

Introduces Local Nature Recovery Strategies, explains how they fit in with land-use planning and how they might be used, and describes how we developed the strategy for our region.

Part 3

Looks more closely at West Yorkshire's natural environment, including the 'big blue thread' of water. Each section includes an illustrative map, a description of the habitat or theme, including the main threats and opportunities, followed by the nature-recovery priorities for that theme.

Part 4

Is the technical section: the full table of measures (actions) for each priority.

Part 5

Contains case studies showcasing some of the best nature recovery efforts from each of the five West Yorkshire districts.

Part 6

Contains the appendices.



This document accompanies the interactive **West Yorkshire Local Habitat Map**, which shows where many of the measures could happen.

Actions suggested in this strategy neither direct nor preclude other activities or uses for any given site. The fact that they appear here does not indicate permission to proceed; consult landowners, relevant authorities and ecological experts.



Urban and rural. The strategy aims to restore nature and give people better access to it. That means bringing wildlife into towns and cities, such as this wildflower verge in inner city Bradford, as well as helping people to enjoy the countryside responsibly (next page: cycling near Sandal Castle, Wakefield).
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Acknowledgements

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Biodiversity Net Gain (BNG) strategic uplift applies from the point at which the draft West Yorkshire Local Nature Recovery Strategy was published for public consultation.

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Part 1

Background and West Yorkshire Overview



Executive Summary

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 people and wildlife, 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; I want to see opportunities for safe, healthy and accessible waterways for swimming in West Yorkshire.

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 ('30 by 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.



Tracy Brabin
Mayor of West Yorkshire



Endorsements

West Yorkshire's first nature recovery strategy is set, very appropriately, in the home of the world's first nature reserve. It describes how a still greener, more diverse future can be achieved by realistic, practical action.

I hope it inspires many others to develop a strong connection with the natural world, not only through action to help wildlife but also through the arts and other activities.

I wish it every success.



Sir David Attenborough,
20 November 2025



Introduction



Around the world, many natural places are undergoing a catastrophic decline in animals, fungi and plants with devastating impacts. To address this, the UK, along with nearly 200 other nations, has formally committed to national and international targets, including the target to manage at least 30 per cent of land and sea positively for biodiversity by 2030^[1]. This target, known as ‘30 by 30’, is what the science shows is needed to halt and reverse declines in biodiversity. For England, legally binding biodiversity targets set out in the Environment Act 2021 include the aim to halt the decline in species abundance by 2030.

This strategy describes our vision for a West Yorkshire that is rich in nature, resilient and supports our growth and investment ambitions. It shows how, by expanding and improving our protected areas and creating new areas for wildlife, West Yorkshire can help the government meet that legally binding commitment and safeguard natural infrastructure for wildlife, clean air, climate resilience and health. It is West Yorkshire’s contribution to a national nature network that Sir John Lawton says must be “bigger, better, more, and joined-up”^[2] and meets the ‘30 by 30’ commitment and support our other regional ambitions. The **Local Habitat Map**, which accompanies this written statement, shows where and how this could be achieved in the region.

The West Yorkshire Local Nature Recovery Strategy is one of 48 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. The government asked the Combined Authority to be the ‘responsible authority’ for West Yorkshire’s strategy.

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

[1] Kunming-Montreal Global Biodiversity Framework (2024) 2030 Targets (with Guidance Notes). Guidance document. [Online.] [Accessed 12/12/2025.] Available at: <https://www.cbd.int>

[2] 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>



Bradford. Visitors to the iconic Cow and Calf gritstone rocks on Ilkley Moor enjoy views across Ilkley and the Wharfedale Valley.

This diagram shows how the main elements of the strategy fit together.

AIM

For **West Yorkshire** to pioneer post-industrial nature recovery and forge a just, blue-green revolution; a bigger, better, and more joined-up nature network, resilient and rich in biodiversity, from moor to forest, peak to valley, river to city.

Objective 1

Wildlife and habitats

Enhance, expand, create and connect habitats to boost the abundance of different animals, fungi and plants.

Objective 2

Ecosystem services

Strengthen and support natural systems for clean water and air, healthy soils, urban cooling and climate regulation.

Objective 3

People

Draw on West Yorkshire's distinct landscape, heritage and cultural strengths to connect people to nature for a net-zero economy and a fairer, greener, healthier future.

Big blue thread

We must manage water positively for nature and people across West Yorkshire, and so **'water'** runs as a theme through the whole strategy.

Themes

Built environment

Farmland and agriculture

Uplands

Water and wetlands

Grasslands

Trees and woodlands

Quality and condition

Species

Priorities: the outcomes we want to achieve

Habitat (23), cross-cutting (4), plus priorities for species

Measures: the practical actions

Mapped (57) Not mapped (c.100), Supporting (c.170)

Targets

Fewer species at risk

More canopy cover

More rewetted peatland

Rivers in better ecological status

Better access to greenspace

Key Diagram

The diagram below provides an overview of some of the aims and ambitions for nature recovery outlined in the **Local Nature Recovery Strategy**.



Legend

Existing features

- Main towns and cities
- ▭ West Yorkshire boundary
- ▭ Local Authority boundaries
- ▭ Waterflow

- ▭ Rivers
- ▭ Areas of particular importance to biodiversity
- ▭ Urban area
- ▭ Rural area

Broad areas for measures

- ▭ Water and wetlands
- ▭ Uplands
- ▭ Tree and woodlands
- ▭ Built environment

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.

Figure 1 High-level indication of potential areas for nature recovery in West Yorkshire



Calderdale. The old textile mill town of Hebden Bridge lies close to the Pennine Way for those seeking hills and the Rochdale Canal towpath for gentler walks. © Scott Merrylees / West Yorkshire Combined Authority

Who is this for?

This strategy will help to direct efforts to help nature to where these should have the most lasting impacts. 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)

The mapped measures suggested on the **Local Habitat Map** 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 strategy means that developers and other end-users can ensure that land use in West Yorkshire contributes positively to environmental outcomes alongside meeting the region's growth requirements, with decisions based on the best available evidence.

Mapped areas do not limit where BNG units may be used, and future map updates will follow Natural England guidance when issued. Mapped measures that explicitly state a recognised habitat type will be eligible for the strategic significance multiplier in the statutory biodiversity metric only if:

1. the mapped measure/s proposed to help deliver the priorities of the West Yorkshire Local Nature Recovery Strategy are carried out in the location specified in the **Local Habitat map**^[3] and
2. the proposed intervention is consistent with the mapped potential measure in the West Yorkshire Local Nature Recovery Strategy for the habitat parcel and is clearly referenced in the BNG assessment/report submitted as part of the planning application[†].

Non-mapped measures and supporting measures are not eligible for the strategic uplift for BNG.

[3] DEFRA (2024), The Statutory Biodiversity Metric. p.28. User Guide. [Online.] [Accessed 16/01/2026.] Available at: <https://www.gov.uk/government/publications>

† The appointed ecological consultant justifies (to the satisfaction of the local planning authority) that the outcomes are highly likely to result in an appropriate biodiversity uplift for habitat area, hedgerow or watercourse biodiversity units.

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 and manage water positively for the benefit of wildlife and people.

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

- **Connected re-wetted areas**, such as the *Strings of Pearls* Aire Catchment Network project;
- **Water-thriving cities** – the vision of Friends of Bradford Becks, who restore river systems for clean, visible accessible becks in urban areas for nature and people;
- **Swimmable West Yorkshire[†]** – safe, healthy and accessible waterways;
- **Re-wiggling** – projects to allow streams to follow their natural paths and slow the flow.

[†] Launched on the eve of the 2024 Paris Olympics, Swimmable Cities has grown into a global platform for transforming urban waterways.

Priorities

For West Yorkshire, there are 23 habitat **priorities** (what we want to achieve), with additional priorities for species and cross-cutting themes:



Cross-cutting

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



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).

Ecosystem services and other benefits

Nature supports lives (ours and those of other species) in many ways. Helping nature will regenerate natural systems that result in 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 such as tourism and leisure, erosion control, timber and other wood products, cultivated crops, reared animals, and pest and disease control.

As well as generating what all life needs to survive, nature also contributes to what our places look and feel like making them attractive to live, work and invest in. It makes human life pleasurable, fulfilling and meaningful (health and wellbeing, strong communities, amenity, spirituality and culture).

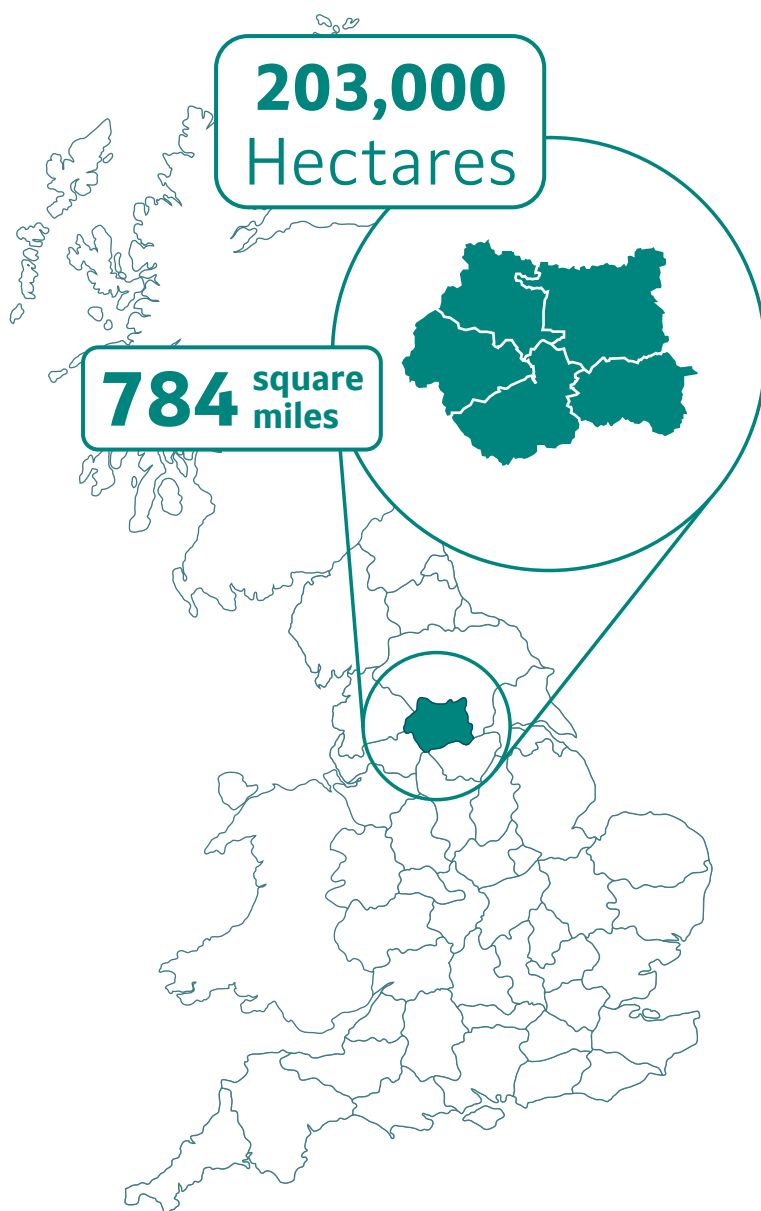
Appendix 4 shows how different configurations of priorities from different themes can team up to achieve different environmental outcomes.

See also **Appendix 5: Values – Pricing nature, caring for nature.**

Background and West Yorkshire overview

West Yorkshire is an area of some 203,000 hectares, or 784 square miles, with a population of 2.3 million people. It 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, ancient pack-horse routes, nature reserves on old mining sites, urban greenspaces and tiny city pocket parks, allotments, 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[±], close to open countryside.



[‡] 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 per cent). In North Yorkshire, most people (65 per cent) live in more dispersed, rural areas (ONS, 2024).



Kirklees. Victoria Tower on Castle Hill (a site of archaeological interest) is the most noticeable landmark over the town of Huddersfield.
© Scott Merrylees / West Yorkshire Combined Authority



For nature, this characteristic presents the region with both 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 health benefits of nature.

This unusual profile also offers West Yorkshire an opportunity to help to reduce social inequalities by bringing people closer to nature. In 2025, West Yorkshire's first National Nature Reserve was declared: the Bradford Pennine Gateway National Nature Reserve (1,272 hectares) recognises the value of West Yorkshire's natural environment, highlights ways to support wildlife, habitats and people and aims to bridge the gap between Bradford city and the countryside.

Many organisations, groups and individuals in West Yorkshire already work hard to help nature and people, and many of them helped to shape this strategy, sharing their time, interest and expertise. Efforts intended to help nature in West Yorkshire are, though, far from new: 19th century naturalist Charles Waterton put a boundary wall around his estate in Wakefield, banned hunting, restricted fishing, protected nesting birds and created new habitats for native species; this is the first known example of a landscape managed in a way that, Waterton hoped, might protect nature. Two hundred years later, in 2026, the Combined Authority is marking this as part of a year of cultural activities to highlight West Yorkshire's cultural and environmental assets and develop new skills around sustainability, green energy and nature recovery, helping to turn this strategy into action.

The region is steeped in industrial heritage. 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 and 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.



Leeds. Street trees and green spaces such as those near Leeds Art Gallery are integral to urban planning and design – nature as critical infrastructure. © Carl Milner / Leeds City Council



Its natural heritage has exerted just as much influence, and West Yorkshire's 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 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.

Biodiversity is, though, in decline all over the world, and England is one of the most nature-depleted countries of all^[4]. 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^[5] 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^[5]. 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 may be at risk of extinction^[5]. The *State of Nature* (2023) report identifies land-use/management and climate change as primary drivers of nature's decline.

[4] 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>

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

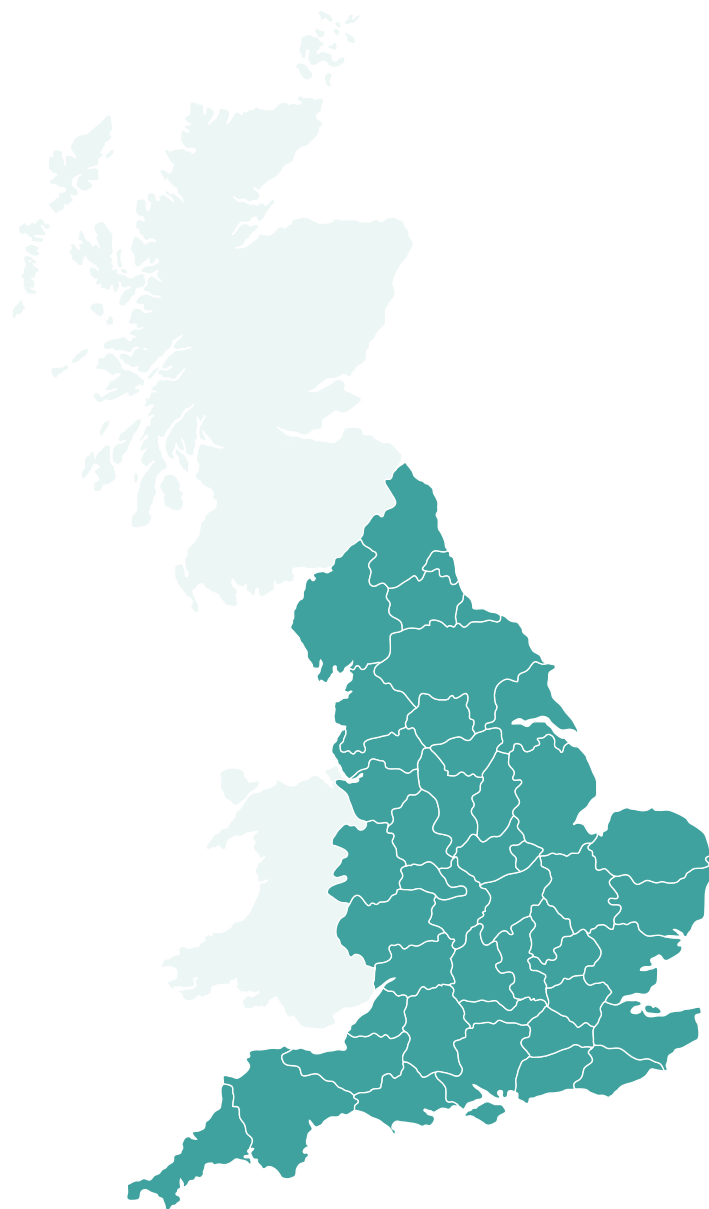


Wakefield. Henry Moore's bronze sculpture Large Spindle Piece, at the Yorkshire Sculpture Park, was inspired by a pebble and connects visitors to the landscape.
© James Mulkeen / West Yorkshire Local Visitor Economy Partnership

This is terrible not just for species and habitats – it’s extremely dangerous for humans, too. Erosion, for example, poses a serious risk to the policy areas of climate adaptation, and the security of timber (the UK currently imports 73 per cent of its timber)^[6], food and water, according to *State of Natural Capital* report^[7]. 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.

See **Appendix 2: How nature affects policy.**

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.



[6] 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/>

[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/>



Past, present and future. Today's visitors to the 19th century Gibson Mill see how the region's industrial history sets the scene for managing the 400 acres of unspoilt woodland in Hardcastle Crag in Calderdale to protect nature for the long-term.



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. 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. 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 strategy contributes to these and other national and international ambitions. Nature recovery in our catchments, for example, improves water quality downstream as well as affecting the coastal and marine environment further afield; helping nature in West Yorkshire will thus have an impact not just here, but elsewhere, too.

Defining nature

People define 'nature' 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 and between species (predator-prey, social bonds and other interactions).

Biodiversity and the strategy

Biodiversity is the abundance of different animals, fungi and plants that interact with each other and the physical world around them and underpin the environment's natural ecosystems services. These 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 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 natural environment is essential for health at population, neighbourhood and individual levels. A healthy, diverse ecosystem provides clean water, food and clean air, local greenspaces offer opportunities for exercise, socialising and recreation, and nature 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 suffer disproportionately from the impacts of the emerging ecological crisis. Inequalities in access to greenspace, combined with higher levels of air pollution in the most socioeconomically deprived areas, threaten the physical and mental health of millions of adults and children.



The three examples below give an indication of what we stand to gain or lose^[8].

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.

Measures include: re-wiggling streams; reducing pollution of rivers and other water bodies; increasing 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 in West Yorkshire to full health, boosting biodiversity to maximise their ability to store carbon, retain water and reduce the risk of wildfires.

Measures include: stabilising and re-wetting damaged blanket bog; reintroducing lost plant species; engaging volunteers in peatland restoration.

Ecosystem services include: carbon sequestration by soil/vegetation flood protection; clean water; plentiful water; reared animals; erosion control; thriving animals, fungi and plants; cultural benefits.

Benefits include: slowing climate change; greenhouse-gas fixing; reduced risk of extreme drought, flood and extreme weather events; cooler summers.

[8] 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>

† 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: 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 woodlands 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: planting trees to create new woodland to contribute to White Rose Forest target of 18.5 per cent tree and woodland cover by 2050; creating 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.

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) and the psychological and social impacts of these; loss of recreation, spirituality, sense of belonging, 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.

Part 2

About Local Nature Recovery Strategies



About Local Nature Recovery Strategies

The 2021 Environment Act set out legally binding targets for restoring and enhancing nature across England. Priority issues include air and water quality, waste, recycling and species decline, as well as targets for increasing tree and woodland cover, and ambitions are set in interim targets for 2028 and longer-term statutory targets.

Local Nature Recovery Strategies will play a key part in achieving these targets (see **Appendix 3** for West Yorkshire's outline targets). They 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).

The strategies create a starting point, by putting the right measures in the right places. 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 environmental impact, guiding decisions, funnelling funding, informing planning and prioritising nature-based solutions.

People will be able to use the strategies to coordinate action and create a shared sense of purpose.



A Local Nature Recovery Strategy is:

- a strategic approach to the natural environment
- agreed priorities for nature recovery
- suggested actions
- a tool that end-users can use to identify opportunities for nature recovery



It is not:

- a delivery plan (but will shape delivery)
- binding
- lines on a map that confer protection or dictate 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. Based on a research report by Yorkshire Wildlife Trust, it describes what is already in West Yorkshire, the challenges we face and the many opportunities available. It then identifies nature-recovery priorities and suggests specific, practical, measures that would get us there.

Part 2:

Local Habitat Map The strategy pinpoints where 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 mapped practical actions that could 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 mapped 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.

Land-use planning



Nature needs space, and so the strategies fit in with the bigger planning picture

2025 Planning and Infrastructure Bill

This 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 will allow developers to work at pace while meeting their environmental obligations.

Environmental Improvement Plan 2023 for England

The plan 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

The framework sets out government policies for England. Chapters on natural environment, climate, flooding and the green belt all link with nature recovery. It states that planning proposals should support the West Yorkshire Local Nature Recovery Strategy suggestions for habitat creation or nature recovery and reinforces the importance of protecting irreplaceable habitats, such as ancient woodland, from development.

Land Use Framework

Government has consulted on a new approach to land use to help decision-makers (including local government, landowners, businesses, farmers, and nature groups) deliver 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 ensure that proposals for land use align with the Protected Landscape Management Plan, the description of the special qualities and key characteristics that 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)

Developers must leave habitats at least 10 per cent better after development. The aim is to provide BNG uplifts on-site, but a developer can buy off-site units or pay into the national credit system. This will cost more the 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 carried out as intended, reflect what is best for nature.

Local Plans

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



Moss boss. Mayor Tracy Brabin (right) helps to plant sphagnum moss in Ogden Water Country Park in Calderdale as part of a scheme to rewet West Yorkshire's uplands



A tool for all. Landowners are just one of those who will use the strategy to make decisions. Here, stepping stones at the Yorkshire Sculpture Park in Wakefield guide visitors along historic scenic trails through the estate and wider landscape.

Delivery



Developers and local planning authorities will use the strategies to:

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

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

- decide what could be done on land they own, manage or give advice about;
- 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 and conservationists, landscape architects/designers, gardeners, community groups and members of the public can use them to:

- inform how areas are managed and decide where to focus their efforts;
- 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 to ensure opportunities to benefit from nature are not missed;
- guide private finance investments in nature and carbon markets.

We will develop guides for end-users such as planners and developers; farmers, landowners, land agents and land managers; communities; businesses; public bodies and decision-makers.

The role of West Yorkshire Combined Authority

As well as being the responsible authority for preparing this first Local Nature Recovery Strategy for West Yorkshire, the Combined Authority will also play a key role in the strategy's delivery. Defra's expectation is that each responsible authority will:

- lead and convene a delivery partnership to plan and prioritise delivery;
- embed the strategy into local decision making;
- identify priority strategic projects and facilitate project development;
- monitor and report on delivery of nature recovery activities in the strategy area.

Strategic context

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

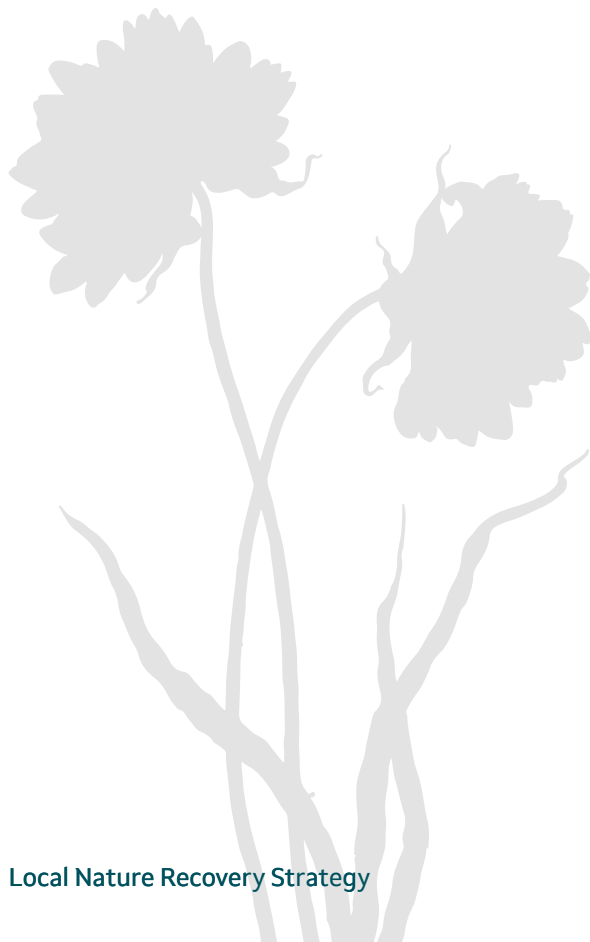
Global: The '30 by 30' commitment is for 30 per cent (or more) of land and ocean area to be protected by 2030.

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 **Appendix 1: Strategic context.**





Mood boost. Spending time in nature helps health and wellbeing and supports the Mayor's priority for a happy West Yorkshire.

Nature recovery and regional ambitions

Access to high-quality, wildlife-rich local environments is a fundamental target for the government; this encompasses the need for both people, places and the environment to be healthy and in good shape. This strategy will support this and many other plans and strategies. It will help the Combined Authority meet its ambition to create a West Yorkshire that works for all and meets its growth 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 attracts visitors and encourages people to spend time and money here, and it can bring people into volunteering and increase skills. It creates attractive and climate resilient places for businesses and can attract investment. 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 greenspaces; the health and wellbeing impacts of this include increased activity levels and improved life expectancy. Green cities protect more people against dangerous climate-related health threats such as heat exhaustion. Nature offers an abundance of direct and indirect mental, cognitive and social health and wellbeing benefits.



Mission 3: A well-connected West Yorkshire – a strong transport system.

The strategy will help transport and 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's target of 18.5 per cent^[9], 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 greenspaces, and the jobs and opportunities created by nature recovery, could also help to reduce crime rates^[10].

[9] White Rose Forest (2025) Creating a Resilient Landscape For Growth: White Rose Forest Strategic Plan, 2025-50. Strategy document. [Online.] [Accessed 12/12/2025]. Available from: [Strategic Plan - White Rose Forest](#)

[10] 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/>



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. This notes that growth will not be pursued at any cost and that the Plan's activities will be driven by the principles of inclusion, health, wellbeing and sustainability.

Nature and the emerging Spatial Development Strategy

This West Yorkshire 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, which contains sub-themes for nature recovery and access to green space. Water management is another theme, including flood risk management. The Infrastructure Strategy will identify the region's strategic environmental assets and consider the region's vision for the environment alongside wider cross-cutting topics, such as housing and employment, health and wellbeing, urban and rural issues, the climate and environmental emergency, and resilience and maintenance, over the next 10 to 15 years. This West Yorkshire Local Nature Recovery Strategy will help to shape these themes and cross-cutting topics and allow the Infrastructure Strategy to make informed decisions about how nature can support infrastructure and growth aspirations.

Methodology and engagement

Decision-making process

The strategy's steering group, supporting authority and habitat sub-groups advised the Local Nature Recovery Strategy project team. Decisions were taken by the Combined Authority.

Guiding principles

The process of developing the 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, while recognising that stronger connections with nature lead to pro-environmental behaviour, and that environmental health and human health are inseparable;
- build on the Lawton Principles^[11] 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

[11] 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>

Technical expertise

Yorkshire Wildlife Trust provided a full technical description of the strategy area^[12] and developed a methodology to shortlist priority species^[13]; both of their reports are available (see links in **Appendix 8: Further reading and resources**), along with a report on the mapping methodology. The Trust also led a series of specialist habitat workshops with expert partners. These generated a set of priorities and measures, which were further refined over time.

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.

The draft priorities and measures were further refined against the findings from wider engagement and ongoing consultation with specialists.

Small groups of theme experts then helped to generate the first iteration of the **Local Habitat Map**, agreeing a bespoke approach for every mapped measure.

Supporting authority partners

We thank the following supporting authorities, who played an active role in helping to develop the strategy to ensure that it works for West Yorkshire as well as aligning their own priorities (see **Appendix 1: Strategic context**).

- 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

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

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

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 powered by the goodwill, time and energy of volunteers, 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) including an initial survey
- public (specific demographic groups)
- public (special interest groups, community groups)
- businesses

For some of this work, we commissioned experts in participatory practice to ensure that the priorities and measures reflect what local people want and need. We know that nature needs some space away from people, particularly where sensitive habitats or rare species are concerned. The commissioned engagement work also alerted us to another kind of tension between people and nature, as the following feedback from the consultants highlights.

“What surfaced throughout were the tensions at play when balancing the needs of nature with the needs of people and that, sometimes, they need different things. Making places wilder and less regulated can sometimes make [those places] feel unsafe, unkempt or inaccessible. Sometimes, wild verges may increase litter or fly-tipping. Denser planting along a walkway or in a park can make a space that once felt open and secure feel dark and threatening. These tensions were at the heart of our discussions. ... [ecosystems of people and nature] are inherently connected and, as we learnt throughout our engagement, doing something for nature will affect people too.

Unless the strategy is honest about these tensions and encourages decision-makers to act with them in mind, it risks pushing people, especially marginalised people, away and not really working for either people or nature...

Throughout our discussions, three themes were repeated consistently as being at the heart of tensions between designing a policy for both people and nature to thrive. 1: Safety: if people do not feel safe, they will not use green spaces. 2: Accessibility: if nature is not accessible – physically, socially and culturally – then it is not truly for everyone. 3: Diversity: If diversity is not recognised and valued, then whole communities risk being excluded.” **Street Space**

A statutory public consultation took place **between 20 October and 16 November 2025**. A summary Report of Engagement and the reports of individual engagement activities are all available [online](#).



Shaping things. Residents in Leeds made seed balls and talked about nature. This was just one of many engagement activities to find out what people want and need the strategy to do for them. © Street Space

Conclusion

Partners broadly agree that West Yorkshire needs to safeguard nature for a range of ethical, practical and economic reasons. They refer to the need 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.

People in West Yorkshire cherish nature, understand the need to support wildlife, and support action to help the environment. A lot of people are very knowledgeable, indicating a vast resource of expertise, 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 to overcome barriers to action, access and connection.

The following themes emerged:

Nature needs space: the needs of nature and those of people are not necessarily always incompatible, 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 to be 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 people have more of it than others.

Accessibility: as well as physical access to greenspace, many other factors affect whether people are – or feel – able to 'access' nature; these include cultural, social, personal (such as confidence) and safety factors.

We endeavour to reflect these findings in the measures.



Priorities and measures

The technical part of the strategy comprises the ‘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 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. This map will be updated 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.

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 they could be done in many places. These 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, mapped and unmapped 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.

Part 3

Nature recovery 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. The region also has some habitats known as ‘irreplaceable habitats’: ancient woodlands, ancient and veteran trees, blanket bog and lowland fen.

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, and biodiversity is in decline. Spaces for nature are fragmented and isolated, and this is partly why the region struggles to cope with environmental pressures such as flood, fire and drought.





Hop to it. From political leaders to the public, farmers to teachers, business leaders to developers, this strategy sets out the many things we can all do straightaway to help nature in West Yorkshire.



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 among the hot urban concrete and tarmac. Two National Trails cross the region: the Pennine Way (44 kilometres) and Pennine Bridleway (27 kilometres), offering opportunities to connect people with nature and potential ecological corridors. 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](#)).

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, 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 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]. Here are some of the key habitats in West Yorkshire, the main environmental threats, and some of the opportunities to help nature that its report identified.

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



Flowing through. The River Aire in Leeds is one of many rivers and streams that comprise the strategy's 'Big Blue Thread' of water and wetlands in West Yorkshire

Big Blue Thread: Re-wetting West Yorkshire for nature and people



Nature recovery in West Yorkshire and beyond depends on how we think about, respond to, and live with water, and so water emerged as an overarching theme. This reflects Yorkshire Wildlife Trust's earlier *State of Yorkshire's Nature* report, which found that re-wetting landscapes would be one of the most impactful things that all of Yorkshire could do. For West Yorkshire, our partners painted a picture of what could be achieved within a few years, if water worked for us, a landscape-scale natural mechanism.

Let's fast-forward a few years:

- Towns and cities are cool, comfortable, 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 doubling up as water features for biodiversity.
- The moors hold water high in the uplands, 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 and are less vulnerable to temperature extremes.
- Rivers teem with aquatic life: biodiversity has soared. Salmon, trout and other fish travel to spawning grounds without difficulty.

- Swimmable urban waterways, underpinned by legal and regulatory frameworks, support the health of people (physically, mentally, spiritually) and nature.
- The river network provides a literal and cultural connection between urban settlements and the uplands, as well as physical connectivity to waterside experiences and/or surrounding countryside.
- The canal network, which already offers spaces for habitat (a section of the Leeds and Liverpool Canal near Calverley in Leeds is a Site of Special Scientific Interest) plays a key role in nature recovery. The network also allows many more people to spend time near the waterside, especially in urban areas including Leeds, Huddersfield, north Bradford and Dewsbury.
- 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.





Existing work demonstrates what could be achieved (see also **Case studies**):

- **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** restore the river system for clean, visible and accessible becks. The group 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 such as pipes, culverts, overflows, locks, weirs, sluices, embankments and 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. Nature reserves at Fairburn Ings and St Aidan's show how former coal mining sites can become important landscapes for wetland birds, such as goldeneyes, pochards, and shovelers and rare black-necked grebes.

Stronger with water



Protects

Nature recovery will help to hold more water in suitable areas for natural flood management, cleaner water, drought management, reduced fire risk, more resilient agriculture, healthier soils and cooler cities. It will provide psychological reassurance, enjoyment and, through amenity and activity, health protection. It protects places and infrastructure, making future investments more resilient and gives businesses the confidence to invest in an area.

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

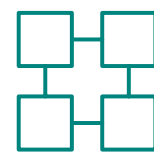
Peatlands, grasslands, woodlands and other habitats need water. They can hold water, reduce flooding and halt erosion, all while capturing and holding on to carbon.

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 through meaningful action.

Inspires

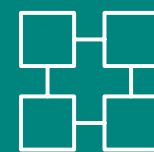
Water inspires art and culture. Turner painted Kirkstall Abbey and the River Aire, Henry Moore designed sculptures to be placed within or near water, and the Bradford 2025 City of Culture celebrated the uplands, the city centre Mirror Pool and Bradford Beck.



Theme

Cross-cutting

Part of nature. Close encounters with wildlife (here, a newly emerged four-spotted chaser dragonfly) increase nature connectedness and pro-environmental behaviour. © Ross Hoddinott / Nature Picture Library



Cross-cutting themes

Introduction

Cross-cutting themes capture the overarching measures that are relevant across the strategy; without these, efforts to recover nature are less likely to succeed.

C1 Cross-boundary thinking

Habitats such as woodlands, watercourses and hillsides straddle administrative boundaries. Actions should take account of what is happening elsewhere to 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 are central to nature recovery. They 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. It is important to 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^[15] 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 data, funding and leadership.

[Click here for the priorities and measures for this theme](#)

[15] 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/>



Theme

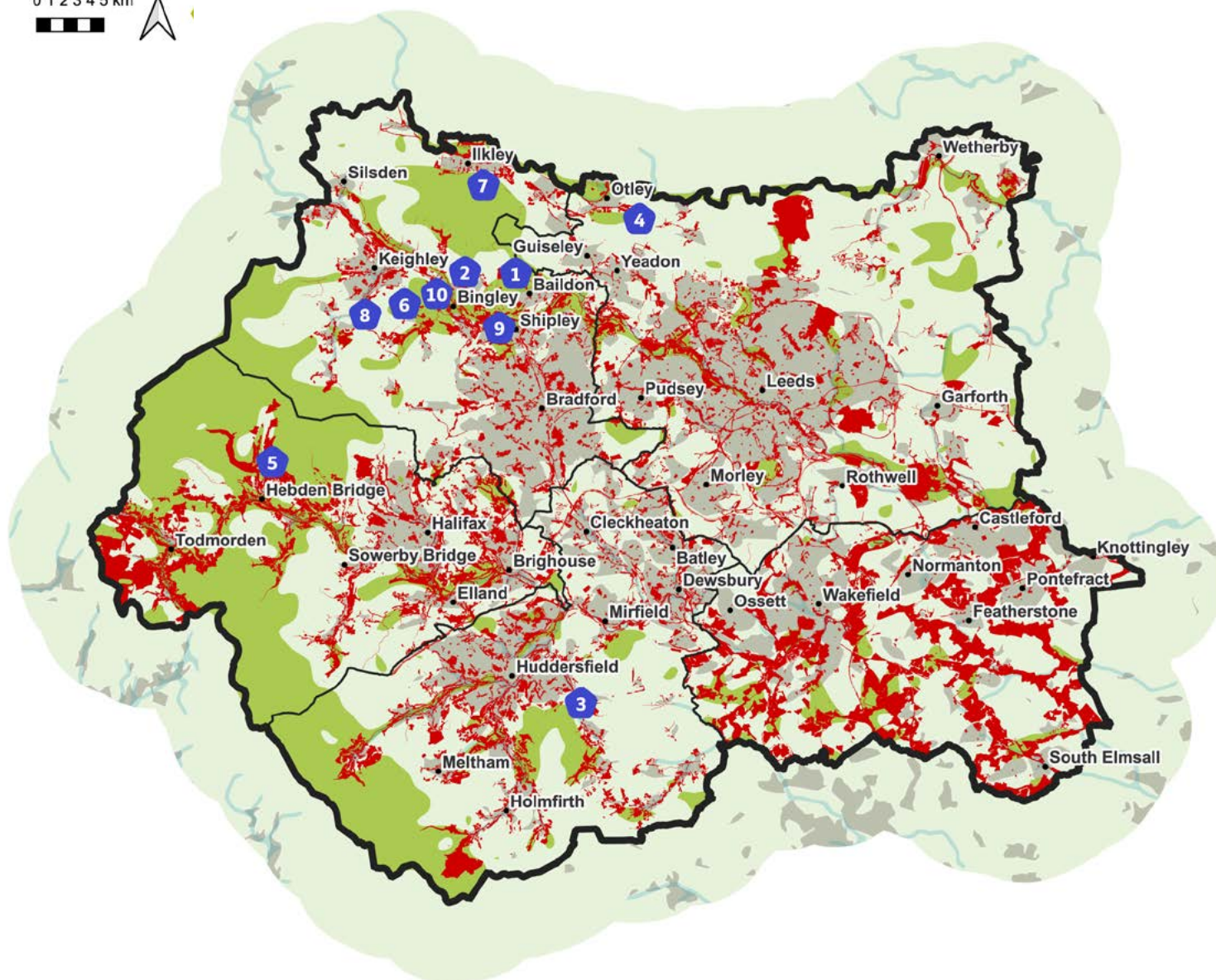
Built environment

Give them the green light. Given half a chance, wildlife will readily settle in towns and cities, as a mistle thrush nest in a Leeds traffic light shows. © Sam Hobson / Nature Picture Library

Built environment

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

- Main towns and cities
- West Yorkshire boundary
- Local Authority boundaries

- Rivers
- Areas of particular importance to biodiversity
- Urban area
- Rural area

Broad areas for measures

- Built environment
- Highlighted feature for this theme

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



West Yorkshire has a particularly high overall ‘urban density near nature’ profile, with more than four out of five of citizens living in dense urban centres close to open landscapes and much-loved local beauty spots (**1 Baildon Moor, 2 Bingley Bog North, 3 Castle Hill, 4 Chevin Country Park, 5 Hardcastle Crag, 6 Harden Moor**).

Only **23 per cent of residents** are, though, within a five to 10-minute walk to greenspace (such as parks). More people will be able to access nature as action to protect biodiversity increases in the Bradford Pennine Gateway National Nature Reserve in Bradford (**7 Ilkley Moor, 8 Penistone Country Park, 9 Shipley Glen, 10 St Ives Estate**) (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 2021. Bringing thriving blue and green environments into the built environment could help turn our towns and cities into urban nature reserves.

Key

- 1** Baildon Moor
- 2** Bingley Bog North
- 3** Castle Hill
- 4** Chevin Country Park
- 5** Hardcastle Crag
- 6** Harden Moor

Bradford Pennine Gateway National Nature Reserve

- 7** Ilkley Moor
- 8** Penistone Country Park
- 9** Shipley Glen
- 10** St Ives Estate



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 for 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, and some of the small, artificially created water bodies such as mill ponds and previous extraction sites have become safe havens for amphibians.



Green roof. Residents in Halifax added habitat to the family shed to help urban biodiversity and catch rainwater. © Matt Radcliffe

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



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 (see **Case studies**).

Urban blue and green areas 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 greenspaces; 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)^[16]. 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 the West Yorkshire Vision Zero road safety strategy. Other barriers include the design and quality of the blue or green areas^[17] 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, 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.

‡ 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.

[16] 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/>

[17] 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/>



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 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 see more bats in parks, more swifts nesting on buildings, more birds, butterflies and bees or kingfishers in the local river.

Overcoming barriers. Many factors affect access to nature: the quality of facilities, links to public transport and road danger, as well as confidence, prior experience and how safe people (women and girls in particular) feel. © Street Space

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 such as climate regulation, clean air and clean water get into good shape. 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^[18]. 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.



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

[18] 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.



Where there is nature, people work and learn better, stay longer, feel happier, and are healthier. (The natural environment provides benefits worth over £400 billion annually in health outcomes alone^[19].) Our towns and cities could, if we wanted, become urban nature reserves – cool, comfortable, healthy, safe and pleasant biodiversity hotspots. Nature can help to make the difference between liveable and healthy or dangerous climate-vulnerable communities, towns and cities.

A study found that Leeds is one of the greenest ‘core cities’ in England, if the large areas of farmland and woodland in the outer areas were included. Looking only at city centres, though, a different picture emerged: Leeds ranked fifth worse for ‘greenness’ out of 68 large towns and cities. The 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^[20].



Doorstep nature. Visitors to a churchyard in Mirfield spotted a young tawny owl dozing at the foot of a tree. © David Speight

[19] Department for Environment, Food, and Rural Affairs (2025), Environmental Improvement Plan. Strategy Document. [Online.] [Accessed 12/12/2025.] Available at: <https://www.gov.uk/>

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



Built environment and water

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. Water also 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 – boating, taking barge trips, kayaking, paddleboarding, fishing, swimming and paddling, and, in Leeds, travelling by 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 in hot weather[†].

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

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



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 as 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 can be significantly more biodiverse and resilient to environmental challenges such as floods, urban heat 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 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, beautiful habitats and enhancing existing ones near to where people live, for an abundance of environmental and social benefits.

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 spaces 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 woodlands, grasslands, heathlands and wetlands 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, heathland and 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.



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 help nature to recover. With nature-friendly management, even the most depleted sites could quickly become rich habitats. We need to enhance, connect and manage these as 'open mosaic' habitats: patches of bare ground with different vegetation to provide food and shelter for many different animals and plants. These would help with cooling, water retention, lower risk of flood, and better air and water quality close to where people live, making neighbourhoods more resilient to climate change. 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 green spaces (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.



Slow the flow. A sustainable urban drainage system in a garden in Halifax captures rainwater, creates wetland habitat and increases biodiversity.
© Matt Radcliffe



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 water, intercepts noise and helps keep places cool. 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^[21]. 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) people in West Yorkshire are exposed to, and halve the health harms caused by 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.

[21] 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, making them more liveable and healthier for both people and wildlife. 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, helping to keep buildings and developments cool and to manage water. 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 as possible 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.

[Click here](#) for the priorities and measures for this theme



Joined up thinking. Humans aren't the only species that need to move around easily and safely. High-quality habitat along transport routes such as the Castleford to Wakefield Greenway meets the mobility needs of plants and animals as well as people.



Built environment: Summary





Theme

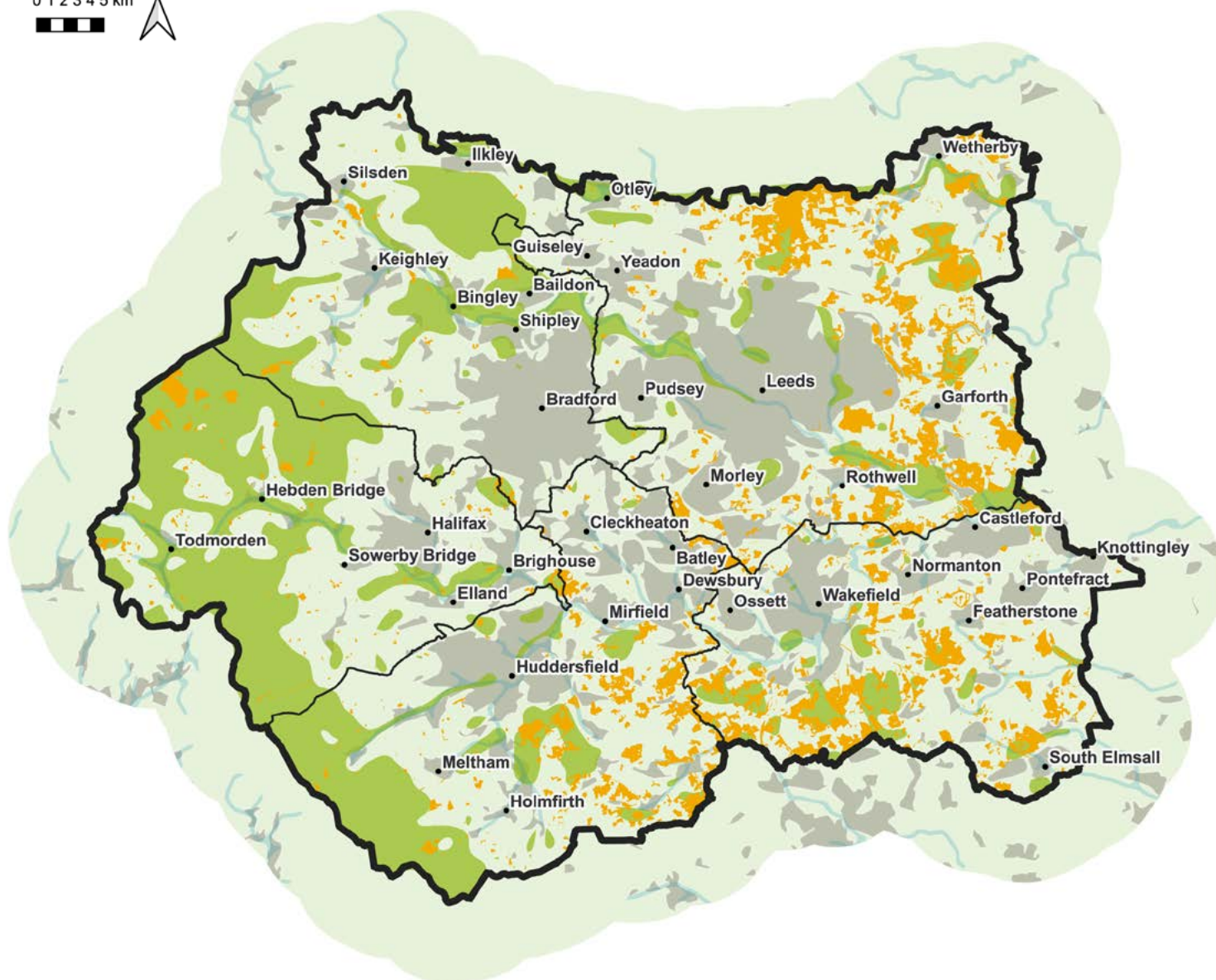
Farmland and agriculture

Farms at the forefront. Once an intensively grazed dairy farm, Stirley in Kirklees is now an inspiring showcase for conservation grazing methods. © Sim Gurr Photography / Yorkshire Wildlife Trust

Farmland and agriculture

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

- Main towns and cities
- ▭ West Yorkshire boundary
- ▭ Local Authority boundaries

- ▭ Rivers
- ▭ Areas of particular importance to biodiversity
- ▭ Urban area
- ▭ Rural area

Broad areas for measures

- ▭ Farmland and agriculture

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



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





Description, threats and opportunities

Agriculture is integral to the West Yorkshire landscape: almost half of each of the districts^[22] 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, 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. Healthy, biodiverse, carbon-rich soils can improve both flood and drought resilience for farmers, helping 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.

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

† Please see the separate report of commissioned engagement undertaken as part of the development of this strategy on the Combined Authority's Local Nature Recovery Strategy web pages.



Nature-friendly farms. Lowland farms in West Yorkshire with undisturbed field margins provide continuous shelter and food for creatures such as brown hares. © Allan Drewitt / Natural England



Farm and agriculture, and water

The bees and other invertebrates that pollinate crops need flowers, and flowers need water to develop. Many 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
- **F2** Species-rich hedges, edges and corners

F1 Farmland and agriculture: Nature-friendly farming

Many farmers have already found ways to use nature to their advantage and have seen how nature can help reduce the impact of floods or droughts, boost pollinator numbers, support soil health for higher crop yields, and reduce farm methane. 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 environmental impacts of agricultural practices. This supports a key national target to bring at least 60 per cent of England's agricultural soil into sustainable management by 2030.

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.



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^[23]. Longer, wider, high-quality hedgerows will help to connect woodlands to each other and to other habitats such as heathlands, grasslands 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.

Hedges and edges. Hedgerows packed with native plants such as hawthorn offer shelter, safe passage and food for blackbirds and many other species. © Ernie Janes / Nature Picture Library

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.

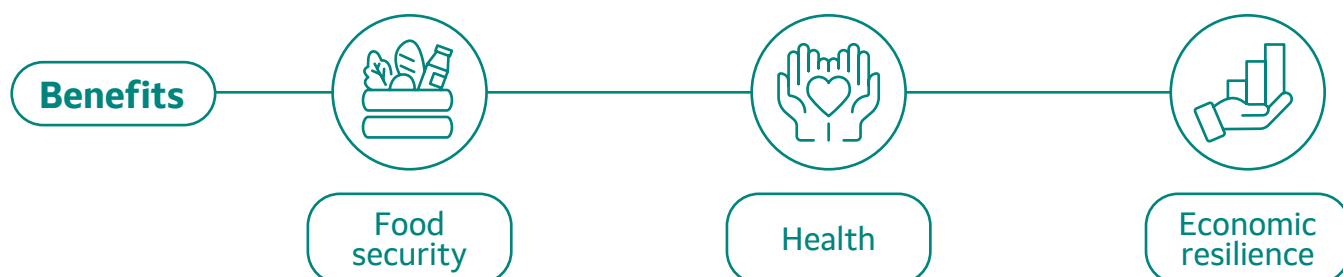
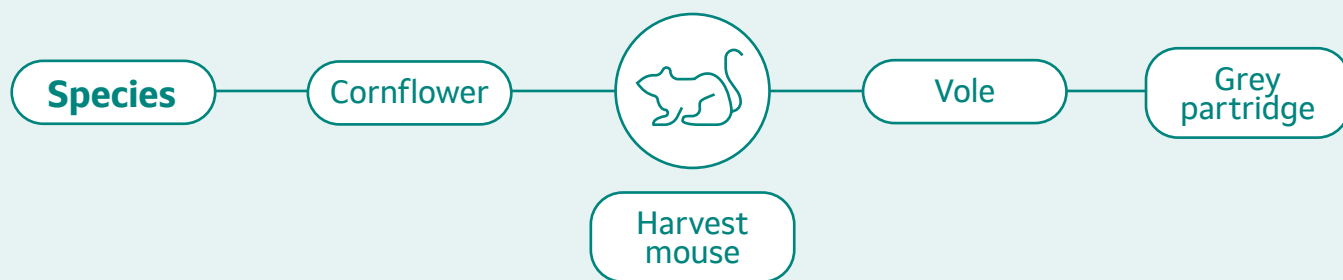
[Click here](#) for the priorities and measures for this theme



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



Farm and agriculture: Summary





Theme

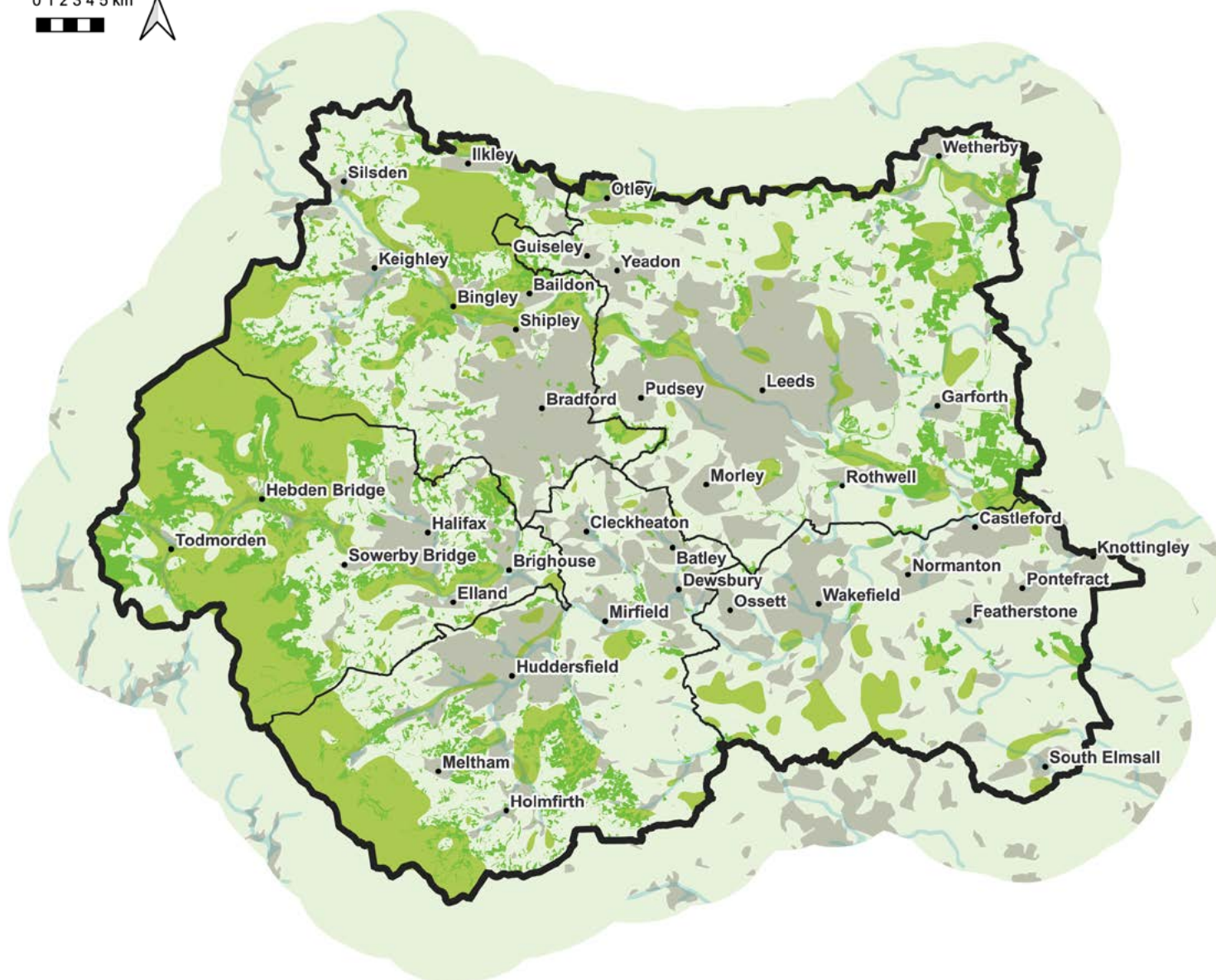
Grasslands

International acclaim. The South Pennines are globally significant for rare fungi such as these scarlet waxcaps found at Hardcastle Crag in Calderdale. © Annapurna Mellor / National Trust Images

Grasslands

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

- Main towns and cities
- West Yorkshire boundary
- Local Authority boundaries

- Rivers
- Areas of particular importance to biodiversity
- Urban area
- Rural area

Broad areas for measures

- Grasslands

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



The grasslands of the South Pennines (mainly Calderdale, and parts of Bradford and Kirklees) attract global attention because of the rare fungi that thrive there. Important grasslands for many other species include those associated with upland hay meadows (Calderdale), Magnesian Limestone (eastern parts of Leeds and Wakefield) and the Coal Measures (covering the central part of the region).





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 grasslands and arable land. Sulphur and lime were used to make soil more neutral, while drainage, pesticides, artificial fertilisers and reseeded 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 grasslands such as road verges, parks and school playing fields is bad for biodiversity.



Venture out. Native roe deer are a familiar and valued part of West Yorkshire's natural landscape. They can often be seen at the edges of woodlands as they move out from cover to feed in nearby grasslands, as here at Ogden Water Country Park in Calderdale. Careful management can reduce the risk of over-browsing. © David Speight

[†] 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.



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). Grasslands also reduce 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 CHEGD[†] fungi. Of the 200 CHEGD fungi species found across Europe, 124 have been recorded in Calderdale^[24]. 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^[25], 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.

† 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).

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

[25] 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 Plant 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.

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; grasslands on farmland can support breeding wading birds.

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

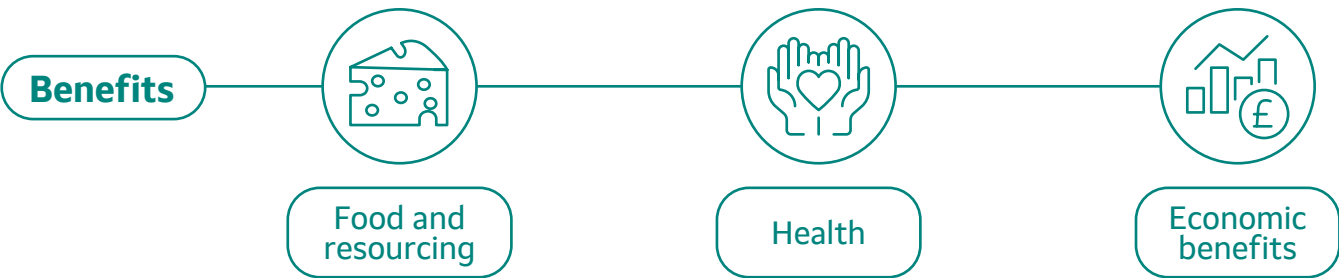
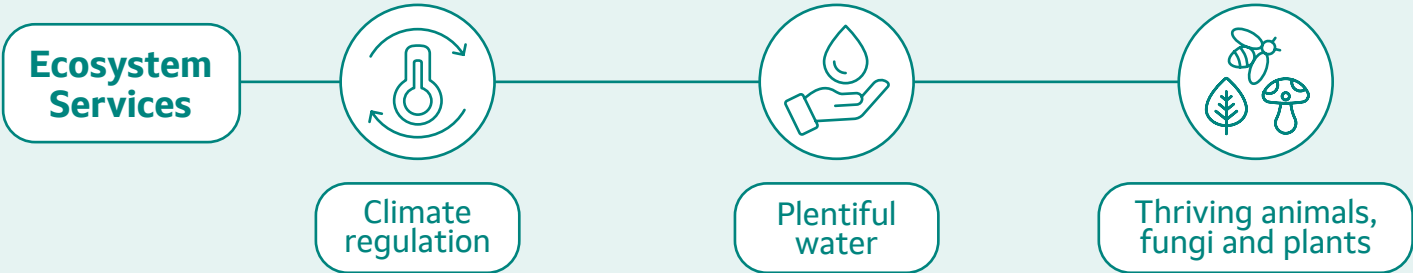
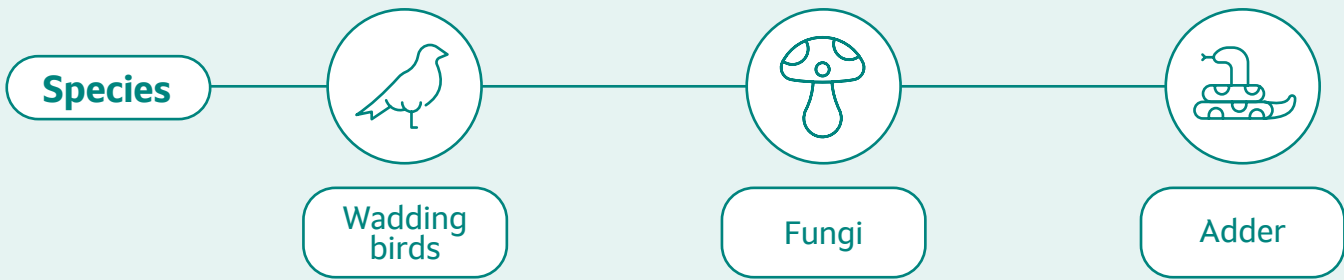
[Click here](#) for the priorities and measures for this theme



Easter treat. Rare pasqueflowers are restricted to only a few areas in West Yorkshire where there is the Magnesium Limestone habitat they need. ©Jim Horsfall / Yorkshire Wildlife Trust



Grasslands: Summary





Theme

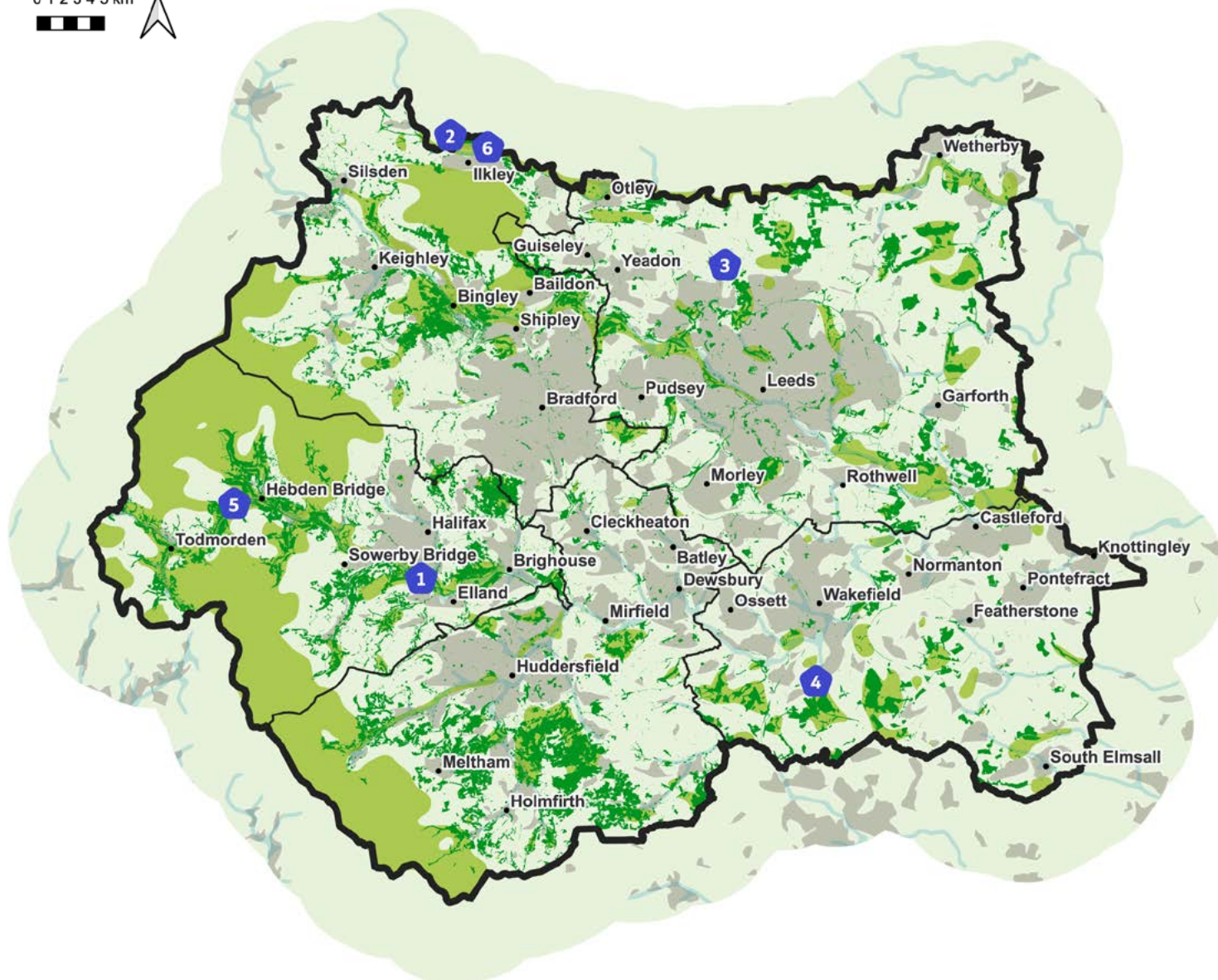
Trees and woodlands

A green revolution. Nature rubs shoulders with an old mill chimney near Hebden Bridge and other remnants of West Yorkshire's industrial textile heritage. © David Speight

Trees and woodlands

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

- Main towns and cities
- West Yorkshire boundary
- Local Authority boundaries

- Rivers
- Areas of particular importance to biodiversity
- Urban area
- Rural area

Broad areas for measures

- Trees and woodlands
- Highlighted feature for this theme

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



West Yorkshire is part of the White Rose Forest (WRF), and tree-planting (across the region) is already increasing canopy cover for biodiversity, woodland condition and many other outcomes; there are also plans for street trees under WRF Green Streets® focussing on West Yorkshire’s towns and cities and major transport corridors.

This includes **Elland High Street (1) – a Green Streets®** urban tree planting project. WRF is also delivering schemes in **(2) Fleshers Forest (Bradford)** – a small new native woodland on an upland farm; **(3) Gair Wood (Leeds)** – new native woodland showcasing high quality design and the wider benefits that woodlands can deliver; and **(4) Camphill (Wakefield)** – a small multi-faceted school-based, community focused project. Fragments of rare temperate rainforest in the **Upper Calder Valley (5)** are of global importance, supporting ancient plant life and migrating birds such as pied flycatchers and tree pipits. **Middleton Woods (6)** is the region’s largest semi-natural ancient woodland site.

Key

- 1** Elland High Street – a Green Streets®
- 2** Fleshers Forest
- 3** Gair Wood
- 4** Camphill
- 5** Upper Calder Valley
- 6** Middleton Woods



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^[26]. 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^[27]. Overall, Leeds district enjoys the highest coverage (16 per cent). Bradford has the lowest (10.1 per cent^[28]), due partly to their fundamentally different landscapes. To meet the target, West Yorkshire needs additional canopy cover of roughly the area of Huddersfield.

[26] 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.

[27] 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/>

[28] White Rose Forest (2025) Creating a Resilient Landscape For Growth: White Rose Forest Strategic Plan, 2025-50. Strategy document. [Online.] [Accessed 12/12/2025]. Available from: <https://calderdale.moderngov.co.uk/>



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 woodlands in West Yorkshire.

- Most (73 per cent) is deciduous (trees that shed leaves annually), often along steep slopes that follow watercourses, and on low-lying ground within the river valleys. 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.
- 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.
- 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^[29].
- 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.

[†] 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.

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



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 Crag (Calderdale), Honley Wood (Kirkstall) 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 partnership has a target to increase the percentage of sustainably managed woodland 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 woodlands 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 (Bristol, London); this can help us to understand which mix of tree species will be most suitable for the region in the future.

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.

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



Partners such as the White Rose Forest (WRF, delivery body), the Forestry Commission (a regulator) and the Woodland Trust (a charity) with distinct strengths and remits work together to increase trees and woodland cover 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 18.5 per cent by 2050^[30], helping to meet the national target of increasing tree and woodland cover to 16.5 per cent in England by 2050^[31]. 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, particularly in areas of lower canopy cover. This helps link up habitats and create green, healthy, cool neighbourhoods that are resilient to the pressures of a changing climate.



Low-hanging fruit. Community gardens such as this apple orchard at Meanwood Valley Farm in Leeds are a great way to get people connected to nature in their neighbourhoods.
© Claire Doble / Hyde Park Source

[†] The White Rose Forest is one of fifteen Community Forests across England and one of the four community forests (The Mersey Forest, Manchester City of Trees, the White Rose Forest, Humber Forest), who, alongside the Woodland Trust, and the Community Forest Trust, comprise the Northern Forest Partnership. It aims to establish at least 50 million trees by 2043, 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. In 2025, the Northern Forest passed the milestone of 10 million trees planted in towns, cities and rural areas across the region.

[30] White Rose Forest (2025) Creating a Resilient Landscape For Growth: White Rose Forest Strategic Plan, 2025-50. Strategy document. [Online.] [Accessed 12/12/2025]. Available from: <https://calderdale.moderngov.co.uk/>

[31] 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/>



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^[32].

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 woodlands full of wildlife
- **T3** Biodiverse wood pasture and historic parkland



Welcome shade. On hot days, urban trees such as these limes in Wellington Place, Leeds, provide some relief when temperatures in developed areas get significantly hotter than rural surroundings (heat islands).

[32] 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 trees 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.



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^[33]. 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. This would help to meet the '3-30-300' rule of thumb that people should be able to see at least three trees from their home, that there should be 30 per cent tree canopy cover in each neighbourhood, and that the distance to the nearest high-quality greenspace should be no more than 300 metres^[34].

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.

[33] White Rose Forest (2025) Creating a Resilient Landscape For Growth: White Rose Forest Strategic Plan, 2025-50. Strategy document. [Online.] [Accessed 12/12/2025]. Available from: <https://calderdale.moderngov.co.uk/>

[34] Konijnendijk, C.C., (2023) Evidence-based guidelines for greener, healthier, more resilient neighbourhoods: Introducing the 3-30-300 rule. Paper. [Online.] [Accessed 15/12/2025.] Available at: <https://doi.org/10.1007/s11676-022-01523-z>

[†] Readers should be aware that there are different definitions of 'woodland'; the LNRS mainly uses the figures provided by White Rose Forest, which deal with canopy cover, and therefore encompass all trees and woodland, but in places, we have used the National Forest Inventory, which covers a specific definition of woodland. There may therefore be some places where the figures for trees and woodland may show a discrepancy between the two datasets, which has been accounted for.



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.

[Click here](#) for the priorities and measures for this theme



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



Heritage



Health



Economic – timber/tourism

[†] Included here but not on the Priority Habitats Inventory.



Theme

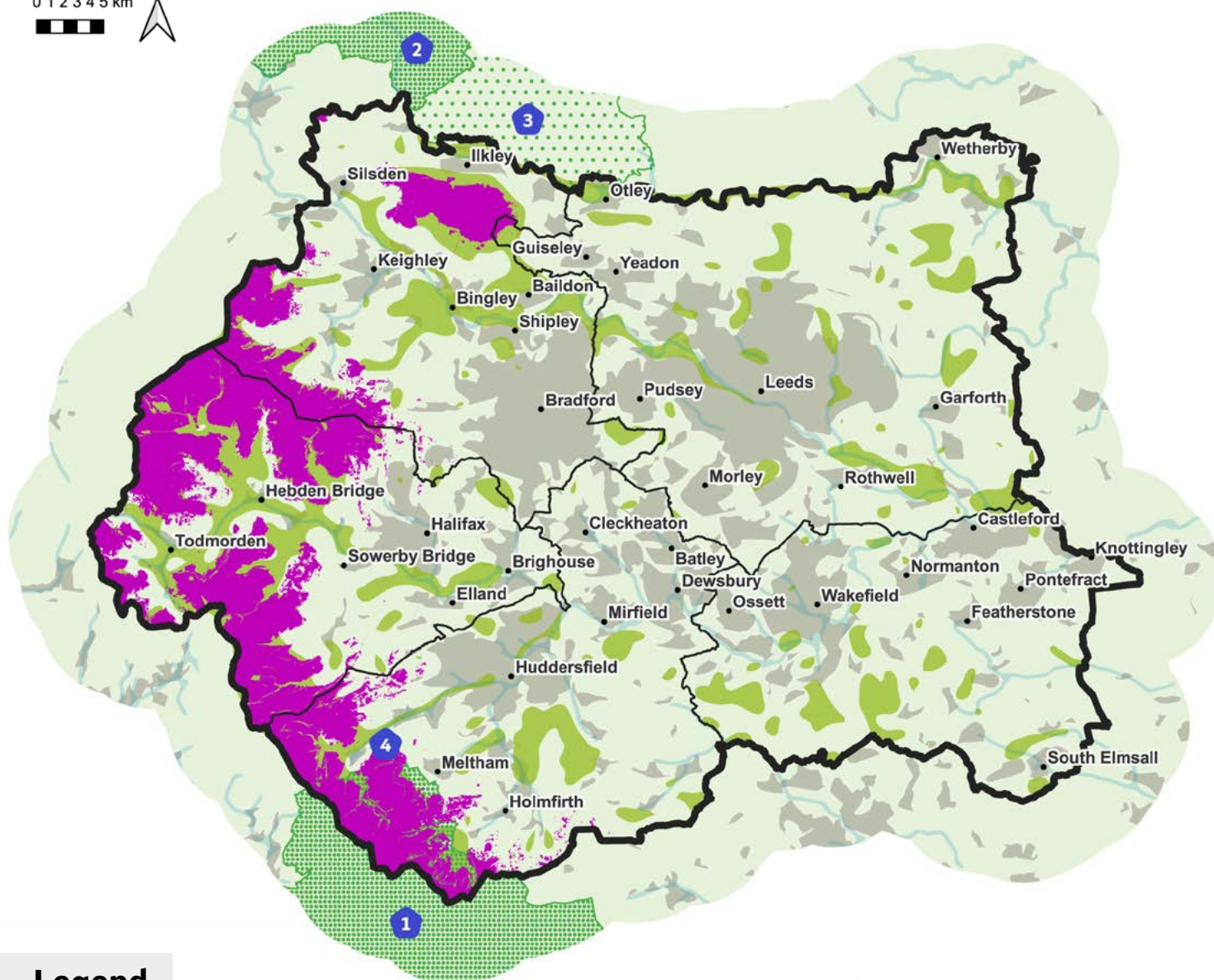
Uplands

Fix the hydrology. Restoring degraded habitats will help West Yorkshire's uplands (here, Marsden Moor on the edge of the Peak District) to hold more water; improving resilience to climate extremes by reducing downstream flooding and drought risk.
©Annapurna Mellor / National Trust Images

Uplands

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

- Main towns and cities
- ▭ West Yorkshire boundary
- ▭ Local Authority boundaries
- ▭ Rivers
- ▭ Areas of particular importance to biodiversity

- ▭ Urban area
- ▭ Rural area
- ▭ National Parks
- ▭ Areas of outstanding natural beauty (ANOB)

Broad areas for measures

- ▭ Uplands
- ▭ Highlighted feature for this theme

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



England's rocky spine, the Pennine Hills, 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 (1)** in the south, to the **Yorkshire Dales National Park (2)** and **Nidderdale National Landscape (3)** in the north – a vast connected upland landscape. 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, including on **Marsden Moor (4)**. Upland peat locks in carbon and reduces downstream flooding; restoring degraded upland habitats will reboot the hydrology of the uplands so that more water stays up there.

Key

- 1** Peak District National Park
- 2** Yorkshire Dales National Park
- 3** Nidderdale National Landscape
- 4** Marsden Moor



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 merlin 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. Where groundwater accumulates from springs on slopes, in valley bottoms, or depressions, peat-forming fens can develop, providing important diversity to peatland habitats in the uplands and lowlands. 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^[35]), and hillwalkers 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 areas of the blanket bog found in the uplands are thus covered by the South Pennine Moors SAC statutory designation, but some areas, particularly to the west of Todmorden and Walsden and around the edges of the South Pennine Moors SAC, remain unprotected.

[35] 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>



Statutory designations do not necessarily ensure good management: large sections of the uplands, including blanket bog, 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 purple moor grass (*Molinia*) colonises 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 human access is sensitively managed and pro-nature behaviour encouraged, to minimise environmental impacts.



Fire risk at height. Degraded uplands are at increased risk of moorland fires (such as here, Marsden Moor in 2021). These destroy habitats and generate toxic smoke that can carry for miles, a health hazard for local populations, particularly those with heart or breathing conditions. ©Victoria Holland / National Trust Images



Uplands and water

The inter-connected water systems of the uplands help to keep peatlands in good condition, keeping harmful carbon locked up, and the more peat-forming plants there are, the more carbon can be sequestered. 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. They will then be able to release water in a controlled way, cutting the risk of flash floods and reducing the need to invest in flood protection in lower river catchments. This will also cut the risk of fire and improve drinking water quality. Appropriate tree-planting in upland areas can further reduce the force of the run-off.

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 and sporting interests. 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 reduce the risk of wildfires.



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 reduce the risk of wildfires.

U3 Uplands: Nature-rich upland hay meadows

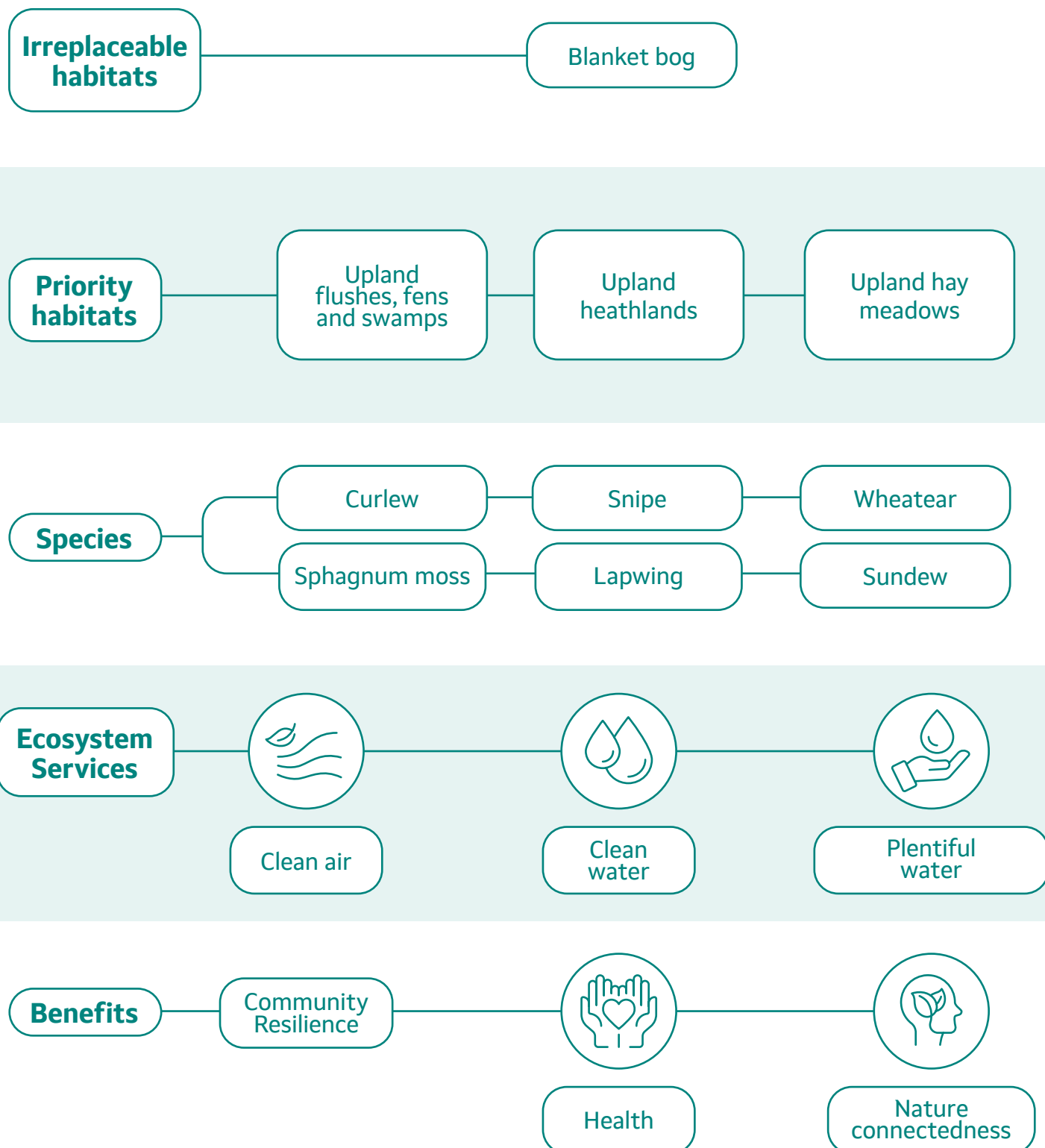
As far as English countrysides go, it may not get more culturally iconic than upland hay meadows: rare, species-rich grasslands. When managed using traditional, non-intensive techniques such as mid-summer hay-cutting followed by grazing, these provide food for livestock in winter and teem with wildlife 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.

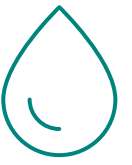
The priority is to create new and improve the species-richness of existing upland hay meadows, reducing fragmentation so that species such as curlew and grey partridge can thrive.

[Click here](#) for the priorities and measures for this theme



Uplands: Summary





Theme

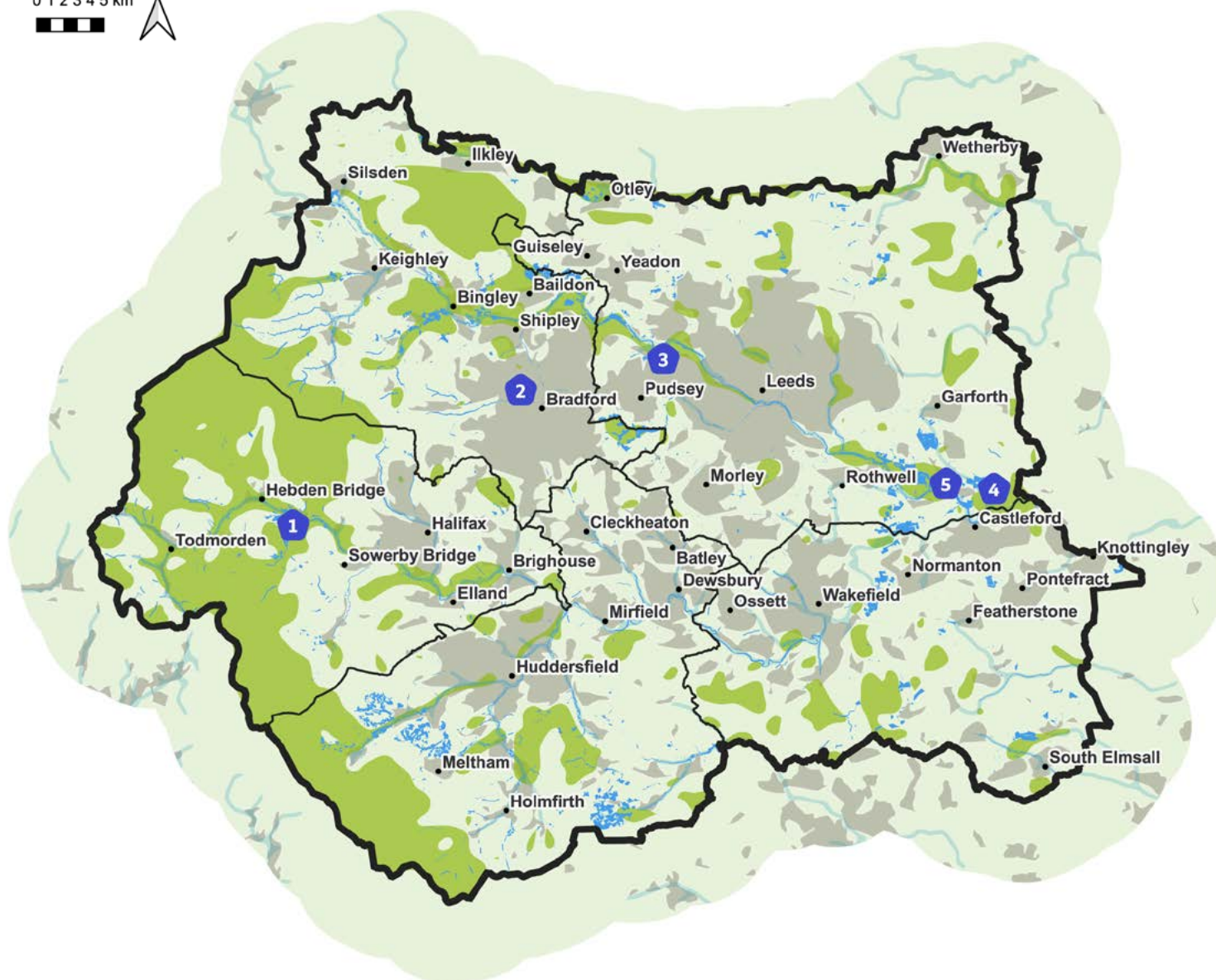
Water

From brownfield to oasis. Once an open-cast mining area, St Aidan's near Swillington in Leeds is now an RSPB wetland nature park popular with wildlife and people alike. © Ashley Cooper / Nature Picture Library

Water

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

- Main towns and cities
- West Yorkshire boundary
- Local Authority boundaries

- Rivers
- Areas of particular importance to biodiversity
- Urban area
- Rural area

Broad areas for measures

- Water and wetlands
- Highlighted feature for this theme

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



Only 13.7 per cent of surface water bodies are in a good ecological condition. Flooding has devastated West Yorkshire: the 2015 Boxing Day floods cost an estimated £500 million^[2]; the **Calder Valley (1)** and Leeds were particularly affected. Stretches of rivers are polluted, making them inhospitable to wildlife and unpleasant for people. The Aire (flowing through Skipton in North Yorkshire, into West Yorkshire, merging with the Aire in Castleford) Calder (flowing into West Yorkshire and carving out the Calder Valley, merging with the Aire in Castleford and flowing towards Goole) and Wharfe (flowing into West Yorkshire close to Ilkley and flowing out of east of Wetherby) are among the most polluted. More straight streams and rivers could be re-wiggled and re-connected to their original floodplains, like the one at **Chellow Dene (2)**, to protect towns from flooding. Old industrial sites have been turned into wildlife-rich wetlands, such as **Rodley Nature Reserve (3)**, **RSPB Fairburn Ings (4)** and **RSPB St Aidan's (5)**.

Key

- 1** Calder Valley
- 2** Chellow Dene
- 3** Rodley Nature Reserve
- 4** RSPB Fairburn Ings
- 5** RSPB St Aidan's



Description, threats and opportunities

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.

The 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 and over-deepened to make it easier to transport raw materials and goods. Historic efforts to control rivers used structures such as weirs to divert water to power watermills or for electricity.

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 wetlands 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^[36]. 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.



Sparkling clean. Healthy water bodies support intricate, complex aquatic wildlife communities; apex predators such as pike (swimming here among hornwort, bulrush and common club rush) help keep ecosystems in balance. © Mark Barrow

[36] 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/>



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 water quality. Polluted water cannot support healthy aquatic life and threatens activities such as bathing, paddling and kayaking.
- **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

[†] The Great Yorkshire Rivers project is a partnership between Yorkshire Water, The Rivers Trust and the Environment Agency

[‡] Later, this became Loidis, then Leeds.



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 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.



Flood risk. Industrial and agricultural modifications increase the risk of flooding; here, the River Aire burst its banks after a storm, flooding Allerton Bywater near Castleford.



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, persistent pesticides and pollution from historic sources such as metal-mining waste). 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.

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 and 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.



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

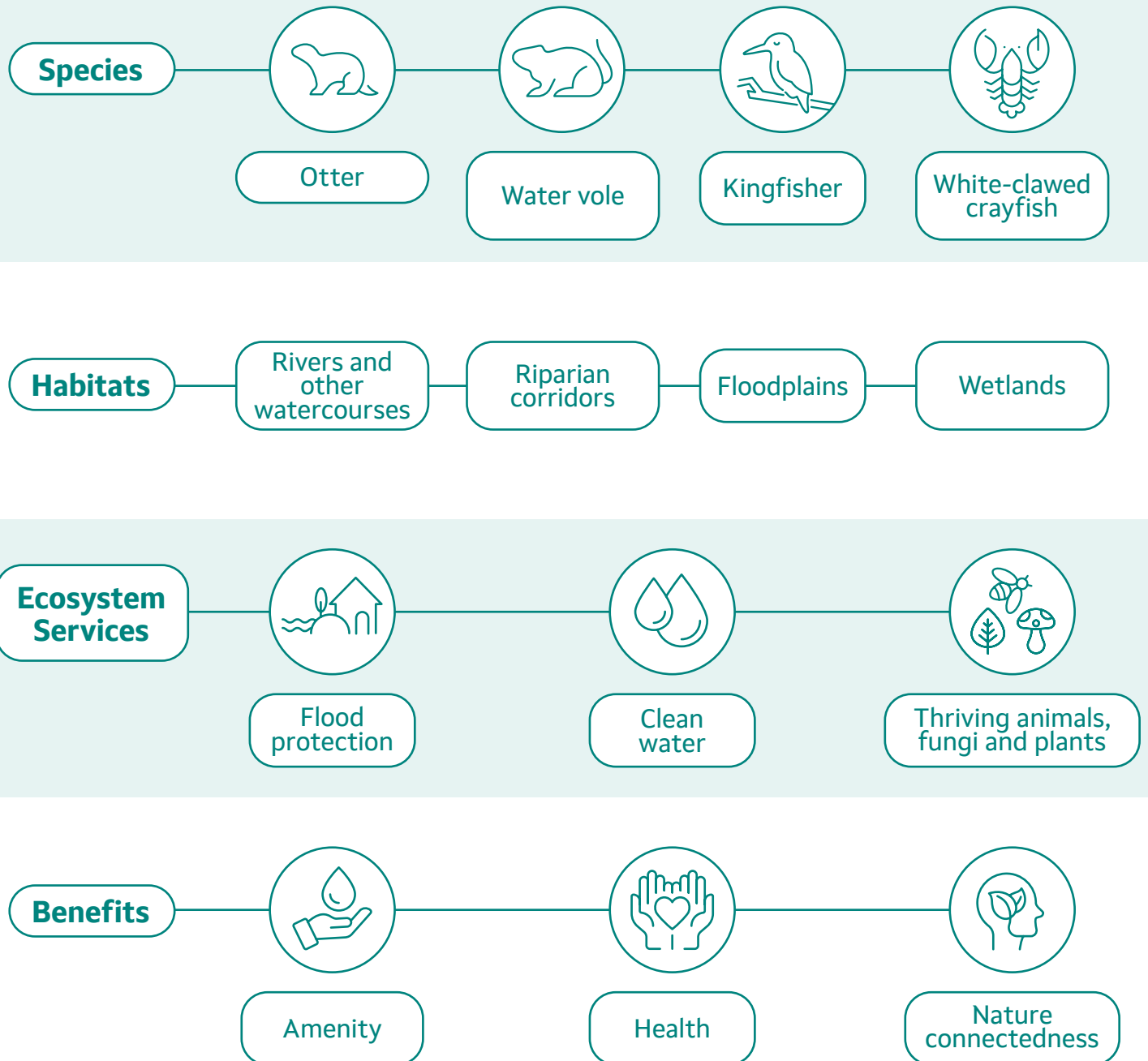
and amphibians, including iconic species such as bitterns. They also reduce the risk of flood and the impact of heat/drought. Nature recovery actions to create and restore wetland habitats of all shapes and sizes will boost biodiversity, provide sanctuary for rare and declining species, build habitat 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.

[Click here](#) for the priorities and measures for this theme



Water: Summary





Theme

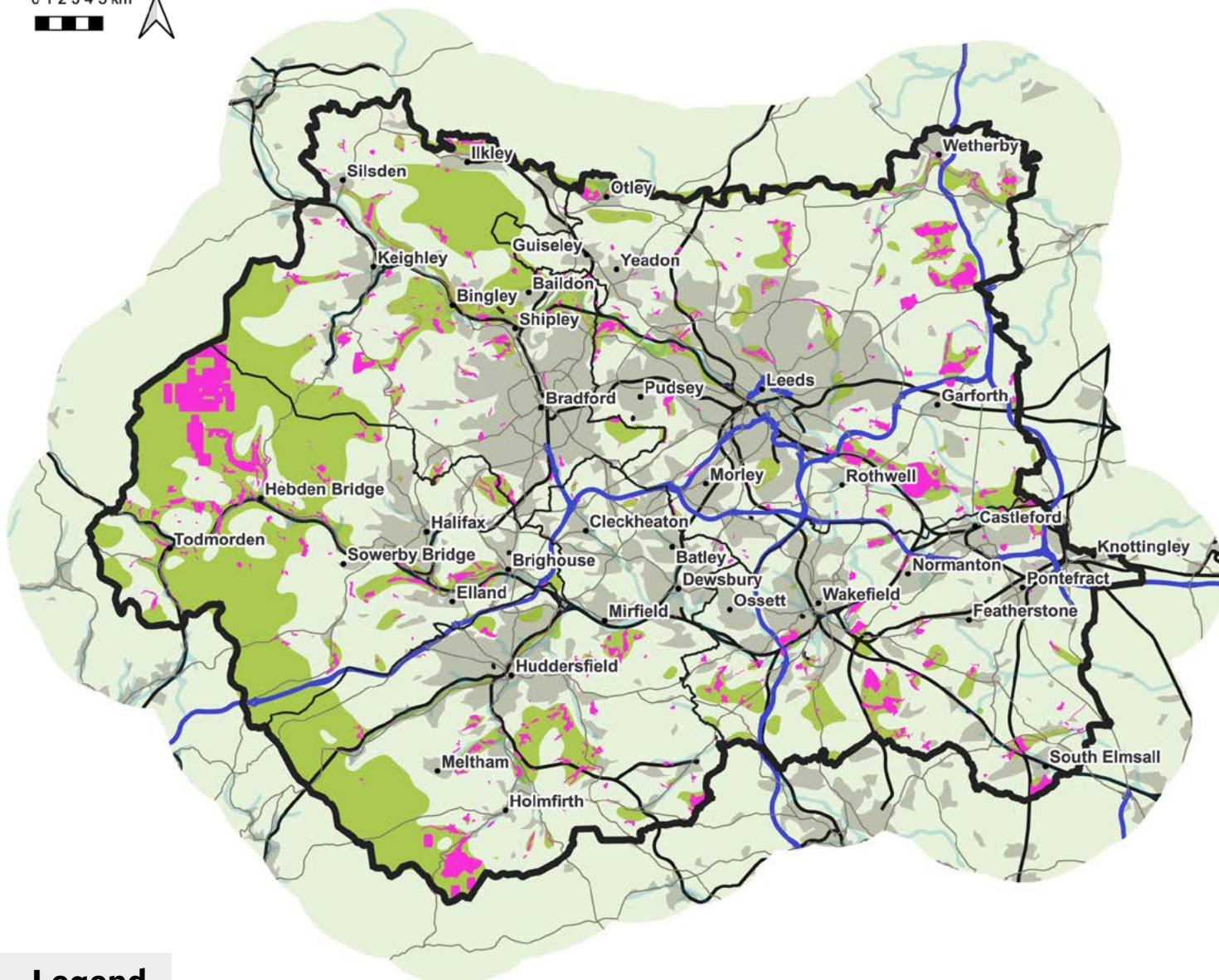
Quality and condition

Light-sensitive. Bats, such as these pipistrelles, need darkness; artificial lighting can disrupt their natural foraging times and flight paths. Some bat species are very light-sensitive and will not pass across a lit street. Daubenton's bat needs dark corridors along rivers to travel and forage for insects. © Tom Marshall / Yorkshire Wildlife Trust

Quality and condition

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

- Main towns and cities
- ▭ West Yorkshire boundary
- ▭ Local Authority boundaries
- ▭ Rivers
- ▭ Areas of particular importance to biodiversity

- ▭ Urban area
- ▭ Rural area
- ▭ Motorway
- ▭ A Road
- ▭ Rail Network

Broad areas for measures

- ▭ Quality and condition

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



Noise pollution and light pollution from West Yorkshire's dense urban centres harm wildlife; the skies across the South Pennines Moors are much darker, which is better for nocturnal wildlife. Invasive plants damage ecosystems along rivers – Himalayan balsam is a particular problem at some sites. Infrastructure works such as for transport can damage soil health along major road and rail routes.





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^[37]) and advocating for positive change. Wildlife experts highlight three areas where quality and condition are 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 rhythms 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 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.

[37] 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/>



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 damaged. 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^[38]. 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.

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 control 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.

[38] 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/>



Quality and condition, and water

Wildlife is more likely to use riparian corridors and other habitats near rivers and other water bodies 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



Monitor and control. Invasive species compete for space with native species, and Japanese knotweed is one of the most damaging. Surveys (here in the River Colne, Milnsbridge) identify the best course of action. © Simeon Gurr / Yorkshire Wildlife Trust



Q1 Quality and condition: Dark, quiet places for wildlife

From streetlights 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 rhythms disrupted. Nuisance light affects people's wellbeing too, causing sleep loss and stress. Noise pollution can also be a problem for nature^[39] 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.

[39] 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>



Q2 Quality and condition: Healthy, biodiverse soils

Healthy soils are living habitats, full of animals, fungi, plants and other organisms^[40]. 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 Agriculture, 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 minimise 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.

[40] 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.

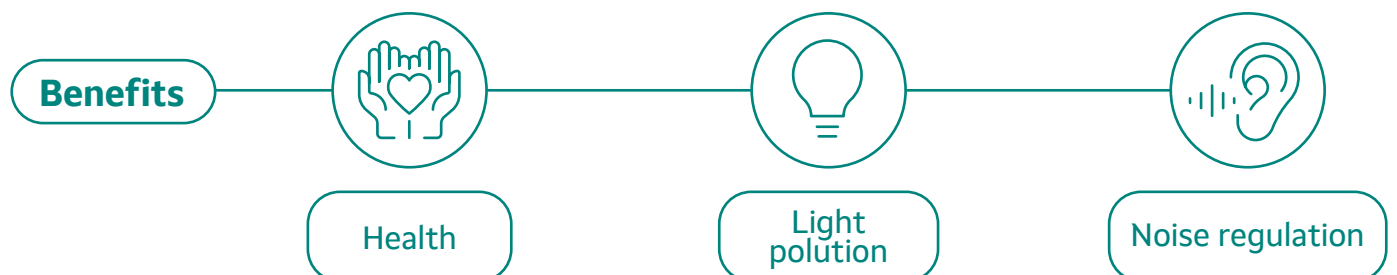
The priority is effectively to manage the risks associated with invasive non-native species so that habitats have a healthy balance of wildlife communities, increasing the resilience of ecosystems.

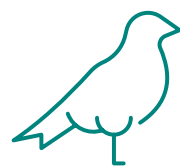
[Click here](#) for the priorities and measures for this theme



Quality and condition:

Summary





Theme

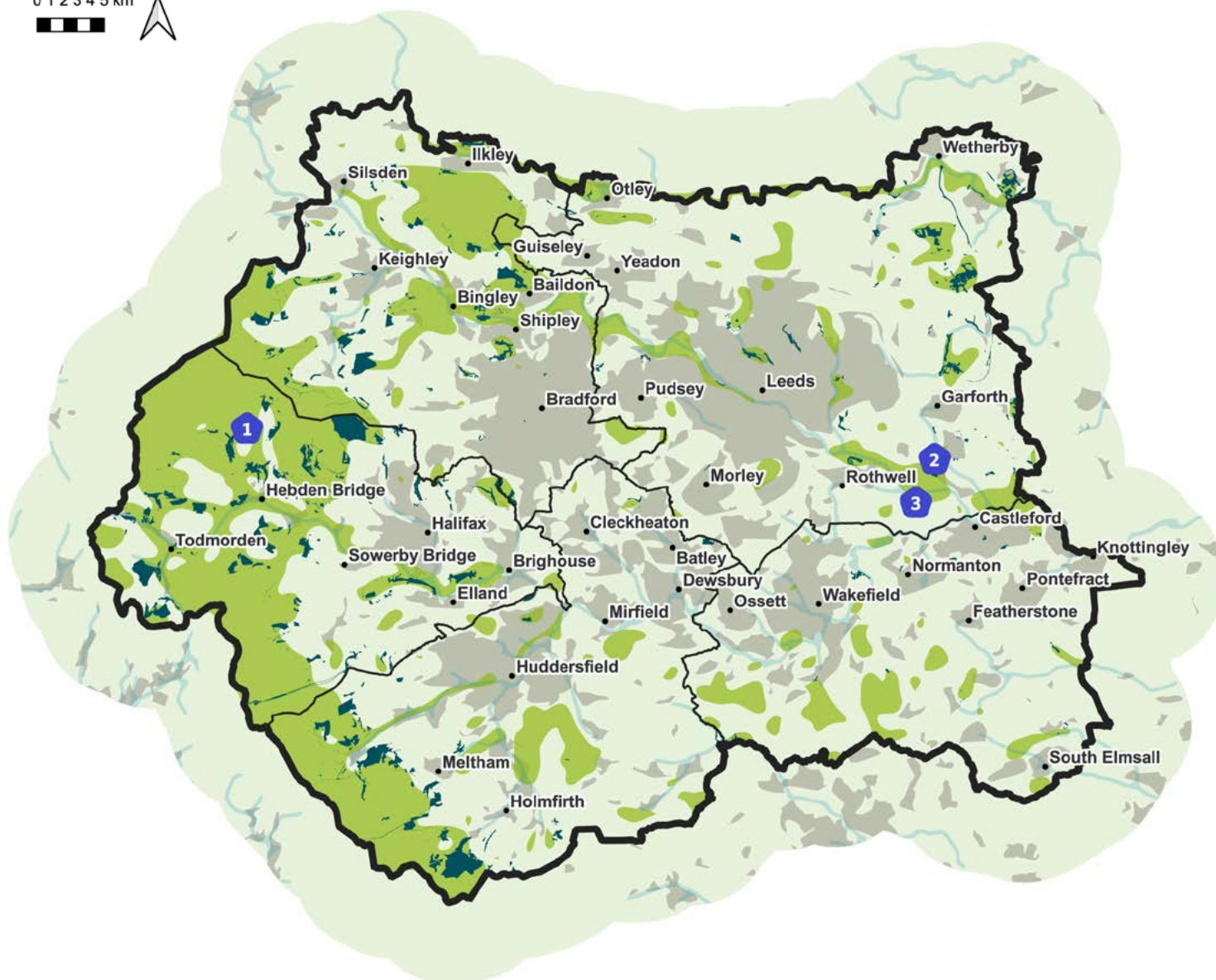
Species

Special attention. Many species need bespoke action to help them thrive, including the common lizard (Brockadale Nature Reserve in Pontefract), which belongs to the 'reptiles' assemblage, along with the adder, grass snake and slow-worm. © David Speight

Species

Map of proposed measures

0 1 2 3 4 5 km



Legend

Existing features

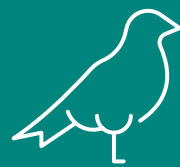
- Main towns and cities
- West Yorkshire boundary
- Local Authority boundaries

- Rivers
- Areas of particular importance to biodiversity
- Urban area
- Rural area

Broad areas for measures

- Species
- Highlighted feature for this theme

This map should not be used for the purposes of BNG. Please refer to the Local Habitat Map.



Specialist and rare species thrive in different parts of the region, including rare fungi at **Hardcastle Crag (1)**, black-necked grebes at **RSPB St Aidan's (2)**, white-clawed crayfish, otters and southern marsh orchid at **Mickletown Ings (3)**. 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 may be at risk of extinction in Yorkshire (34 fungi species are threatened with extinction). With the right conditions, species such as plants on Magnesian Limestone, water voles in rivers or hedgehogs in urban environments could increase.

Key

- 1** Hardcastle Crag
- 2** RSPB St Aidan's
- 3** Mickletown Ings





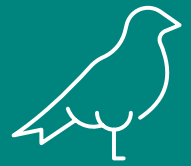
Description, threats and opportunities

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 such as red squirrels that, if we get our house in order, might return[†].

Nearly 2,000 species may have disappeared from Yorkshire over the past 200 years. Of those that remain, the populations of one in five have fallen 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, this impacts 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 Celsius, 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 WY LNRS Steering Group is committed to the longer-term ambition of seeing red squirrels return to West Yorkshire and so agreed to include red squirrels as a priority species. The group acknowledged that, for many reasons, this will be extremely difficult to achieve, and that protecting and expanding existing red squirrel populations elsewhere remains a priority. The group felt, though, that the failing to include red squirrels would not be in line with the strategy's other high ambitions. It agreed that this first strategy for West Yorkshire should focus on feasibility studies, creating and connecting habitats that red squirrels need in the most promising areas, research into all possible means of grey squirrel management. The ambition is for West Yorkshire to be red-squirrel ready.



Yorkshire Wildlife Trust led work to generate a ‘long list’ for this strategy. These are species that are at 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 species 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 List** report online for full details.



Build it, they come. Some of the UK’s rarest and most beautiful breeding birds, black-necked grebes, have made St Aidens Nature Reserve near Swillington their home thanks to careful habitat creation. This image was taken on one of the lagoons there. © Ashley Cooper / Nature Picture Library



Species and water

The reintroduction, in the right places, of missing ‘keystone’ or ‘ecosystem engineer’ species is being considered and tested as a method not only to bring back lost species, but to also restore the natural processes that they would have once supported. 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.

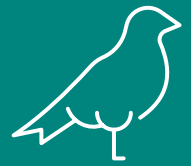
For the West Yorkshire Local Nature Recovery Strategy, the Priority Species list is:

- **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, marsh helleborine, moonwort, northern spike-rush, opposite-leaved pondweed, petty whin, river water-crowfoot, 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, grass-snake, 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

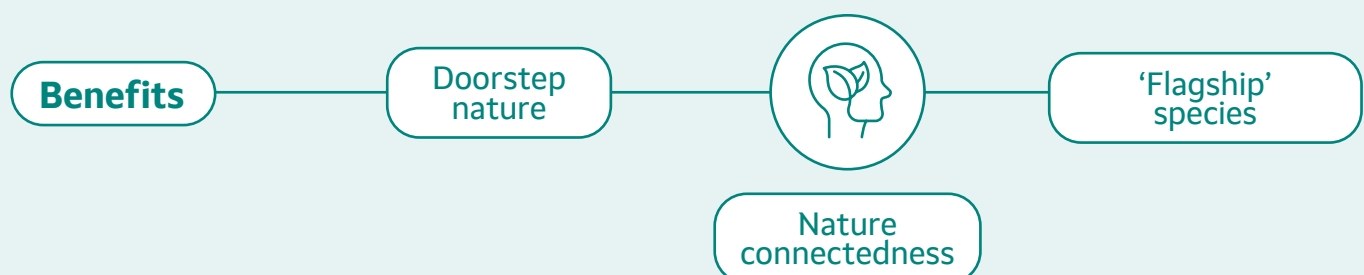
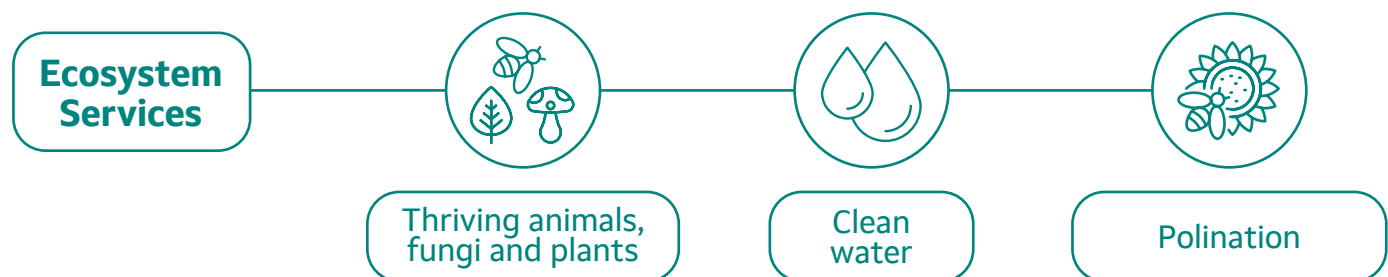
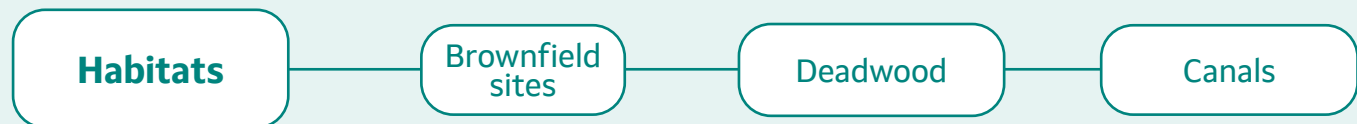
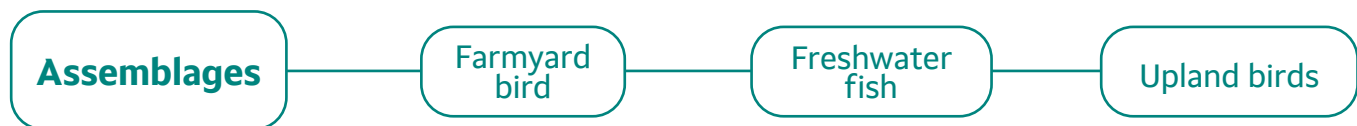
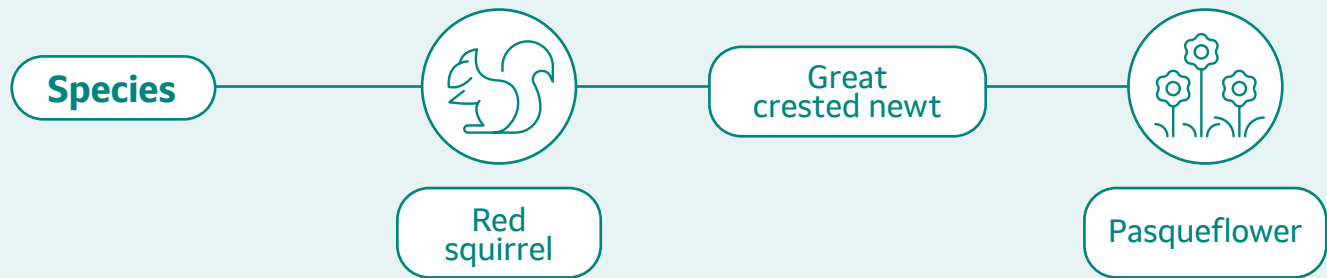
The priority is to increase the abundance of different animals, fungi and plants in West Yorkshire, including those this strategy could realistically help within five to 10 years.

[Click here](#) for the priorities and measures for this theme

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



Species: Summary



Part 4 ~~~~~

Tables of priorities and measures



All hands on deck. Students from Camphill school, Wakefield, teamed up with White Rose Forest to improve biodiversity on their school campus and support training and employment opportunities for students.
©Julia Murray / White Rose Forest



Three types of measures

The three types of proposed measures are: mapped habitat measures, habitat measures that are not mapped, and other actions that will maximise the impact of those habitat measures. Measures interact with and amplify each other in many ways and are all important for wider nature recovery. The order in which they appear does not imply any hierarchy.

All measures provide additional insight to those making decisions about land use (such as plan-making, development proposals, agricultural land, private estates, business sites, private gardens). This 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. Measures do not create any new planning or land use requirements and they neither direct nor preclude development or other activities. Any implementation would require landowner agreement, appropriate expert ecological assessment, and compliance with planning processes.

For those measures that have been mapped (a desk-based process), consult landowners and relevant authorities first: the fact that a measure is mapped does not automatically mean that the landowner has granted permission for habitat creation or enhancement. Conduct site-by-site, on-the-ground evaluation by relevant experts at appropriate times of the ecological season, before taking any action.

‘Biodiversity’ means an abundance of different animals, fungi and plants. ‘High quality’ refers to habitat in a good state relative to its optimal ecological condition, as set out by the Statutory Biodiversity Metric. ‘Significant’ or ‘significantly’ means that the action has, or is expected to bring about, lasting positive change for nature/biodiversity rather than minor, short-term or uncertain benefits.



Mapped measures, land use and BNG

Mapped areas do not limit where BNG units may be used, and future map updates will follow Natural England guidance when this is issued. Mapped measures that explicitly state a recognised habitat type will be eligible for the strategic significance multiplier in the statutory biodiversity metric only:

1. if the specifically mapped measure/s proposed to help deliver the priorities of the West Yorkshire Local Nature Recovery Strategy are carried out in the location specified in the Local Habitat Map^[41], and
2. the proposed intervention is consistent with the mapped potential measure in the West Yorkshire Local Nature Recovery Strategy for the habitat parcel and are clearly referenced in the BNG assessment/report submitted as part of the planning application[†].

Non-mapped measures and supporting measures are not eligible for the strategic uplift for BNG.

Responsibility and monitoring

These actions and notes about who might be best placed to do them are suggestions and should not be read as commitments by either the West Yorkshire Combined Authority or its partners either to undertake, monitor or evaluate them. We will monitor the impact of the strategy through the targets outlined in **Appendix 3**.

[41] DEFRA (2024), The Statutory Biodiversity Metric. p.28. User Guide. [Online.] [Accessed 16/01/2026.] Available at: <https://www.gov.uk/government/publications>

† The appointed ecological consultant justifies (to the satisfaction of the local planning authority) that the outcomes are highly likely to result in an appropriate biodiversity uplift for habitat area, hedgerow or watercourse biodiversity units.



Uplift. Mapped measures such as tree-planting will be eligible for the Biodiversity Net Gain incentive only if they meet certain conditions. © White Rose Forest



Cross-cutting measures

C1 Cross-cutting: Cross-boundary thinking

The priority is to think at landscape scale, including across political and administrative boundaries.

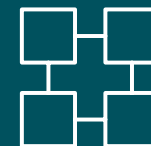
Measures (actions):

C1_S01 Supporting

Where habitat crosses boundaries (woodlands, grasslands, rivers, and moorlands for example), align actions with those on West Yorkshire's borders: North Yorkshire, South Yorkshire, Derbyshire, Lancashire and Greater Manchester. This will amplify the impact of joint efforts.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



C2 Cross-cutting: Landowner engagement

The priority is to engage with, consult and work with landowners.

Measures (actions):

C2_S01 Supporting

Work with landowners, land-managers and advisers to:

- understand their challenges, opportunities, priorities, the measures they are already taking and those they may be willing to take;
- identify suitable areas where they may be willing to create or enhance habitat;
- identify and use other nature-based solutions;
- provide and maintain access to public rights of way;
- encourage and promote sustainable farming (for example case studies, demonstration farms);
- provide training to land managers on managing fire risk and sensitive habitats;
- provide administrative support;
- ensure safe, responsible access to more robust nature and steer people away from sensitive areas;
- coordinate landscape-scale actions that support the recovery of species and habitats.

Who could do this?

- environmental partners,
- planners, developers
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- academic/business/anchor institutions



C3 Cross-cutting: Nature connectedness

The priority is for more people to feel part of nature for wellbeing and pro-nature/pro-environmental behaviour.

Measures (actions):

C3_S01 Supporting

Use every opportunity to increase nature connectedness. The arts, culture, philosophy, religion/spirituality can help greatly. Five effective pathways identified by the Nature Connectedness Research Group (Derby University) are:

- the senses (the scent of flowers, birdsong);
- beauty (blossom of cherry trees, explored through poetry, music, macro photography);
- emotion (feeling part of nature and place);
- meaning (celebrating the signs of spring, winter solstice);
- compassion (caring for nature).
- This could increase wider pro-nature behaviour and support other efforts such as environmental education and technical training. Be sensitive to people with conditions that impact their senses, such as deafness or sight loss, to ensure interventions are as inclusive as possible.

Who could do this?

- farmers, landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



C3 Cross-cutting: Nature connectedness

The priority is for more people to feel part of nature for wellbeing and pro-nature/pro-environmental behaviour.

Measures (actions):

C3_S02 Supporting

Where barriers to nature connection are linked to parental influence, find creative ways to share the value of nature connection with parents. Suggestions from engagement work include:

- Encourage an understanding that we can have small moments in nature throughout the day that can be impactful. Media campaigns and practical resources such as nature kits could play a part here.
- Curate varied activities that are perceived as safe and welcoming for everyone.
- Help children and parents build confidence outdoors through mentoring around discomfort in nature.
- Think outside the box regarding the type of activities typically offered, so that play opportunities are age-appropriate and multi-disciplinary. For example: blackberry-picking trips, hearing from experts, opportunities to practise crossing fields with livestock.
- Partner with, and fund, local community centres, practitioners and services embedded within communities to explore and develop holistic plans and programmes to address barriers and boost nature connection within their communities.

Who could do this?

- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



C3 Cross-cutting: Nature connectedness

The priority is for more people to feel part of nature for wellbeing and pro-nature/pro-environmental behaviour.

Measures (actions):

C3_S03 Supporting

Build safe habitats for people to thrive in to counter the 'teenage dip' in nature connection, address perceived fear of accessing green spaces, and foster more pro-nature and pro-environmental behaviour.

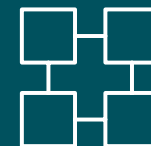
For example:

- Create outdoor environments that pre-teens and teenagers can access independently and safely. This could include 'teenage' zones in parks or specific play areas that go beyond the typical skate-park or MUGA offer, specifically designed with young people.

- Offer nature-based opportunities and events in local green spaces for teenagers to attend independently.
- Make schools, streets, and town centres greener with parklets, planters, orchards, and playful nature routes. Commission locally led research to find out what feels safe to parents and young people; collaboratively design interventions and integrate these into routes.

Who could do this?

- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



C3 Cross-cutting: Nature connectedness

The priority is for more people to feel part of nature for wellbeing and pro-nature/pro-environmental behaviour.

Measures (actions):

C3_S04 Supporting

Where systemic pressures restrict opportunities for children and young people to spend time in and connect with nature, 'rewild' these systems.

For example:

- Embed nature connection into school routines and curricula, especially during transitional years (year 7 to 9). Promote the new Natural History GCSE. Train teachers and senior leadership about the importance of nature connection and low-resource / high-impact ways to incorporate this into typical lessons.
- Extend forest school-style experiences and nature-based learning across education and community settings.
- Increase access to nature connection qualifications for students or those who have faced barriers to education. This might include nature-based career guidance.
- Explore the potential to tweak and reform educational infrastructure to prioritise time outdoors, in nature, from lessons and homework to journeys to school, after school, and in other public provision.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



C4 Cross-cutting: Enabling factors

The priority is to ensure that there is a framework of enabling conditions to ensure that nature recovery action achieves its potential.

Measures (actions):

C4_S01 Supporting

Successful delivery requires:

- **Leadership.** West Yorkshire needs strong, bold and well-informed leadership to avoid the risk of failing to deliver nature-related benefits to communities.
- **Data.** Data needs to be easy to find, easy to retrieve, easy to integrate with other data and easy to work with in other settings (the 'FAIR' principles). Wildlife sightings and nature records should be sent to experts (such as West Yorkshire Ecology Service, local expert recorders or wildlife groups) to help build up a stronger data set for the next iteration of the strategy. Data should also be shared with relevant landowners (when notable species are recorded on their land, for example).
- **Funding.** End-users in general, and farmers/landowners in particular, need the reassurance of realistic, long-term, predictable funding.
- **Initiatives,** including arts and culture, that help nature directly (such as volunteering) or indirectly (through arts and culture) need funding.
- **Partnerships.** Successful delivery will need to be underpinned by strong, effective, well-resourced partnerships.
- **Learning and sharing.** Showcase successful nature recovery action, such as local case studies and pilots.

Who could do this?

- farmers, landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- academic/business/anchor institutions



Built environment measures

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

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

Ecosystem services:

- Plentiful water
- Clean water
- Clean air
- Noise Regulation
- Urban cooling
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits

Measures (actions):

B1_M01 Mapped

Plant and maintain new resilient mosaics of habitats in urban areas. Include wetlands and ponds, biodiverse grasslands, and trees and shrubs on urban sites, using appropriate species, and connect these to other habitats. Make the most of long-term under-used land in urban areas. Traveller community pony-grazing could be used more effectively to help do this.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- local government officers,

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_M02 Mapped

Significantly boost the biodiversity and resilience of existing urban wooded areas, prioritising those with the fewest species and within areas of greatest social deprivation; improve the age structure and function of woodland by encouraging natural regeneration and planting of younger trees and ground flora.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

B1_M03 Mapped

Significantly increase the number of trees and woodlands in urban areas for the long term. Plant and maintain resilient species that are good for nature, 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) of open spaces for communities.

Who could do this?

- planners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

B1_N01 Not mapped

Create and maintain more grasslands that support more species within urban greenspaces. Use appropriate mowing regimes and locally native, perennial wildflowers. In wetter areas, include tall fen species and create small shallow pools for wildlife interest and educational value. Maintain the multifunctionality of greenspaces so

that people can use them in different ways (playing, picnicking, football, relaxing). Make the strips of habitat around the edges of parks wider and add small groups of trees (copses). Do this especially in areas of social deprivation with less high-quality greenspace. Involve local people in supervised management and species recording.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

B1_N02 Not mapped

Create different habitats in neighbourhoods (such as pollinator banks, deadwood habitats, rubble piles) to support nature near to where people live and work. This will help local animals get all the food and water they need from planting and other natural habitats. Support may be available from organisations in the area.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_N03 Not mapped

Grow food throughout the built environment to create and deepen nature connection. Grow apple and pear trees, edible berries or herbs in community spaces such as schools, community centres or community gardens so that it's easier for people to get involved, and so people feel safer foraging.

- Manage expectations; people might want orchards and allotments to be neat and tidy, which may not be best for nature.
- Consider continuity; if a key volunteer is no longer available, then the project is at risk of not being sustained.
- Involve people who may have time to offer, such as retirees.
- Assess the risk of food being affected by pollution.

- People may not want to plant soft fruit that quickly becomes overly ripe; include juicing facilities.
- Involve people in education and engagement to find out, for example, what the attitudes of local communities are towards pesticides used on grocery fruit versus potential pollution on other fruit.
- Build key partnerships within the community and connect with local groups such as allotments, Fruit Works, Incredible Edible groups.

Where appropriate, thread edible planting throughout urban spaces and streets, so long as this doesn't have an adverse impact on existing semi-natural habitats.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_N04 Not mapped

Create (or co-create) lots of new biodiverse popup / 'doorstep' habitats such as community orchards, edible planting, pollinator banks so wildlife can find food and water throughout urban spaces. Bring nature closer to the places that people routinely use, such as surgeries, shops, transport hubs, community and leisure centres, schools

and colleges, as requested by young people. Think '3D' – window-boxes and green roofs so that buildings and other structures attract plants, invertebrates and birds. Avoid tokenistic gestures that risk failing from lack of maintenance.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_N05 Not mapped

Significantly boost biodiversity in and around all new and existing spaces such as schools, colleges and other education grounds (encouraged by the National Education Nature Park initiative). Make these good to look at, listen to, smell and touch, so that people want to spend more

time with nature. Run competitions for groups (schools and others) to design and build wildlife features around their homes. Share the best ideas widely.

Who could do this?

- landowners (public and private sector),
- environmental partners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B1_N06 Not mapped

Significantly boost the biodiversity of existing mosaics of habitats in urban areas. Make the most of long-term underused land in urban areas, especially where the public already readily accesses this, or could do so. Fund field-officer posts for nature conservation organisations to support groups of local volunteers.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

B1_N07 Not mapped

Where meaningful biodiversity uplift truly cannot be achieved because biodiversity is already high (in/ around wildlife-friendly gardens, orchards, nature reserves, allotments or community spaces), conserve and maintain that to ensure that wildlife does not decline.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups



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

Measures (actions):

B1_S01 Supporting

Support communities to help shape their environment to increase biodiversity. Balance the focus on biodiversity with other needs. Consider the tensions between what people need and what nature needs, in particular safety (if people do not feel safe, they will not use green spaces), accessibility (if nature is not accessible – physically, socially and culturally – then it is not truly for everyone) and diversity (if diversity is

not recognised and valued, then whole communities risk being excluded). Find out what people think and feel about your proposed actions by engaging with existing groups, youth workers and rangers.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B1_S02 Supporting

Use every opportunity to attract nature: create ponds, add a variety of habitats in gardens, add swift or bat bricks to properties, manage grass for biodiversity. Reduce the impact of pets (cats kill many birds and small mammals and dogs disturb ponds and riverbanks). Minimise use of pesticides. Support may be available from organisations in the area.

Who could do this?

- landowners (public and private sector),
- land-managers,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_S03 Supporting

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.

Practical actions could include:

- Use native, locally appropriate species that are resilient to challenges such as pests, disease, and a changing climate. Focus on more ubiquitous species, not rarities.
- Ensure that areas are not abandoned, as this can lead to lower botanical diversity and reinforce views that a neighbourhood is not cared for (a small area of mowing, supported by signs and face-to-face engagement, can communicate that this is deliberate habitat management, not neglect).
- Habitats, including deadwood and rubble piles and bug hotels, should provide most of the food and shelter that animals need. Add-ons such as bird boxes should supplement, but not replace, habitats.

Who could do this?

- landowners (public and private sector),
- land-managers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_S03

Supporting

Continued

- Implement wildlife-friendly mowing regimes.
- Promote structural diversity; grasslands managed for amenity, with strips of perennial wildflowers.
- Use annual wildlife seed mixes, particularly on areas of urban wasteland, to provide a splash of colour and richer environment for invertebrates.
- In wetter areas, include tall fen species and create small shallow pools.
- Introduce native species such as bulbs and meadow plug plants.
- Leave felled trees and large limbs in place for children to play and to increase insect habitats.
- Use hedgerows with native mixed species or drystone walls instead of fences.
- Create wider verges.
- Incorporate water-holding spaces such as ponds or imaginative wetlands linked to building downspouts.
- Where sites start to hold water, find out why and align with water management objectives.
- If appropriate, encourage people to use brownfield/previously developed sites. If not, fence the brownfield site off for nature.

Who could do this?

- landowners (public and private sector),
- land-managers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_S03

Supporting

Continued

- To ensure efforts to create or enhance habitats are well used by wildlife, create 'pesticide-free' zones for invertebrates where pesticide use is avoided; identify corridors/areas for focussed campaigns and commitments to minimise using insecticides and herbicides.
 - Minimise use of insecticides, molluscicides or herbicides.
 - Take care not to either under- or over-manage grass verges.
 - Adopt appropriate management of annual 'hay' cut and remove cut grass.
 - Protect existing urban trees from felling or development pressures. For those that must be felled (because of disease or safety), carefully consider the characteristics of replacements (size, edibility, resilience).
 - Work with lead local flood authorities and Environment Agency on local schemes.
- Seek advice for further ideas and follow current best practice.

Who could do this?

- landowners (public and private sector),
- land-managers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

B1_S04 Supporting

Take action to help nature – get involved in volunteering. From rewilding groups, citizen science projects, surveys, river-health monitoring, planting, swift action groups, toad patrols, litter picks,

footpath mapping/clearing, education, campaigns, there are opportunities for everyone. Support may be available from organisations in the area.

Who could do this?

- volunteer organisations,
- local and community groups,
- general public

B1_S05 Supporting

Help people to share what they are doing for nature. Facilitate opportunities for people to interact with schools, hospitals, retirement communities and businesses that want to promote their environmental and social corporate responsibility.

- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B1_S06 Supporting

Fund arts and culture initiatives that strengthen people's relationship to nature and encourage them to get involved in citizen science and volunteering (see **C3_S01 'nature connectedness'**). In galleries, museums, public libraries and temporarily vacant shop windows, use signs, webcams, apps, interpretation boards, timelapse 'picture frames'. Live storytelling events at heritage sites are the best way for visually impaired people to hear and experience the history of a site.

Who could do this?

- environmental partners, decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B1_S07 Supporting

Greenspace includes urban parks, country parks, sports fields, amenity areas, playgrounds, kickabout areas, natural areas, cemeteries and churchyards. Manage these for biodiversity in a way that is compatible with the primary use of the area/site. Review existing and developing plans, strategies, codes, guidance, to ensure nature is referenced within local planning policies (including Neighbourhood Plans and Village Design Statements), greenspace management, and supporting materials and avoid the risk of missing opportunities to help nature. They should:

- make it clear that 'greenspace' means wildlife-rich greenspace;
- review opportunities to expand tree canopy where this is compatible with other land-use objectives;
- consider all kinds of access to nature: physical, social, cultural and personal;
- consider psychological connectedness to nature;
- prioritise biodiversity and nature-friendly management and maintenance and explain why these matter (added value of beneficial insects, avoiding pesticides and planting nectar-rich flowering plants).

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers
- academic/business/anchor institutions



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

Measures (actions):

B1_S08 Supporting

- Help businesses and other organisations to support nature:
- learn, collaborate, connect with other businesses, to share information, examples and resources;
- work with neighbours, landscape contractors, plant nurseries/garden centres, planners and local authorities to contribute to nature corridors;
- establish corporate partnerships with local nature recovery initiatives;
- fund sessions to understand better the surrounding landscapes and the nature on the doorstep.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B1_S09 Supporting

Help funders, managers, elected members to make evidence-based decisions. Assess and articulate the abundance of positive direct and indirect impacts of urban nature-rich greenspaces, for wildlife, for the wider environment, for people

(cultural, social, health, community). This will help those writing policies, setting budgets and making choices have clear, comprehensive data, evidence and testimony to inform their decisions.

Who could do this?

- environmental partners,
- local government officers,
- academic

B1_S10 Supporting

Historic landscapes, local parks and sports/amenity spaces are a ready-made 'portal' to nature, and provide many other benefits, including shade, leisure and health. Incorporate biodiversity in

a way that preserves these and builds on existing meaningful generational/historical relationships.

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



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

Measures (actions):

B1_S11 Supporting

Identify and remove barriers to greater public engagement with nature and greenspaces, particularly with communities with limited access to good-quality nature-rich spaces. Enhance

biodiversity of greenspaces identified in Neighbourhood Plans and support more people to get involved in new/updated Neighbourhood Plans.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B1_S12 Supporting

Increase the skills of local authority officers, urban rangers and community volunteers in established and new approaches to nature-friendly gardening and landscaping, moving from a 'horticultural' towards an 'urban ranger' model. Ensure managers and

decision-makers make time to hear from their experiences. Use formal and informal skills development, training and apprenticeships to ensure that the workforce can maximise the impact of current and future habitat creation and enhancement.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- environmental partners,
- academic/business/anchor institutions



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

Measures (actions):

B1_S13 Supporting

People want to live in neighbourhoods that are (and feel) looked after. Promptly address antisocial behaviour such as litter, graffiti and fly-tipping, which featured strongly in the public survey as barriers to public support. Find ways to explain that nature-friendly spaces are evidence that the quality of their neighbourhood matters. Work face-to-face with diverse communities and local leaders to increase public trust in efforts to help nature. Communicate, explain, put signs up, mow a few edges to indicate deliberate nature-friendly management.

Who could do this?

- landowners (public and private sector),
- land-managers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



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

Measures (actions):

B1_S14 Supporting

Support people to manage gardens and allotments in nature-friendly ways. Encourage forest garden approaches to increase biodiversity in allotment plots.

Who could do this?

- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups

B1_S15 Supporting

Use nature-based interventions for health and wellbeing, such as green social prescribing and spending time in nature for emotional regulation and cognitive restoration.

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/anchor institutions



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

Measures (actions):

B1_S16 Supporting

Use nature-based solutions to problems such as water management, pollution, heat and noise, instead of hard infrastructure wherever possible; demonstrate the added value of this. Collate and share good quality, well-balanced research on these subjects.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



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

Measures (actions):

B1_S17 Supporting

Where human presence could disturb sensitive/rare species, steer people (and their dogs) to other areas with more robust wildlife. This helps species while enabling people to connect with nature and enjoy leisure activities. Critically assess existing and potential routes for people to reach nature. See also Vision Zero (strategy to eliminate road deaths and injuries) and Safer Parks for Women and Girls (design guide to increase use of greenspaces). Use signs or other methods to explain the reasons for this clearly to raise awareness and build public support. Consider psychological as well as physical safety – whether a person feels welcome.

Who could do this?

- landowners (public and private sector),
- land-managers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- local and community groups



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

Measures (actions):

B1_S18 Supporting

Work face-to-face with different communities and local leaders to increase public trust in and involvement with efforts to help nature. Community groups told us that a wider understanding of 'accessible' is needed: as well as physical access to nature, consider how accessibility is impacted by mental, cultural, social and personal factors (confidence for example). Ensure that information, signs and boards are regularly updated with accessibility information.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

B1_S19 Supporting

Worm and flea medications harm wildlife, especially invertebrates that live in places such as ponds. Avoid over-treating pets. Make sure people know how to dispose of household pesticides safely; this should be free of charge at council public waste disposal sites.

- local government officers,
- local and community groups,
- general public,
- business



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

Measures (actions):

B1_S20 Supporting

Volunteers are one of the greatest assets decision-makers and policymakers have at their disposal. Local community and environmental action groups have a wealth of knowledge and/or expertise and are well linked into wider community networks; they may be able to help make buildings, development and grounds more nature friendly, and share efforts more widely.

Community groups told us that they need:

- better communication from, and listening by, authorities;
- help to share resources (tools, expertise, learning, networking, time);
- support to set up community hubs/ community ownership;
- help to increase awareness of urban species (owls, swifts and hedgehogs);
- accessible opportunities, with the understanding that access is more than just physical access (social, cultural, personal factors matter too).

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- academic/business/anchor institutions



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

Measures (actions):

B1_S20

Supporting

Continued

Other ways to support volunteers:

- support organisations that have a good track record of working with volunteers in a variety of disciplines such as habitat management, wildlife education of adults and children, funding applications, health and safety, including District Council rangers, Yorkshire Wildlife Trust, RSPB, Groundwork Trust, The Conservation Volunteers (TCV).
- Employ experienced people to support volunteers.
- Find out where volunteers are, where the gaps are, particularly in areas of deprivation; invest in volunteers to secure their long-term efforts and amplify the impact of their work.
- Ensure that volunteers working in areas that are more sensitive for biodiversity have clear guidance from experienced ecologists or other appropriate technical specialists, and that sites are assessed properly before making changes.
- Develop clear processes for timely decision-making (in line with seasons, not just budgets) to resolve potential conflicts (such as between using space for tree-planting/football fields).

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- academic/business/anchor institutions



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

The priority is to join up patches of woodland, grassland, heathland and 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.

Ecosystem services:

- Plentiful water
- Clean water
- Clean air
- Noise regulation
- Urban cooling
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits

Measures (actions):

B2_M01 Mapped

Create and maintain habitat corridors and stepping stones to connect and extend existing blue and green places. Use wetlands, such as ponds, and tree and hedgerow species to 'join the dots' through the urban fringe and into the wider countryside. Ensure new and enhanced wildlife corridors are strategic;

carefully consider which species to target. Habitat corridors that work for both people and wildlife need to be wide enough to allow enough distance between people and wildlife.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B2_M02 Mapped

Expand and enhance existing priority habitats or create new wetlands on suitable anchor institution land (government, educational and faith institutions, the NHS) and businesses) so they can use their grounds as connectors to contribute to more, bigger, better and joined-up green and blue infrastructure and spaces for nature. Link these into the existing West Yorkshire Local Habitat Network

Who could do this?

- landowners (public and private sector),
- land-managers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- environmental partners,
- planners,
- developers,
- academic/business/anchor institutions



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

Measures (actions):

B2_M03 Mapped

Plant new biodiverse woodlands on the edges of urban areas. Consider a wide palette of trees that take account of resilience in urban areas using along themes of 'right tree, right place, right reason'.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups



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

Measures (actions):

B2_M04 Mapped

Significantly boost the quality of existing blue and green habitat corridors and stepping stones within urban spaces to attract different native plants and animals, and more of them. Incrementally boost biodiversity in urban communal areas by replacing hedgerows with native mixed varieties and creating and incorporating freshwater ponds.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B2_N01 Not mapped

Away from bus routes, replace lost street trees with species such as flowering cherries and almonds; people love the blossom. In less polluted areas, use edible planting; plant fruit trees to create 'street orchards'. Plant in line with 'right tree, right place, right reason' principles, a clear vision of the desired outcome, and a management plan to achieve this.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



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

Measures (actions):

B2_N02 Not mapped

Create blue-green links for animals to move along; add habitat to snickets and ginnels; sustainable urban drainage systems need to be surface wetlands and swales. 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. Use the existing West Yorkshire Wildlife Habitat Network as the start and build new links from that.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups, academic/business/anchor institutions



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

Measures (actions):

B2_N03 Not mapped

Create linear habitats to help animals move around the local area. Liaise with neighbours to add holes to fences and walls so hedgehogs can roam safely or replace fences with hedgerows; create a chain of garden ponds and log piles between homes; add 'take-a-break' service stations where animals can re-fuel and rest, such as strips of nectar-rich planting. Support may be available from organisations in the area.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions

B2_N04 Not mapped

Local Planning Authorities should favour locally native hedgerows over close-boarded fencing and avoid overusing species such as laurel, beech and hornbeam. Hedgerow planting should use site-appropriate native species such as hawthorn, blackthorn, hazel or field maple to support biodiversity, landscape character and climate resilience.

Who could do this?

- landowners (public and private sector),
- land-managers,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups



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

Measures (actions):

B2_S01 Supporting

Create more opportunities for more people to connect to nature more often as they go about their daily lives walking to and from school, at school, work, transport hubs or for leisure. Use these opportunities to share information (how pesticides can harm wildlife; why nectar-rich flowering plants are better for pollinators than those bred to look attractive; the importance of offering food-rich habitats for wildlife). Make parks more accessible for more people (toilets, benches) and ensure places are kept clean. Create opportunities for families to spend time together nature.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups



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

Measures (actions):

B2_S02 Supporting

Encourage collaboration and cross-community engagement between urban and suburban/rural areas to help people better understand the needs of the farmers and the potential conflicts that arise from abuse of access to land.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)
- volunteer organisations,
- local and community groups,
- academic,
- business
- business leaders

B2_S03 Supporting

Public space landscaping teams should create and use good quality habitat planting lists: suitable trees and shrubs that are best for wildlife. They should also refer to a blacklist of non-native species to avoid (eg laurel, *Rhododendron ponticum*, snowberry, cotoneaster, bamboo). Problem species may become established before they are officially listed; seek expert guidance for current and emerging issues.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



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

Measures (actions):

B2_S04 Supporting

Recruit and support volunteers to improve blue and green links; they could identify and fill gaps, add habitat to ginnels, snickets and alleyways (without restricting people's line of sight), report existing public rights of way that are not yet officially recorded (Ramblers) or assess the quality and accessibility of regional footpath networks (Slow Ways initiative). Bring citizen science and universities together for research/survey

work. Look for ways to extend the blue-green network within towns and cities and into other urban areas and beyond the urban fringe. Ensure planners and other senior officers or bodies don't miss the opportunity to hear about these, so they can be included in planning and funding decisions.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic



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

Measures (actions):

B2_S05 Supporting

Take the opportunity offered by large-scale developments/allocated sites to create linking habitats. Coordinate these across districts to ensure physical and strategic connectivity. Add these to updated versions of the West Yorkshire Habitat Network.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- planners,
- developers

B2_S06 Supporting

Work with landowners in urban environments to ensure safe, responsible access to more robust nature; steer people away from sensitive areas.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups



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

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.

Ecosystem services:

- Plentiful water
- Clean water
- Clean air
- Noise regulation
- Urban cooling
- Flood protection
- Thriving animals, fungi and plants, and pollination
- Climate regulation
- Cultural benefits

Measures (actions):

B3_M01 Mapped

Encourage temporary (so-called 'meanwhile-use', in planning terms) nature-rich uses on undeveloped smaller non-phased brownfield sites (of more than 0.25 hectares) or on land being used for larger phased developments (more than five hectares).

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

B3_M02 Mapped

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. Allow significant areas to develop naturally. Depending on how permeable the site is, this will also help to control water during excess rainfall.

Who could do this?

- landowners (public and private sector),
- land-managers,
- local government officers,
- planners,
- developers

B3_M03 Mapped

Enhance the boundaries of brownfield sites, especially larger ones, for example by adding hedgerows, so that they look more attractive as well as help wildlife.

Who could do this?

- landowners (public and private sector),
- land-managers,
- local government officers,
- planners,
- developers



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

Measures (actions):

B3_N01 Not mapped

On former industrial sites being redeveloped for employment use, use roofs to recreate the habitats that had formed on the ground.

Who could do this?

- environmental partners, planners,
- developers,
- business

B3_N02 Not mapped

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 whole development rather than assigning the 'left-over' bits of land for nature.

Who could do this?

- landowners (public and private sector)
- planners,
- developers



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

Measures (actions):

B3_S01 Supporting

Address issues around lack of skills and expertise around how to manage and boost nature on brownfield sites and secure funding sources to maximise the biodiversity potential of brownfield sites. Enhance baseline ecological surveys. The education and voluntary sectors could also have a role here.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions,
- business leaders

B3_S02 Supporting

Co-create with communities a design code that supports the creation of nature-rich communal greenspace on brownfield sites.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- general public



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

Measures (actions):

B3_S03 Supporting

Create and manage habitat on brownfield sites in ways that allow people to access and enjoy this nature, especially where there is not much greenspace around. Ensure that the level of public access is right for the sensitivity or robustness of wildlife. Actively engage local people to help design, explore, monitor and manage evolving habitats. Create small areas such as wetlands that are visibly 'more biodiverse' so that people can enjoy these.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups

B3_S04 Supporting

People told us they recognise the potential conflicts with house-building policies and fear that sites used for nature might be neglected and become polluted or fly-tipped. Use signs to explain what is happening, what nature is present and what nature might return, and make people feel welcome. When brownfield sites are reclaimed for nature, consider accessibility from the outset. Maintain them.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups



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

Measures (actions):

B3_S05 Supporting

Where sites start to hold water, find out why and align with local water/drainage/flood management plans. If appropriate, integrate solutions such as raised walkways for local communities to use rather than draining the land.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers

B3_S06 Supporting

Fund research and data collection into sites that are or should be included with the UK Priority Habitat for Open Mosaic Habitat on Previously Developed Land to ensure this is backed by sound evidence.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



B4 Built environment: Nature-friendly transport infrastructure

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.

Ecosystem services:

- Clean air
- Noise regulation
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits

Measures (actions):

B4_M01 Mapped

Create and maintain 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 and aim to make a real contribution to habitats through maximising area and quality. Take account of air quality, noise buffering, surface run-off management, accessibility and public safety.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_M02 Mapped

Significantly boost biodiversity wherever possible where there are existing habitats alongside transport infrastructure.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups

B4_N01 Not mapped

Create new habitat on roadside verges and amenity grasslands for example by implementing a nature-friendly mowing regime. Implement appropriate management. Some verges benefit from an annual 'hay' cut (late July to early September), with the cut grass removed. Others would be better cut earlier so that they produce nectar later in the summer. A small area of mowing can signal that this is deliberate management,

not 'neglect'. Include interpretation to highlight the value of biodiversity friendly areas and how local communities can support wildlife in their neighbourhood. This will create habitats, trap pollutants/sediments and slow the flow by retaining water and improve water quality. Invest in cutter collectors and a network of sites to process the waste.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_N02 Not mapped

Create opportunities for people to encounter nature on their journeys. Add habitats to encourage nature around bus shelters, train stations, road verges and pavements.

Who could do this?

- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions,
- business leaders

B4_N03 Not mapped

Increase the extent and diversity of street trees along the key route network, active travel routes, residential streets, pavements and public spaces based on 'right tree, right place, right reason' principles. This will help to connect and create habitats, provide shade, trap pollutants and sediments, retain water to slow the flow, and improve water quality. People will enjoy the benefits of nature as they go about their daily lives.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- academic/business/anchor institutions



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_N04 Not mapped

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 and toad-crossings. This will de-fragment nature networks, connect habitats and help wildlife to travel and spread more safely.
- Use wider bridge structures where watercourses run under roads, rather than narrow concrete culverts. Maintain at least one side of watercourses free from human disturbance.
- Incorporate wildlife-friendly infrastructure design into existing and planned development to avoid killing or injuring animals: put wildlife kerbs on existing gullies, particularly near existing nature sites, and install wildlife kerbs on new gullies as standard.
- Use road signs to tell drivers to look out for animals.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_N05 Not mapped

Use constructed wetlands to settle out pollution from motorways and the wider road network before it enters watercourses, and to address pollution from urban and transport outfalls.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

B4_N06 Not mapped

Identify diverse and moderately diverse road verges within the Magnesian Limestone area and manage these for more significant calcareous to neutral grassland plants as well as habitat structures for other species. Minimise damage from infrastructure and road traffic. If damage is unavoidable, restore damaged areas using crushed Magnesian Limestone and minimal thickness of local soils.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_S01 Supporting

Address the mobility and road safety needs of wild animals in policy and decision-making.

Who could do this?

- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

B4_S02 Supporting

Drive in a way that reduces the risk of causing death or serious injury to wildlife as well as humans. Pay particular attention in poor light conditions. Support may be available from organisations in the area.

Who could do this?

- general public



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_S03 Supporting

Drivers kill and injure millions of animals every year, and speed is often a factor. Reduce road danger through initiatives such as hard measures, for example traffic calming, and soft measures, for example driver education. This increases the connectivity of habitats by making it possible for animals to move around. Lower traffic speeds can also lead to less noise and air pollution, which helps create a healthier environment for both people and nature. The West Yorkshire Vision Zero road safety strategy, which aims to eliminate deaths and serious injuries for people, will also make roads safer for wildlife.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

B4_S04 Supporting

Ensure developers and highways departments know how to retrofit street trees and include street trees in new developments and refurbishments/replanting, using 'right tree, right place, right reason' principles.

Who could do this?

- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_S05 Supporting

For landscaping, (such as road schemes) do not use imported topsoils as these mask the underlying mineral. Instead, allow the vegetation to regenerate naturally. If planting is necessary, use good quality native shrub and scrub habitat planted in a beneficial mosaic distribution, and managed appropriately. Focus on biodiversity, not just architectural aesthetics. Clearly communicate the reasons for this – explain how nature-rich infrastructure will support local ecosystem services such as water, pollution and noise control and contribute to wider place-making efforts.

Who could do this?

- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- industry

B4_S06 Supporting

Incorporate sustainable drainage systems (SuDS) into the design of street trees to manage surface water runoff, improve water quality and enhance the health of urban trees.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_S07 Supporting

Initiatives such as toad patrols offer great hands-on opportunities for people to learn about nature, as well as making a direct impact on wildlife. Support community groups that want to monitor and help wildlife movement. Use seasonal or permanent speed cushions. Ensure that highways authorities engage with them to make the most of local interest and goodwill.

Who could do this?

- environmental partners,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

B4_S08 Supporting

Show leadership and provide funding to solve the problem of busy roads preventing people, including children, from enjoying nature in their local green spaces. Commission locally led research to listen to families about what feels safe to parents and young people; collaboratively design interventions and integrate these into routes. Focus efforts on improving access for communities with limited access to green spaces. This would also support the West Yorkshire Vision Zero commitment to eliminating deaths and serious injuries on roads.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/business/anchor institutions



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_S09 Supporting

To ensure habitats are well used by wildlife, create pesticide-free zones where pesticide use is avoided; identify corridors/areas for focussed campaigns and commitments to minimise using products such as herbicides and insecticides.

Who could do this?

- planners,
- developers
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- general public,
- academic/business/anchor institutions

B4_S10 Supporting

Adopt biodiversity enhancement measures that increase the potential for canal towpaths to act as wildlife corridors and to connect them to other nearby green and blue infrastructure. Consider using wildlife access ramps to improve safe access to the canal for wildlife and green bridges to help wildlife to cross canals. The non-towpath side, away from boaters, cyclists and pedestrians, is likely to provide better opportunities for wildlife enhancement. These actions will make canals and their towpaths more accessible and appealing to more people, as well as wildlife.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_S11 Supporting

Work with local authority tree officers to safeguard existing tree and woodland cover from development pressures where feasible, as trees are important to addressing the climate crisis. In addition, in collaboration with the Forestry Commission, ensure that all tree-felling within woodlands is carried out in accordance with current government guidance and best practice and carefully consider the characteristics of replacements (size, edibility, resilience). Apply Tree Preservation Orders (TPOs) where supported by evidence.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers

B4_S12 Supporting

Where habitat creation or significant enhancement is taking place along linear infrastructure such as roads and rail, control and monitor invasive species, ideally where this can be effective without being undermined by lack of action elsewhere; involving volunteers can also generate many other indirect benefits for nature (education, skills, wider pro-environmental behaviour).

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,
- industry



B4 Built environment: Nature-friendly transport infrastructure

Measures (actions):

B4_S13 Supporting

Incorporate sustainable urban drainage systems into the underground design for street trees.

Who could do this?

- planners,
- developers



B5 Built environment: Nature-friendly buildings and developments

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.

Ecosystem services:

- Plentiful water
- Clean water
- Clean air
- Noise regulation
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits

Measures (actions):

B5_N01 Not mapped

Create demonstration buildings to show how these can incorporate high biodiversity; create a portfolio of example designs for both new buildings and retrofit to existing buildings, that would work in a West Yorkshire climate.

Who could do this?

- planners,
- academic/business/anchor institutions,
- business leaders,
- industry



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_N02 Not mapped

Create more space for water in gardens and across wider developments. Use constructed wetlands to 'slow the flow', create new habitats (ponds, rain gardens, wetlands, reedbeds), increase blue and green spaces and improve mental health, use permeable surfaces and re-naturalise flow patterns. Work with drainage approval boards to boost the uptake of wildlife-

sensitive sustainable urban drainage systems. Encourage people to use water sustainably; harvest rainwater (using a filter diverter and a 700+-litre tank) to direct water into ponds, bog gardens and rain gardens. Consider re-naturalising waterway flow patterns.

Who could do this?

- planners,
- developers,
- general public

B5_N03 Not mapped

Design all mineral-extraction sites in a way that enhances wildlife corridors (or at least maintains these). Once extraction is finished, develop such sites into local nature reserves appropriate to the soil type and geology. If that can't be done, find other ways to maximise the biodiversity of these sites in ways that are compatible with other uses.

Who could do this?

- environmental partners,
- planners,
- developers,
- local government officers,
- industry



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_N04 Not mapped

Design all wind/solar sites in a way that enhances wildlife corridors (or at least maintains these) and restores nature throughout.

Who could do this?

- planners,
- developers,
- industry

B5_N05 Not mapped

Make homes wildlife friendly. Add swift bricks, replace hard driveways and paths with natural surfaces, grow climbing plants such as ivy up walls, 're-wet' the space around properties (rain-gardens, boggy areas, soakaways, ponds). Linking

ponds to roof water runoff will mitigate the risk of flood (think about what would happen in a storm; you may also need an overflow pipe back to the surface water sewers). Support may be available from organisations in the area.

- environmental partners,
- planners,
- developers,
- volunteer organisations,
- local and community groups,
- general public



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_N06 Not mapped

Make the most of the existing built urban environment as potential valuable habitat. Retrofit high-quality, biodiverse-rich blue and green habitats where feasible into and on top of buildings and the spaces between them. Incorporate green walls and roofs using climate-resilient species that are good for nature. Use adjacent developments to provide buffer planting and connectivity to the wider landscape. Collaborate with local leaders and communities.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

B5_N07 Not mapped

New developments should provide food and shelter for wildlife using high-quality habitats such as trees, double-line hedgerows and pollinator planting, supplemented by (but not replaced by) features such as swift bricks, bird and bat boxes. Minimise the use of pesticides to ensure habitats are well used by wildlife. Collaborate with local leaders and communities.

Who could do this?

- planners,
- developers,
- volunteer organisations,
- local and community groups,



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_N08 Not mapped

Retrofit existing buildings (if they are not going to be knocked down) to boost biodiversity. Incorporate mosaic habitats wherever possible, such as green walls/roofs. The roofs of large warehouse buildings offer significant potential. Encourage the use of brownfield roofs approved through planning. Collaborate with local leaders and communities.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- volunteer organisations,
- local and community groups

B5_N09 Not mapped

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 where droppings could cause problems. Collaborate with local leaders and communities.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_N10 Not mapped

Significantly enhance existing habitats on and/or around buildings, developments and the grounds between them, including buildings with architectural, historical or cultural importance, and especially where nature has already sought to make a home or where opportunities to improve green and blue infrastructure exist. This will help people to welcome nature as part of everyday life.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- local government officers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions

B5_S01 Supporting

Increase commitment for large-scale developments to provide open water attenuation systems (wetlands, rainwater harvesting, soakaways, green roofs, permeable paving, swales, ponds) in preference to below-ground water storage. Increase the use of 3D opportunities such as green roofs and walls. Collaborate with local leaders and communities.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- volunteer organisations,
- local and community groups



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_S02 Supporting

Build on existing community work and initiatives and support existing community groups to make buildings and developments more nature friendly. Include diverse groups at the outset of planning/design to co-design developments to meet everyone's needs. Some groups focus on specific species (swifts, bats, badgers, hedgehogs); others work on wider habitat creation (wildflower meadows, woodlands, ponds). Recognise and amplify their efforts while sharing their successes to inspire wider adoption and engagement. Include different groups at the outset of planning/design to co-design developments to meet more people's needs.

Who could do this?

- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_S03 Supporting

Consider the need to improve nature and make the environment more resilient in new development.

- Ensure that wildlife conscious landscaping is standard practice within planning approvals.
- Design and masterplan new developments comprehensively to deliver native mosaic habitat within, across and between different development sites.
- Create a package of design options (such as for landscape plans as part of planning applications) to help developers and local planning authorities; provide examples, products and design specifications.
- Work with planning authorities to include natural features in new developments for public space landscaping.
- Establish 'good quality habitat' planning lists of native plants beneficial to wildlife, while avoiding invasive species.
- Adopt and promote best practice on designs that consider wildlife and public health needs: make space for nature and water within and between buildings and on greenspace, include trees and boundary treatments as well as SUDS, and prevent light from spilling onto watercourses and trees.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_S03

Supporting

Continued

- Use redevelopment as opportunities to create more space in the river channel and to connect aquatic habitats.
- Ensure developments (housing, retail, employment) help people get out into nature – and bring nature closer to where people are.
- Planning approvals increasingly actively look for landscaping and other enhancements that boost biodiversity. The National Planning Policy Framework 2024 highlights this; ensure widespread awareness of this.
- Local planning authorities, policy advisors and developers should integrate multi-disciplinary, sustainable biodiversity principles into design codes/principles/standards and planning policies and share examples of where this has been successful.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_S04 Supporting

Promote nature-based solutions for urban households such as creating more space for water in gardens and encourage more sustainable water use; for example, water-harvesting to feed water into garden ponds. Use green roofs to reduce the amount of water reaching road surfaces. Promote nature-based solutions in water company business plans.

Who could do this?

- local government officers,
- community groups,
- environmental groups,
- industry

B5_S05 Supporting

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.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/business/anchor institutions



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_S06 Supporting

Work with local councils, developers and other essential stakeholders to encourage large-scale developments to provide open water attenuation systems (such as wetlands) rather than below-ground water storage.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

B5_S07 Supporting

Work with planning authorities, the Environment Agency and Yorkshire Water to discourage impermeable surfacing (such as tarmac, plastic 'grass') on driveways and gardens, particularly in flood-prone areas or those with 'over-stretched' systems.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



B5 Built environment: Nature-friendly buildings and developments

Measures (actions):

B5_S08 Supporting

Work with SuDS Approval Bodies to promote and increase uptake of wildlife-sensitive SuDS. Collaborate with local leaders and communities to create SuDS and other constructed wetlands to 'slow the flow', create new habitats such as ponds and bog gardens, and increase access to nature for the public's physical and mental health.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators,
- local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

Farmland and agriculture measures



F1 Farmland and agriculture: Nature-friendly farming

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, plants and fungi, to increase business resilience to climate shocks such as drought and flooding, with farms and farming practices that work for nature, food and people.

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits
- Erosion control
- Cultivated crops, reared animals and pest and disease control

Measures (actions):

F1_M01 Mapped

Expand and enhance existing mapped priority habitats or create new wetlands on farms and land, supporting biodiversity, water management, and climate resilience. 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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_N01 Not mapped

Encourage new orchards 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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,

F1_N02 Not mapped

Increase the biodiversity of existing woodlands, wetlands and other habitats on farms and other land; conserve ancient/veteran trees and plan for next generations of future ancient/veteran trees.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S01 Supporting

Promote and support moves to ‘regenerative farming’ (minimum-till/no-till, use of cover crops, and other measures described on the *Championing the Farmed Environment website*). This will enhance the biodiversity in existing soils, reduce use of inorganic fertilisers, minimise damage to the water environment and reduce soil erosion to reduce the amount of sediment in becks and rivers.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S02 Supporting

Adopt biodiversity-friendly maintenance to unlock the full impact of habitat creation and enhancement efforts and help species such as brown hares. 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.

Practical actions could include:

- Use the correct machinery, especially in wet conditions.
- Manage native invasive species such as bracken and scrub.
- Use green hay for overseeding and to increase species diversity.
- Ensure crop cover over winter, to make soils more resilient and address the cycle of erosion.
- Adopt low-intensity grazing at appropriate times of year.
- Increase grazing with cattle to manage scrub, bracken, purple moorgrass in mosaic with grasslands, to support animals.
- Use native breeds to create different habitats; as well as being hardier, these can shape the environment by the way they graze and move.
- Enhance and improve habitat variation. by increasing uptake of more diverse grazing practices such as stock rotation and new technologies.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S02

Supporting

Continued

- Use traditional management practices such as hedge-laying to improve the condition of existing hedgerow habitats, fill gaps and help them last longer. Hedgerows should have a buffer of at least one metre either side that is cut only every three years.
 - Manage other existing field margins sustainably; reduce inorganic fertiliser input; reduce soil erosion.
 - Aerate compacted soils to allow air, water and nutrients to reach plant roots, help grassland diversity, water storage and carbon capture.
 - Test soil nutrient levels regularly and understand the impact of soil type.
 - Use herbicides and pesticides in a sustainable manner.
 - Encourage arable species assemblages with buffer strips, beetle banks, overwintering feeding habitat, overwinter stubble and field corners.
 - Take field corners out of management for three years.
 - Follow two or three-year crop rotation.
 - Grow winter bird food (to supply seeds and invertebrates). Use pollen and nectar mixes.
- Seek advice for further ideas and follow current best practice.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S03 Supporting

Take a One Team coordinated approach between advisers, partners, and agencies to support farmers to make confident, climate-resilient decisions. Farmers need clear funding schemes, expert advice, and easy access to trusted guidance help ensure practical, nature-friendly land management. The risk of adopting new ways to farm needs to be offset by guaranteed payments. Make sure that agri-environment schemes such

as Environmental Land Management Schemes (ELMS) and the Sustainable Farming Incentive (SFI) are ready for use in good time to fit in with the farming cycle and cropping cycle planned over several growing seasons. To maximise the environmental and cost-effective use of resources, reliable, continued investment in farmers who are on board is needed.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S04 Supporting

Encourage farmers to participate in Environmental Land Management Schemes (ELMS) to support sustainable food production while rewarding actions that enhance soil, water, biodiversity, and climate resilience; this helps farms remain productive and environmentally responsible as subsidy systems change.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,

F1_S05 Supporting

Ensure farmers, landowners, and land managers have up-to-date information and support to boost biodiversity through simple, affordable actions and locally relevant management plans, and to help them to make longer-term changes such as agroforestry, silvopasture, Linking Environment and Farming (LEAF) practices, minimum-till and regenerative farming, including taking part in trials

that address challenges such as flooding, drought, and climate resilience. Raise awareness of existing and emerging technologies such as identification apps to monitor biodiversity and research tools to assess their own land (the impacts of flooding on the arable profitability of sub-sections of fields, for example).

Who could do this?

- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S06 Supporting

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

support nature, so they can learn about local species (such as ground-nesting birds), nature recovery efforts (such as woodland management and regenerative farming practices). Raising awareness could help to support species such as curlew and snipe.

Who could do this?

- environmental partners

F1_S07 Supporting

Help farmers to identify additional sources of income from their nature-recovery efforts, such as educational visits, activities, wildlife farm walks, marketing local produce ('eat the view').

Who could do this?

- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S08 Supporting

Help farmers, landowners and land managers to solve the issues they identify as impeding their nature recovery efforts, such as litter, dogs, human disturbance, predators and flooding.

Who could do this?

- environmental partners

F1_S9 Supporting

Help farmers, landowners and land managers to identify and develop the skills they want to maximise their own climate-resilience and contribute to parallel efforts across the region.

Who could do this?

- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S10 Supporting

Help people understand what farmers are doing to help nature, learn about West Yorkshire's farming culture and history, and find out about food production and how to buy local produce. Communication is key (local media, newsletters, peer networks, events and social media).

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- media

F1_S11 Supporting

Maintain and improve footpaths and stiles on public rights of way to avoid disturbing sensitive habitats. Increase awareness of the Countryside Code to promote responsible access. People told us they are worried about safety or about getting lost and that well-maintained paths help them to feel safe and led, while signs help them to understand the path and protect wildlife.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S12 Supporting

Prioritise supporting species already present in England through clear, practical advice that helps farmers manage wildlife in ways that protect biodiversity and farm businesses. Provide the right support and information so farmers can make informed decisions that balance nature recovery with productive, resilient land management.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

F1_S13 Supporting

Create public-focused communications about nature-friendly farming to help people understand local food seasonality, the cost of food miles and the ecological impact of consumer choices on the growing environment in other countries.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- business leaders,
- media



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S14 Supporting

Recognise where existing farming practices already help local nature (formally and informally) to create/enhance habitats or to conserve sensitive wildlife such as water voles, orchids, otters, owls or rare fungi, and support these. Promote these to support farmers and inform the public.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- media

F1_S15 Supporting

Support collaboration, so that resources and expertise can be shared, to increase the cumulative impacts of any actions, for example, grazing cooperatives, seed banks/collections, community plant nurseries, and build contacts through the Nature Friendly Farming Network, Young Farmers Group, smallholders' associations. Support peer learning (case studies, how-to guides, site visits) so that farmers can see what is working for other farmers, build knowledge and inspire.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local and community groups,



F1 Farmland and agriculture: Nature-friendly farming

Measures (actions):

F1_S16 Supporting

Support young farmers to embed nature-friendly approaches in their career plans; help them to identify options, ideas, innovation, networks, skills, work experience and training.

Who could do this?

- farm advisors,
- environmental partners,
- local and community groups,
- academic/business/anchor institutions

F1_S17 Supporting

Support farmers and landowners to work collaboratively to build a mosaic of agri-environmental schemes.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



F2 Farmland and agriculture: Hedges, edges and corners full of wildlife

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.

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits
- Erosion control
- Cultivated crops, reared animals and pest and disease control

Measures (actions):

F2_M01 Mapped

Create transitional areas where different habitats (grasslands and woodlands, for example) meet and that species from both ecological communities can use, as they have particularly high biodiversity. Extend existing transitional areas, shrubby hedges and edges in buffer areas such as around woods, wetlands and other strategic locations such as around playing fields.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



F2 Farmland and agriculture: Hedges, edges and corners full of wildlife

Measures (actions):

F2_N01 Not mapped

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,

F2_N02 Not mapped

Create buffers alongside hedgerows that are more than two metres wide. Maximise diversity of these by including woodland flora of typical, locally native woodland indicator species (via seeding and/or plug plants of local provenance).

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



F2 Farmland and agriculture: Hedges, edges and corners full of wildlife

Measures (actions):

F2_N03 Not mapped

Create new habitat by replacing fences with living hedges or hedges made from dead wood. Restore ancient hedgerows and hedgelines where ground evidence is still visible.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,

F2_N04 Not mapped

Drystone walls are important landscape features, especially in the uplands, where it is difficult to establish and maintain hedgerows. They are used by nesting and displaying birds, sheltering mammals, amphibians and invertebrates and a surface for lichens and other plants. 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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



F2 Farmland and agriculture: Hedges, edges and corners full of wildlife

Measures (actions):

F2_N05 Not mapped

Encourage natural scrub colonisation along tracks, corners, and other linear spaces. Expand field margins ('square up') existing arable fields.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,

F2_N06 Not mapped

Plant larger tree species in hedgerows. This will allow veteran trees to emerge over time and will provide shelter and boost biodiversity along these corridors. Plant trees and shrubs in field corners to create a microhabitat that support pollinators, birds and other species and help to create a more resilient landscape.

(But avoid doing this where there are ground-nesting birds such as curlews and lapwings, to avoid corvids and raptors using them as perches to spot nests.) Choose species appropriate for soil type and site.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners



F2 Farmland and agriculture: Hedges, edges and corners full of wildlife

Measures (actions):

F2_S01 Supporting

Prioritise and protect funding that ensures that professions such as coppicing, hedge-laying and drystone walling have a future. Training volunteers could help restore drystone walls and provide opportunities for people to find out more about upland farming and nature and sustain traditional crafts and skills.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- volunteer organisations,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local and community groups,
- academic/business/anchor institutions

F2_S02 Supporting

Plant in a way that makes soils more resilient and addresses the cycle of erosion, encouraging more native plant species and ones that are less likely to die off and expose soil during the winter.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



F2 Farmland and agriculture: Hedges, edges and corners full of wildlife

Measures (actions):

F2_S03 Supporting

Promote hedges as an alternative to post fencing, highlighting their value in offering natural shelter for livestock and creating diverse habitats for wildlife. Use local case studies to demonstrate their practical benefits and real-world impact.

Support initiatives that preserve and teach traditional hedge management, ensuring landowners have the knowledge and resources to maintain these vital ecosystems.

Who could do this?

- farm advisors,
- environmental partners

F2_S04 Supporting

Use citizen science and technology (such as smartphone apps) to identify and map ancient and species-rich hedgerows, and fragmented patches of woodland that could connect with hedgerows. Feed data back to experts (such as West Yorkshire

Ecology Service, local expert recorders, wildlife groups, local and national government, landowners).

Who could do this?

- environmental partners,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



Grasslands measures

G1 Grasslands: Acid and ancient grasslands rich in species

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.

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits

Measures (actions):

G1_M01 Mapped

Create new botanically diverse, managed, species-rich grasslands to conserve, buffer and connect remaining habitat. Create new small fen communities within the mosaic of habitats. Once established,

minimise ongoing use of pesticides and fertilisers to ensure habitats are well used by wildlife.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners



G1 Grasslands: Acid and ancient grasslands rich in species

Measures (actions):

G1_M02 Mapped

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

of pesticides and fertilisers to ensure habitats are well used by wildlife. Bring more unmanaged acid grassland into favourable management as a priority (creating new habitats will take time).

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners

G1_M03 Mapped

Restore and enhance existing species-rich grasslands.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



G1 Grasslands: Acid and ancient grasslands rich in species

Measures (actions):

G1_S01 Supporting

Adopt biodiversity-friendly site management and maintenance plans 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.

Practical actions could include:

Avoid abandoning these sites.

- Manage new and restored grassland habitats to boost populations of notable bird species such as golden plover, short-eared owl, merlin and twite, particularly grasslands linked to Special Protection Area breeding bird assemblages and other species of conservation concern.

- Manage grasslands better by cutting and grazing in a way that's best for nature and conservation.
- Spread species-rich green hay/plant seeds or plugs of specific local key species where appropriate.
- Manage scrub and tree cover to maintain a mosaic of habitats where this meets the nature conservation priorities of the site.
- Establish appropriate management regimes for species-rich grass-verges for maximum diversity.

Seek advice for further ideas and follow current best practice.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



G1 Grasslands: Acid and ancient grasslands rich in species

Measures (actions):

G1_S02 Supporting

Catalogue West Yorkshire grasslands and their condition/suitability for restoration to interact with other land pressures such as silaging, spreading of slurry, horse grazing, other agricultural priorities and tree planting. This would

need a coordinated approach with land-managers and the Rural Payments Agency to provide information on management and detailed botanical survey for identified sites.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners

G1_S03 Supporting

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. Co-produce educational material about this.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- media



G1 Grasslands: Acid and ancient grasslands rich in species

Measures (actions):

G1_S04 Supporting

Engage with landowners to understand what they think about species-rich grasslands and their interest in identifying and preserving these. Raise awareness among farmers and foresters of the potential ecological value of low yield acid grasslands especially on slopes. Ensure that all staff and volunteers looking

for tree planting and discussing these with landowners and farmers have a sound understanding of the value of ancient and species rich grasslands, fens and heathland and take steps to avoid raising expectations before such sites have been adequately assessed by a competent ecologist.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

G1_S05 Supporting

Diverse grasslands can be a good source of local wildflower seed that can be used to grow wildflower plugs in plant nurseries (projects like these are good for schools and community groups). Seed from these diverse grasslands can also

(with appropriate soil-nutrient testing, baseline surveys, drainage/hydrology and appropriate habitat creation techniques) help to enhance other grasslands.

Who could do this?

- landowners (public and private sector),
- environmental partners



G1 Grasslands: Acid and ancient grasslands rich in species

Measures (actions):

G1_S06 Supporting

Identify very low-input grasslands using surveys; add these to the catalogue to ensure wider recognition of their value. Test soils and conduct botanical surveys to identify species-rich candidate sites.

Who could do this?

- environmental partners

G1_S07 Supporting

Prioritise grasslands with CHEGD fungi populations over the creation of secondary woodland. Provide low input grassland supplements to farmers who graze these grasslands.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



G1 Grasslands: Acid and ancient grasslands rich in species

Measures (actions):

G1_S08 Supporting

Support farmers in areas of upland species-rich grasslands to farm in ways that help rare fungi and other specialist wildlife. For example, to improve biodiversity in acid pastures, farmers can use conservation breeds, change stocking densities, and mitigate the risk of parasites through the appropriate use of parasite prophylactic. Seek advice for further ideas.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



G2 Grasslands: Biodiverse Magnesian Limestone 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.

Ecosystem services:

- Plentiful water
- Flood protection
- Climate regulation
- Erosion control
- Clean water
- Thriving animals, fungi and plants; pollination
- Cultural benefits

Measures (actions):

G2_M01 Mapped

Enhance the biodiversity of existing species-rich grasslands.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,

G2_M02 Mapped

Create new species-rich calcareous to neutral grasslands to extend and link existing higher quality sites, using very thin lime-rich soils and seed of local provenance.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



G2 Grasslands: Biodiverse Magnesian Limestone habitats

Measures (actions):

G2_M03 Mapped

Restore Magnesian Limestone quarries to limestone grasslands. Many older mineral sites have some of the richest biodiversity in the countryside area, including quarries, landfill sites and other employment uses. Creating Magnesian Limestone grassland, a priority habitat, should be a preferential after use for

minerals and waste operations within the Character Area. Calcareous to neutral grassland should be a preferred option for BNG associated with development in this area on the ground and on roofs.

Who could do this?

- landowners (public and private sector),
- environmental partners,
- planners,
- business leaders,
- industry

G2_S01 Supporting

Avoid infrastructure works on species-rich grasslands 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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- industry



G2 Grasslands: Biodiverse Magnesian Limestone habitats

Measures (actions):

G2_S02 Supporting

Develop and support wildflower production using seed of local provenance and promote use in habitat creation and restoration schemes particularly those supported by government funding or requiring planning permission. This could be a good opportunity for some farmers on relevant land. Explore whether a co-op for smaller land-managers/farmers could support a market in local seed.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



G2 Grasslands: Biodiverse Magnesian Limestone habitats

Measures (actions):

G2_S03 Supporting

Adopt biodiversity-friendly site management and maintenance plans 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; farmers need consistent long-term funding to compensate them for low intensity farming practices.

Practical actions could include:

- Reinstatement appropriate grazing, cutting and scrub management to boost biodiversity on remaining unimproved and semi-improved Magnesian Limestone grasslands and species-rich semi-improved neutral grasslands (agricultural fields, road verges, mineral sites and habitat linked to development). Such sites often benefit from thin, local soils (<50mm), which allow limestone mineral influences.
- Share grazing stock: these animals are important for ongoing management and not widely available in an area dominated by arable cultivation.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



G3 Grasslands: Ecologically diverse meadows and other neutral grasslands

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

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits

Measures (actions):

G3_M01 Mapped

Significantly enhance the biodiversity of remaining unimproved and species-rich semi-improved grasslands. This can include agricultural fields, road verges, mineral sites and habitat linked to development. Such sites may grade into other acid or calcareous grasslands or be enhanced by proximity to wetlands, watercourses or hedgerows/scrub.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



G3 Grasslands: Ecologically diverse meadows and other neutral grasslands

Measures (actions):

G3_M02 Mapped

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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)
- local government officers

G3_M03 Mapped

Buffer and link existing neutral grasslands and manage using low/no fertiliser and pesticide levels to enhance species diversity of plants and animals. Place a particular emphasis on areas adjacent to watercourses and wetlands which would provide additional benefits to water quality and flood risk mitigation.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



G3 Grasslands: Ecologically diverse meadows and other neutral grasslands

Measures (actions):

G3_M04 Mapped

Use locally native species-rich hedgerows to connect between areas of species-rich grasslands. This should target ancient hedgerow remnants and hedgelines, particularly where they incorporate hedgebanks, tracks and bufferstrips to enhance structural diversity and habitat for a range of species.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,

G3_N01 Not mapped

Extend grasslands within the floodplains of rivers and becks, particularly areas where regular flooding makes arable farming problematic. Link these to hay-cropping and aftermath grazing. Maintain field drains (unless succession to fen is part of the objective).

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



G3 Grasslands: Ecologically diverse meadows and other neutral grasslands

Measures (actions):

G3_S01 Supporting

Develop the skills and resources needed to manage grasslands sustainably in the face of agricultural value. Tracking yields using GPS can help to target land of lower productivity that could be used for nature instead.

Who could do this?

- environmental partners,
- academic/business/anchor institutions,
- business leaders,
- industry

G3_S02 Supporting

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

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



G3 Grasslands: Ecologically diverse meadows and other neutral grasslands

Measures (actions):

G3_S03 Supporting

Support local authorities and other landowners of amenity grasslands with little management and/or recreational pressure to take a low-cost sustainable and potentially long-term (slow) approach to grassland enhancement. Use citizen science to collect and sow appropriate seeds to improve grassland diversity.

Who could do this?

- environmental partners,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

G3_S04 Supporting

Aerate compacted soils to allow air, water and nutrients to reach plant roots, help grassland diversity, water storage and carbon capture.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



Tree and woodland measures

T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

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.

Ecosystem services:

- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits
- Erosion control
- Timber and other wood products

Measures (actions):

T1_M01 Mapped

Through natural processes and planting, create biodiverse, site-suitable, and adaptable woodland habitats to buffer and connect existing ancient woodlands and ancient/veteran trees. Seek professional advice, follow biosecurity best practice, and use authoritative guidance.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_M02 Mapped

Significantly improve the biodiversity and structure within established ancient woodlands and of ancient/veteran trees, and the biodiversity of the habitats that already connect them. Undertake much more detailed surveys, including of invertebrates and fungi, as well as structure.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,

T1_M03 Mapped

Work with landowners to restore biodiversity in plantations on ancient woodland sites (PAWS) by gradually replacing non-native species with locally appropriate native trees. Where possible, use UK and Ireland Sourced and Grown

(UKISG) stock. All restoration work should be in line with the UK Forestry Standard and forthcoming guidance about this habitat.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_S01 Supporting

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. Create bespoke plans for individual trees where necessary. Invest in this.

Practical actions could include:

- Consider tree health/ecological balance.
- Use a diverse range of climate and site-adapted tree and ground-flora species of local provenance, particularly around ancient woodland sites, so that the genetic material from the ancient trees is less likely to be diluted.
- Establish root protection zones to minimise vehicle parking/ploughing/mowing/soil compaction damage around open-grown trees for parklands, farms and urban environments.
- Fence off ancient trees to create 'monuments'.
- Encourage and protect natural regeneration/colonisation.
- Encourage a gradual transition (ecotone) from woodland, through scrub/scalloped edges to other habitat types instead of hard boundaries.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_S01

Supporting

Continued

- Where woodlands supply timber, aim to produce sustainable woodland products from a variety of woodland types incorporating native broadleaved/mixed conifer and broadleaved/conifer. In commercial plantations, promote alternatives to clearfelling, such as wind-fast edges, to improve ecological sensitivity.
- Promote sustainable forest management in woodlands that lack management to improve structure and diversity in all woodlands by promoting sustainable forest management.
- Promote responsible land management by encouraging landowners to reduce reliance on pesticides and herbicides in urban and parkland settings, to protect biodiversity and soil health.
- Use biosecurity measures to control, limit and prevent the introduction of invasive species and limit the movement of tree pests.
- Manage grazing where relevant.
- Protect existing urban trees from felling or development pressures where feasible. For those that must be felled (because of disease or safety), maximise the potential for creating deadwood habitat and carefully consider the characteristics of replacements (size, edibility, site suitability and susceptibility to threats). (Work with lead local flood authorities and Environment Agency on local schemes.)

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_S01

Supporting

Continued

- Let dead trees stay standing where they do not pose a significant health and safety risk; leave fallen ones on site to create habitat for specialist species.
 - Allow some existing trees to grow old and, when they die, leave them upright where it is safe to do so, to create biodiverse-rich standing deadwood.
 - Plan for succession and diversification of parkland trees over appropriate time periods (decades to centuries).
 - Ensure new tree planting projects consider the understory and future habitat state.
- Align with wood meadow principles.
 - Encourage low inputs, cut hay appropriately, graze extensively or mow appropriately.
 - Manage scrub and tree cover to maintain a mosaic of habitats.
- Seek advice for further ideas and follow current best practice.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_S02 Supporting

Create landowner clusters for peer-to-peer learning and support. Increase the quality of advice and support from partners, consultants and agents, especially for those managing ancient semi-natural woodland sites. Take a 'One Team' approach with organisations such as White

Rose Forest, Woodland Trust, Catchment Partnerships, Rivers Trusts, Yorkshire Wildlife Trust, Forestry Commission, to avoid landowners feeling overloaded with information. Discussions should consider the whole farm, if the farmer is willing.

Who could do this?

- farmers,
- farm advisors,
- environmental partners,
- local and community groups,

T1_S03 Supporting

Enhance the mapping and data for ancient trees. Collect and share more and better data on specialist fungi, plants and animals associated with individual trees. Identify ghost woodlands through existing ground flora that could be an appropriate site for re-establishment of woodland (but not at the expense of species-rich grasslands). Send information to experts such as West

Yorkshire Ecology Service and Woodland Trust Ancient Tree Inventory. Ensure existing trees are protected from felling or development pressures; work with local planning authorities and regulatory aspects of the Forestry Commission. Review extent and effectiveness of current Tree Preservation Order systems in West Yorkshire.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_S04 Supporting

Monitor keystone engineer species such as beavers and deer to understand their impacts on ancient woodland management.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

T1_S05 Supporting

Ancient woodlands in West Yorkshire are irreplaceable and hold significant ecological and cultural value. They should be safeguarded and sustainably managed in line with best forestry practice to safeguard their long-term condition and heritage.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_S06 Supporting

Help more people to understand what ancient woodlands are and why old, iconic and otherwise important trees matter. Raise awareness about the genetic and biodiversity value of urban trees, particularly older, long-lived trees, and the risks of losing these. Increase awareness

about the damage done to soils through activities such as off-road vehicle use, motorcycle scrambling, mountain biking, and car-parking, which can damage plants, disturb wildlife and make the soil more compacted and lead to erosion.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions,
- media

T1_S07 Supporting

Support new and existing businesses to prepare for appropriate and low-impact management of ancient woodland to increase resource and capacity of contractors.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/business/anchor institutions,
- business leaders,
- industry



T1 Tree and woodland: Nature-rich ancient and veteran trees, and ancient woodlands

Measures (actions):

T1_S08 Supporting

Significantly improve the biodiversity with native tree species (sourced and grown in the UK and Ireland) appropriate for geographic and climatic regions in existing plantations on ancient woodland sites (PAWS) where people cleared the original ancient semi-natural woodlands and replaced them with non-native or exotic species with less biodiversity.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

T1_S09 Supporting

Local planning authorities could consider how best to apply these and other measures in their local areas, for example adding to planning policies where appropriate.

Who could do this?

- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



T2 Tree and woodland: Other trees and woodlands 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.

Ecosystem services:

- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits
- Erosion control
- Timber and other wood products

Measures (actions):

T2_M01 Mapped

Buffer and connect existing woodlands by creating new riparian habitats that will also support many different species, such as high-quality wooded habitats, species-rich grasslands, wetlands and pools for great-crested newts and willow tits.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

T2_M02 Mapped

Create new community orchards with traditional resilient local varieties of fruit and nut trees, including non-traditional orchard design. Buffer and extend existing orchards, for example by adding linear planting into local communities, and/or urban areas. Support may be available from organisations in the area.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

T2_M03 Mapped

Create new scrub where woodland may be inappropriate or difficult to manage. Independent ecological assessment will highlight any conflicts with other habitat types and ensure suitability of species.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners



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

Measures (actions):

T2_M04 Mapped

Extend and connect tree and woodland cover across the White Rose Forest area in West Yorkshire to contribute to base target of 16.5 per cent and stretched target of 18.5 per cent 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, ensure compliance with regulatory control. Seek professional advice to help you do this (from the Forestry Commission, White Rose Forest, private sector woodland/forestry agents or independent ecologists who understand the importance of a broad range of habitats and species, including woodland).

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental groups

T2_M05 Mapped

Help more red squirrels to move back into West Yorkshire: buffer, connect, improve and safeguard existing woodland and create new woodland in areas where red squirrels are expanding (or could do so); this will encourage existing populations in the northern part of West Yorkshire to spread further. Manage grey squirrels to enable red squirrels to extend their presence in West Yorkshire.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

T2_M06 Mapped

Significantly enhance the biodiversity of existing community orchards and neglected historical orchards, which have high existing / potential biodiversity value. Support (training, pruning, juicing equipment) may be available from organisations in the area.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions

T2_M07 Mapped

Re-establish and maintain clough woodland areas following current forestry guidance, such as the UK Forestry Standard to allow for nature connectivity and help to keep water in/on the moor for longer and reduce the risks of fire damage. Ecological assessment will confirm any conflicts with other habitat types and ensure suitability of species, and natural capital assessment will show the ecosystem services likely to be delivered.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

T2_N01 Not mapped

For gardens or other private land, plant resilient shrubs and hedgerows (and, where space allows, trees) taking account of current and projected climate change. Enhance the biodiversity of existing hedgerows and other garden habitats. Where appropriate, include trees within

hedges that can be managed and grown on as standard trees to improve structural diversity, choosing species that won't get too big for the location. Support may be available from local organisations.

Who could do this?

- landowners (public and private sector),
- land-managers,
- volunteer organisations,
- local and community groups,
- general public

T2_N02 Not mapped

Improve the condition and structure of existing trees and all woodland types, and scrub, to create more wildlife-friendly habitats and boost biodiversity. Promote a better understanding of the different ecosystems in 'forests' (denser, larger,

more complex, thicker canopy) and woodlands (smaller, sparser, more open canopy, more light) in line with current forestry guidance and best practice.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



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

Measures (actions):

T2_N03 Not mapped

Significantly enhance the biodiversity of other existing habitats (such as trees outside woodland, scrub or hedgerows) that already buffer and connect existing woodlands.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,

T2_N04 Not mapped

Plant trees and shrubs for natural flood management for streets, driveways and gardens, particularly in flood-prone areas or those with 'over-stretched' sewage treatment works. Allow enough space for trees as they grow, working closely with service providers. Plant trees and shrubs using a 'right tree, right place' approach, particularly 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 and urban cooling. Add to planning policies.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and
- policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- general public



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

Measures (actions):

T2_S01 Supporting

Create baseline measurements to assess condition using existing models (such as i-tree surveys and woodland condition assessment), conduct survey and map distribution of species and habitats. Involve the public in helping to identify further opportunities for new areas of woodland and where existing woodlands (and trees outside of woodland) could be expanded,

where this will benefit biodiversity and other environmental outcomes. Ensure that all proposal sites have information about landowners and ecological baselines before they are taken further and undertaken in accordance with the UK Forestry Standard Woodland Condition Assessment Tool.

Who could do this?

- environmental partners,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

T2_S02 Supporting

Develop case studies for successful local and international approaches to support landowner engagement. Support partnership working to explore the benefits of raptors in the landscape to reduce the spread of disease by preying on sick and weak animals and provide natural pest control for agriculture and urban areas.

Who could do this?

- farm advisors,
- environmental partners,
- academic/business/anchor institutions,
- media
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),



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

Measures (actions):

T2_S03 Supporting

Encourage landowners to keep/add trees and woodlands and help them to identify current and future funding to design and create more tree habitats such as wood pasture and wet woodland. Identify suitable assets for BNG. Ensure farmers are aware of the benefits that agroforestry and trees on their land could have for their operations and business, as well as for nature.

Who could do this?

- farm advisors,
- environmental partners,

T2_S04 Supporting

Engage with landowners, woodland delivery partnerships and the Forestry Commission to bring a greater proportion of woodland into active management close to known locations of targeted species. Take account of a range of species, to avoid the risk of managed woodland damaging old-growth invertebrates and fungi.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

T2_S05 Supporting

Engage with woodland stakeholders to encourage the integration of suitable ground flora species during new woodland planting and within ongoing woodland management plans, to enhance biodiversity and ecosystem resilience of woodlands. Particularly promote this through spring surveys in

ASNW and PAWS woodland to adapt woodland management to the benefit of floral features. Promote alternatives to clear felling to create a variety of light conditions and structure within woodlands to the benefit of wildlife.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

T2_S06 Supporting

Establish coordinated community woodland nurseries and support existing private and public sector nurseries by promoting the biosecure supply of locally sourced trees for nature-recovery planting projects. Follow the 'right tree, right place' principles. Seek expert advice to minimise the risk of spreading tree diseases and comply with Forest Reproductive Material regulations.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local and community groups



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

Measures (actions):

T2_S07 Supporting

Map fire risk severity and woodland resilience across the region; create and manage fire and vegetation breaks within existing woodland areas and include this in management and design plans. Work with the West Yorkshire Fire and Rescue Service.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and
- policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations

T2_S08 Supporting

Support efforts to create and enhance habitat and strengthen people's relationship with and stewardship of nature through appropriate designs for new woodlands by co-design with local communities, provide education, health and interpretation. Get local children involved in planting.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,
- general public,
- academic/business/anchor institutions



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

Measures (actions):

T2_S09 Supporting

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,

T2_S10 Supporting

Design tree-planting schemes to grow diverse and site-adapted species that help to maintain the distinctive characteristics of woodlands within West Yorkshire (see National Vegetation Classification communities). Follow 'right tree, right place, right reason' principles and UK Forestry Standard and ensure initiatives (such as Miyawaki woodlands) have a

plan for maintenance beyond the first 10 years. Explore innovative techniques and trials such as scientifically based inoculations of woodland mycorrhizal and ground flora. Address the loss of mature trees from ash dieback and risk of further tree diseases arriving because of climate change.

Who could do this?

- farm advisors,
- environmental partners,
- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

T2_S11 Supporting

Woodland delivery partners should engage and collaborate with local DEFRA arm's-length bodies to ensure clear and consistent messaging that promotes a sustained commitment to increasing tree and woodland cover, funding, and strategic planning. Establish strong, early relationships with regulators to help build mutual understanding, improve quality of woodland creation schemes and enable well-informed, timely decision-making.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

T2_S12 Supporting

Increase the level of knowledge and skills within communities for fruit-tree management. Communities may need help with pruning and harvesting. Equipment such as apple presses would be useful too. Help set up and support harvesting and juicing cooperatives.

Who could do this?

- environmental partners,
- volunteer organisations,
- local and community groups,



T3 Tree and woodland: Biodiverse wood pasture and historic parkland

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.

Ecosystem services:

- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits
- Erosion control
- Timber and other wood products

Measures (actions):

T3_M01 Mapped

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



T3 Tree and woodland: Biodiverse wood pasture and historic parkland

Measures (actions):

T3_M02 Mapped

Significantly enhance the biodiversity on existing areas of wood pasture and parkland (publicly and privately owned sites and estates), to create a functioning habitat with trees of different ages, shrubs and ground flora.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,



T3 Tree and woodland: Biodiverse wood pasture and historic parkland

Measures (actions):

T3_S01 Supporting

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. Create bespoke plans for individual trees where necessary. Invest in this

Practical actions could include:

- Manage the structure and condition of scrubland within wood pasture to create a diverse mosaic of habitats.
- Cut and graze to increase the diversity of structure and species of parkland tree grasslands; this will help to increase the hydraulic roughness to reduce runoff. Engage with farmers to explore the benefits of grazing within woodland pasture.
- Manage scrubland within wood pasture positively for nature: enhance the structure, condition, and create a diverse mosaic of habitats across these sites.
- Optimise habitat for invertebrates; maintain areas of open scrub mosaic, leave fallen dead branches, sap runs, decomposing stems and trunks.
- Spread green hay/plant seeds or plugs of specific local key species.
- Recognise the value of scrub in advice to landowners.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,



T3 Tree and woodland: Biodiverse wood pasture and historic parkland

Measures (actions):

T3_S02 Supporting

Historic parklands are already loved and valued by the many visitors who enjoy spending time there. Make the most of this existing goodwill to gain wider public support for nature recovery efforts, for example through communication and education. Balance the use of these habitats for biodiversity and leisure; while challenging, these need not be mutually exclusive.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators,
- local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups

T3_S03 Supporting

Use new wood pasture sites for music festivals, instead of old parkland, to minimise damage from footfall and soil compaction. Where this is not possible, mitigate the negative impacts and use some of the profits for ecological repair.

Who could do this?

- landowners (public and private sector),
- land-managers,
- business leaders,
- media



T3 Tree and woodland: Biodiverse wood pasture and historic parkland

Measures (actions):

T3_S04 Supporting

Develop skills in woodland management including beneficial techniques such as pollarding and coppicing.

Who could do this?

- environmental partners,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions,
- business leaders,
- industry

Uplands measures



U1 Uplands: High-quality peatlands

The priority is to restore peatlands in West Yorkshire to full health, boosting biodiversity to maximise their ability to store carbon, retain water and reduce the risk of wildfires.

Ecosystem services:

- Plentiful water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Clean water
- Erosion control

Measures (actions):

U1_M01 Mapped

Fully restore the hydrology of all peatlands so West Yorkshire's uplands can hold more water. Restore peatlands back to active and healthy 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 peat, for instance start restoration at the top of the catchment

and work down to have the greatest effect and least risk. Add 'lag' habitat 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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

U1 Uplands: High-quality peatlands

Measures (actions):

U1_M02 Mapped

Stabilise, re-wet and restore extensive damaged blanket bog (peat covering large areas). Restore vegetation communities such as sphagnum moss and cotton grasses to stabilise the peat, increase biodiversity and reduce soil loss.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

U1_N01 Not mapped

Remove trees on peat in carefully targeted and highly restorable locations supported by the DEFRA Decision Support Framework for Peat Protection to enlarge areas of blanket bog.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

U1 Uplands: High-quality peatlands

Measures (actions):

U1_S01 Supporting

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.

Practical actions could include:

- Protect archaeologically sensitive locations when carrying out activities (management, restoration, monitoring); consult West Yorkshire Archaeological Advisory Service early, and before any peat excavation, to understand the restrictions and presence of any heritage assets. Cutting ground cover carries specific risks as it can damage heritage assets. Technology such as light detection and ranging technology (LIDAR) may be able to check for features such as barrows, tumuli, roman camps, tracks, mining activity, though it is unlikely to be able to identify the Mesolithic flint scatters and temporary hunting camps that make the South Pennines of international importance.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

U1 Uplands: High-quality peatlands

Measures (actions):

U1_S01

Supporting

Continued

For peatlands:

- Encourage a mosaic of habitats to emerge and cover bare peat through low-intensity management.
- Plant peatlands with more, diverse, sphagnum moss, sundews and other bog species; reintroduce lost plant species.
- Use appropriate plants from suitable donor sites.
- Avoid planting trees on peat.
- When ditch-blocking, ensure that the pH and trace elements are appropriate for plants to reestablish.

For other moorland and upland:

- Encourage new habitat to form with natural regeneration supported by well-planned planting.
- Manage vegetation management for target species such as water voles and golden plovers.
- Manage heather and purple moor grass; re-wet habitat to suppress growth of these species through a higher water table. Otherwise aim to maintain a variety of heights of heather for the greatest biodiversity.
- Adopt appropriate grazing management and stocking levels to get more structurally diverse heath.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

U1 Uplands: High-quality peatlands

Measures (actions):

U1_S01

Supporting

Continued

- Encourage different habitats at different scales.
- In upper catchments, manage land sensitively to slow the flow of water, reduce soil erosion, reduce drought and flood risk, and reduce the risk of wildfires.

For hay meadows:

- Hay-crop over silage cuts.
- Reduce artificial inputs and slurry.
- Increase the variety of wet habitats (where appropriate encourage ponds, flushes) to provide conditions for specialist species; do this with care so as to avoid large species-poor areas becoming dominated by rushes.
- Cut-and-collect with aftermath grazing for areas that are not accessible to the cutter.
- Adopt different grazing regimes to fit in with upland breeding bird assemblage.

Seek advice for further ideas (including managing for CHEGD fungi) and follow current best practice.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

U1 Uplands: High-quality peatlands

Measures (actions):

U1_S02 Supporting

Bogs are in a different state today to in the past, and they may be different again in the future. Address issues that specialist plant nurseries (for upland plant species) face (around scale, consistency of demand and funding) to respond to these challenges. Encourage sharing best practice within this industry; develop a best practice guide using current government guidance as a baseline.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/business/anchor institutions,
- business leaders

U1_S03 Supporting

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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- volunteer organisations,
- local government officers,
- local and community groups,
- academic/business/anchor institutions

U1 Uplands: High-quality peatlands

Measures (actions):

U1_S04 Supporting

Create stable, long-term jobs in peatland restoration.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/business/anchor institutions,
- business leaders

U1_S05 Supporting

Innovate to find new techniques to restore upland hydrology at landscape scale. For example: remote sensing for mapping and monitoring and AI technologies. Be bold and ambitious in trying new techniques to tackle challenges such as purple moorgrass, working on a landscape scale. Investigate current research and, if necessary, commission more to understand the impacts of climate change particularly on rainfall and cloudmist and the implications for the long-term sustainability of the peatlands.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)
- academic/business/anchor institutions,
- business leaders,
- industry

U1 Uplands: High-quality peatlands

Measures (actions):

U1_S06 Supporting

Maximise the fire-risk management potential of re-wetting and habitat creation by including other nature-based solutions. Use native cattle and Exmoor ponies (conservation grazing). Cut fire breaks to control fuel load during the transition period. Create and support landscape-scale joined-up fire management plans that cross land boundaries.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

U1_S07 Supporting

Reintroduce lost plant species into suitable peatland sites; use appropriate plants from suitable donor sites. Find out (using peat cores for example) what sphagnum moss species were there before (heritage species), to help work out how best to restore sites and rebalance moorland vegetation.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/business/anchor institutions

U1 Uplands: High-quality peatlands

Measures (actions):

U1_S08 Supporting

Work with landowners to identify areas suitable and feasible for peatland restoration or, where appropriate, wooded peatland mosaics (to be considered only where the peatland hydrology has been fully restored). These areas will be functionally connected to existing peatland bodies that haven't been heavily modified by land use operations. The characteristics of these areas can be seen on the Forest to Bog tool and in accordance with the DEFRA Decision Support Framework for Peat Protection on where to establish trees and where to restore peat.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



U2 Uplands: Other upland and moorland habitats full of wildlife

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 reduce the risk of wildfires.

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits
- Erosion control
- Cultivated crops, reared animals and pest and disease control

Measures (actions):

U2_M01 Mapped

Encourage new wet woodland to form on the margins of upland peatlands to complement peat restoration in line with current government guidance UK Forestry Standard.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

U2 Uplands: Other upland and moorland habitats full of wildlife



Measures (actions):

U2_M02 Mapped

Help new healthy mosaics of upland habitats to form to encourage existing blanket bog, heathlands, clough woodlands and ancient grasslands to extend and connect. New mosaics must consist of many different habitats, with contrasting features, and at different ratios depending on topology. A high-quality mosaic could, for example, consist of peatland on the flat areas and gentle slopes (a mixture of blanket bog, wet heath, dry heath and small nutrient-poor standing water bodies), upland acid

grassland, mixed scrub and deciduous woodland in the cloughs and steep slopes, and a mixture of nutrient poor becks and standing water bodies with some mire and acid grassland at the bottoms of the cloughs. It would include other habitats such as bare ground, grasslands, scrub and wet areas. This will create a complex and varied mosaic landscape that can support high biodiversity.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

U2 Uplands: Other upland and moorland habitats full of wildlife



Measures (actions):

U2_N01 Not mapped

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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers

U2_S01 Supporting

Build on existing heritage and the meaning that West Yorkshire's upland landscapes already hold for people. Engage with local communities (activities, arts and culture, citizen science) to increase public awareness of and support for habitat creation and restoration action. Educate communities on what ecosystem services uplands generate, provide education in schools on fire risk and mitigation. Find ways to help more people connect more deeply to the uplands on their doorsteps through volunteering, events and engagement programmes. Connect young people to these.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

U2 Uplands: Other upland and moorland habitats full of wildlife



Measures (actions):

U2_S02 Supporting

More, accurate, data will support efforts to restore upland habitats. Find out about species (such as priority fungi), map the extent and current condition of habitats (soil health, water table), review historic mapping/evidence and natural character areas to identify the right locations to create habitats. More published dip-well data on the hydrological recovery and fluctuations of blanket bogs in West Yorkshire is needed.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,

U2 Uplands: Other upland and moorland habitats full of wildlife



Measures (actions):

U2_S03 Supporting

Some sites and species are extremely sensitive to human disturbance. People want to know how to enjoy the uplands without inadvertently harming the places they love, but recreational pressure from walkers, cyclists and horse-riders can impede wider efforts to boost biodiversity, restore upland habitats and achieve healthy ecosystem services. Increase the appeal of areas that are beautiful and biodiverse but less sensitive to encourage people to go there instead. Use good footpaths, clear signs, information boards and prompts to notice nature. Provide a more joined-up strategy across the local authorities and managers for the South Pennines to improve guidance to visitors to the area. Encourage policing of the illegal use of quad bikes and motorcycles on the open moors. Consider banning the use of drones during the bird breeding season and police this.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- academic/business/anchor institutions



U3 Uplands: Nature-rich upland hay meadows

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

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Cultural benefits
- Erosion control
- Cultivated crops, reared animals and pest and disease control

Measures (actions):

U3_M01 Mapped

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,

U3 Uplands: Nature-rich upland hay meadows



Measures (actions):

U3_M02 Mapped

Identify places known to have been hay meadows and restore these, where soil testing supports this. Look for grasslands with lots of different grasses and not much ryegrass. (These have been sprayed with broad-leaved herbicide to control docks, thistles, ragwort, creeping buttercup, but not ploughed out and reseeded.) Change from silaging to hay-making with aftermath

grazing (strew with local green hay if necessary) to restore these to upland hay meadows. If phosphate levels are too high and this would be pointless for botanical diversity, enhance for upland breeding bird assemblages as an alternative, and seed these with dandelion, sorrel and autumn hawkbit.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers

U3_M03 Mapped

Restore the species-richness of existing hay meadows. Improve the condition of nearby land that could, in turn, become upland hay meadow. Increase the diversity of nearby neutral grasslands (including former hay meadows) to expand this habitat and act as stepping stones between upland hay meadow sites.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers

U3 Uplands: Nature-rich upland hay meadows



Measures (actions):

U3_S01 Supporting

Build on the positive cultural status that hay meadows enjoy in the public imagination to further people's interest in and support for them.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- local government officers

U3_S02 Supporting

Engage with farm advisors, farmers and landowners to understand their interest in identifying and preserving upland hay meadows. Set up farmer network groups to share enthusiasm, experience, livestock, tools and machinery. Capture knowledge and experience from traditional and progressive farmers before it is lost.

Who could do this?

- environmental partners,
- local and community groups,

U3 Uplands: Nature-rich upland hay meadows



Measures (actions):

U3_S03 Supporting

Identify other places that could be turned back into hay meadows.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians,
- government regulators, local government and parish councils),
- local government officers,
- academic/business/anchor institutions



Water and wetlands measures

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

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.

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Erosion control

Measures (actions):

W1_M01 Mapped

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians,
- government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups



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

Measures (actions):

W1_M02 Mapped

Create wet woodland in wet areas of land around existing wet woodland (but not at the expense of existing fen habitat) in line with current government guidance UK Forestry Standard.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W1_N01 Not mapped

Control and monitor invasive species where doing so will be effective – that is where it will increase the likelihood of the area becoming important for biodiversity in the future without being undermined by lack of action elsewhere. Target giant hogweed where there is a significant public health benefit. Make sure the work is led by people who can

identify the correct species and can educate and support volunteers to learn the skills to do this properly. Start at the top of each catchment and monitor. Promote awareness with the public and landowners/managers.

See also **Quality and condition priority**.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



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

Measures (actions):

W1_N02 Not mapped

Create new aquatic habitats to establish a network of ponds, scrapes, and other temporary water features across the floodplain. These could store water during flood events and gradually release it afterwards, while also acting as vital refuges during periods of drought. Vary water body sizes and shapes to attract different species. Extend this network through the urban fringe and into the wider countryside. This could help to support amphibians such as common toads and great-crested newts.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W1_N03 Not mapped

Where there are existing scrapes, lakes, ponds, and non-linear water bodies, enhance the biodiversity in these by creating new habitats (such as floodplain meadows, mosaics) around, next to and near them (such as the wetlands in the Lower Calder and Aire Valleys). This will reconnect existing wetland habitats to riparian systems and create corridors for wetland species.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

W1_N04 Not mapped

Enlarge wetlands at key areas for breeding and wintering birds (curlew and snipe for example), including floodplain meadows, wet grasslands, and aggregate extraction sites.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W1_N05 Not mapped

Create new, longer, wider high-quality corridors and 'stepping stones' of woodlands, shrub, wetlands and meadows along rivers, streams, cloughs and other natural linear watercourses to extend, connect and buffer habitats next to water corridors. Add wet spaces to the riparian zone to form a network, with a buffer strip of woodland protecting the riparian zone and a further strip of woodland defence. Riparian areas should

be created or maintained to at least 15 metres from the riverbank top. Create grass margins of six metres or more along flowing water bodies next to arable fields, to reduce nitrates and pesticides runoff. Aim for at least 50 per cent dappled shade along watercourses to reduce river temperatures; this is best created by planting trees along riverbanks.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

W1_N06 Not mapped

Protect all watercourses 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, canals and cloughs. Allow natural regeneration.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W1_N07 Not mapped

Work with internal drainage boards and the Environment Agency to improve existing asset management techniques and explore opportunities to remove old flood management assets or to manage them differently to help nature; assess the impact on farm business viability and compensate farmers for loss of land.

Who could do this?

- environmental partners,
- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

W1_S01 Supporting

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.

Practical actions could include:

- Exclude livestock from wooded cloughs.
- Fence off catches (feeder streams) where appropriate to protect them from cattle/dogs.

- Restrict human access to one side of riverbanks.
- Improve footpaths and access to river walks, guiding walkers and cyclists away from sensitive areas.
- Provide refuge areas at regular intervals along riverbanks which are fenced or hedged off from people and dogs.
- Remove litter but retain woody debris to create a variety of flow speeds and depths to provide refuges and habitats for wildlife.

Seek advice for further ideas and follow current best practice.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

W1_S02 Supporting

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

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W1_S03 Supporting

Make sure people know why actions have been taken and find ways to get people involved and interested in nature recovery work along and near rivers and other water bodies.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- media



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

Measures (actions):

W1_S04 Supporting

Support collaboration (eg Canal and Rivers Trust, local authorities) with those working on specific issues (such as great crested newts), to create further connectivity between wetland habitats.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers

W1_S05 Supporting

The pleasure, leisure and meaning that water bodies provide cannot be overstated. Many people feel deeply attached to local rivers, lakes and canals and gain significant social, health and wellbeing and cultural benefits from them; build on this existing instinct to connect to water to boost support for action to create or restore habitats.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions



W2 Water and wetlands: Aquatic habitats full of wildlife

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.

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation
- Erosion control

Measures (actions):

W2_M01 Mapped

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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



W2 Water and wetlands: Aquatic habitats full of wildlife

Measures (actions):

W2_M02 Mapped

Restore or recreate lost wetlands. Create successional networks of ponds for wildlife such as great-crested newts and common toads. Find, restore and resurrect 'ghost ponds' (ponds that have dried up and disappeared) where existing habitat indicates potential for high quality restoration and sustainable farming. These are good for low-input grasslands and similar habitat. Ensure ponds are well buffered from fertiliser and pesticide input.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians,
- government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,
- academic/business/anchor institutions

W2_M03 Mapped

Make more space in water for the plants and animals that live there. In heavily modified waterbodies that have been straightened (canalised) to make them flow faster, remove artificial features (non-natural materials and profiles of walls and in-channel barriers). Remove culverts to introduce more daylight; address barriers to sediment movement and fish passage; increase the variety of channel morphology (riffles, pools, eddys); soften and naturalise bank shapes; make the sides and bottom rougher unless demonstrated to be unfeasible.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



W2 Water and wetlands: Aquatic habitats full of wildlife

Measures (actions):

W2_N01 Not mapped

Embed biosecurity/biofouling measures for both public and operators (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 (it will increase the likelihood of the area becoming important for biodiversity in the future),

without being undermined by lack of action elsewhere (invasive species from further upstream travelling into a recently cleared site). These actions are essential to help vulnerable species such as white-clawed crayfish.

See also Ecological balance priority.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups

W2_N02 Not mapped

Increase nesting sites, such as sand martin banks, osprey platforms and kingfisher banks.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers



W2 Water and wetlands: Aquatic habitats full of wildlife

Measures (actions):

W2_S01 Supporting

Agriculture, highways, development and sewage activities should use land in a way that eliminates diffuse and point source pollution and sedimentation.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- business leaders,
- industry

W2_S02 Supporting

When considering any activities involving a weir, factor in any historic or cultural significance that weir may hold, alongside the potential nature restoration benefits of improved river processes and fish passage.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



W2 Water and wetlands: Aquatic habitats full of wildlife

Measures (actions):

W2_S03 Supporting

Examine constraints and barriers to water enhancement, referring to local and international success stories/case studies.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W2_S04 Supporting

Identify sources of surface water pollution. Reduce pollutants entering watercourses: upgrade existing drainage infrastructure, install sustainable urban drainage (SuDS) features, and ensure new developments have suitable water management and drainage infrastructure. See also 'Nature-friendly transport infrastructure' priority.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- industry,
- utility companies



W2 Water and wetlands: Aquatic habitats full of wildlife

Measures (actions):

W2_S05 Supporting

Make sure riverine habitats have the right flow at the right time, to ensure that fish such as salmon and trout have places to spawn. Naturalise reservoir flows.

Who could do this?

- utility companies,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W2_S06 Supporting

Make sustainable draining and nature-based solutions the default to reduce the impact of diffuse pollution and sedimentation (not traditional permitted development concrete); settlement ponds, reedbeds and grassed/vegetated road buffer strips for example.

Who could do this?

- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



W2 Water and wetlands: Aquatic habitats full of wildlife

Measures (actions):

W2_S07 Supporting

Many people are deeply concerned about river pollution. Extend interest in major river polluters by highlighting other ways to help keep rivers clean. Flea and worm treatments for cats and dogs contain pesticides that 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 waterbodies. Involve people and groups wherever possible in initiatives such as river-health citizen science and volunteering. Share case studies of successful clean-ups.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,
- business/business leaders,
- industry

W2_S08 Supporting

Strengthen local authority design standards to promote the use of wetland friendly actions such as grey water recycling, avoiding hard standing driveways, use of nature-based solutions in water treatment.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



W2 Water and wetlands: Aquatic habitats full of wildlife

Measures (actions):

W2_S09 Supporting

Take a coordinated 'One Team' approach between industry, partners, and agencies so that organisations can make confident, climate-resilient decisions. Clear funding schemes, expert advice, and easy access to trusted guidance help ensure practical, nature-friendly land management.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- industry,
- utility companies



W3 Water and wetlands: Biodiverse catchments and floodplains

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.

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving plants and animals; pollination
- Climate regulation
- Erosion control

Measures (actions):

W3_M01 Mapped

Allow becks and streams space to ‘re-wiggle’ (re-meander).

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Measures do not create any new planning or land use requirements and they neither direct nor preclude development or other activities. Any implementation would require landowner agreement, appropriate expert ecological assessment, and compliance with relevant planning processes.



W3 Water and wetlands: Biodiverse catchments and floodplains

Measures (actions):

W3_M02 Mapped

In all catchments, significantly enhance the biodiversity of existing habitats to help them hold more water in the landscape and slow its flow, reduce soil erosion, reduce drought, flood and fire risk.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W3_N01 Not mapped

Create species-rich meadows to boost floodplain biodiversity.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



W3 Water and wetlands: Biodiverse catchments and floodplains

Measures (actions):

W3_N02 Not mapped

Enhance river habitats: use natural flood management methods such as woody material and leaky dams. Efforts need to be made in many places to connect rivers to their floodplains, breaching banks to allow high flows out of the rivers.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



W3 Water and wetlands: Biodiverse catchments and floodplains

Measures (actions):

W3_S01 Supporting

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.

Practical actions could include:

For floodplain meadows:

- Promote traditional floodplain meadow management. This improves soil and water quality and maximises the biodiversity impact of reuniting rivers with their floodplains.
- Avoid too much 'tidying up' – leave piles of natural debris to create habitat for many species.
- Adopt annual floodplain meadow hay cuts, followed by either aftermath grazing or another hay cut in autumn.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,



W3 Water and wetlands: Biodiverse catchments and floodplains

Measures (actions):

W3_S01

Supporting

Continued

For wet woodlands:

- Manage wet woodlands to promote variety in age and species, alongside maintaining high water tables.
- Block ditches to keep water on site, creating wet woodland that will alleviate flood.
- Use UK Forestry Standard management plans.

For all catchments:

- Manage all catchments to slow the flow of water, reduce soil erosion, reduce drought and flood risk, and reduce risk of wildfires. Eg, for middle and lower catchments create wetland habitats (wet woodland, scrub, hedges, ponds, bogs, scrapes). For upper catchments, expand clough woodland, remove artificial drainage, restore blanket bog. See also Uplands section.
- Increase the amount of natural woody material and other vegetation in channels by reintroducing keystone species such as beavers and water voles or, where that is not yet possible, mimic their behaviour.

Seek advice for further ideas and follow current best practice.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- volunteer organisations,
- local and community groups,



W3 Water and wetlands: Biodiverse catchments and floodplains

Measures (actions):

W3_S02 Supporting

Avoid building (eg self-build projects) next to watercourses, and ensure new development is set back from waterways; stronger policies are needed.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W3_S03 Supporting

Engage people. Explain how buffer strips and other nature-based approaches can help to reduce water pollution, or how structural diversity makes wet woodlands better for wildlife. Share success stories and case studies.

Who could do this?

- environmental partners,
- local government officers,
- volunteer organisations,
- local and community groups,

W3 Water and wetlands: Biodiverse catchments and floodplains



Measures (actions):

W3_S04 Supporting

Explore natural flood management opportunities. Link measures to management plans (BNG for example) for council-managed sites.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W3_S05 Supporting

Explore opportunities for reintroduced beavers to help to create new wetland habitats and hold water in the landscape.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups



W3 Water and wetlands: Biodiverse catchments and floodplains

Measures (actions):

W3_S06 Supporting

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

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

Ecosystem services:

- Plentiful water
- Clean water
- Flood protection
- Thriving animals, fungi and plants; pollination
- Climate regulation

Measures (actions):

W4_M01 Mapped

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.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



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

Measures (actions):

W4_M02 Mapped

Create new reedbeds, wet grasslands, floodplain meadows, open standing water and wet woodland around known areas of lowland raised bog. These will attract amphibians, invertebrates and birds.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

W4_N01 Not mapped

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

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- utility companies



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

Measures (actions):

W4_N02 Not mapped

On flatter lowland habitats, use permanent wetlands to manage surface water.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- environmental partners,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

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



Measures (actions):

W4_S01 Supporting

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.

Practical actions could include:

- Improve understanding of the hydrology and water chemistry of existing lowland fens to enable their restoration and expansion.
- Manage lowland fen sustainably, including advising land managers on how to reduce nutrient inputs and using appropriate levels of grazing stock to maximise biodiversity.
- Re-introduce suitable plant species into fen habitat where necessary to increase diversity. Propagate plant species from local sources for re-introduction.

Seek advice for further ideas and follow current best practice. This could help to support reedbed specialists such as bearded tits or marsh harriers.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- volunteer organisations,
- local and community groups,



Quality and condition measures

Q1 Quality and condition: Dark, quiet places

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

Ecosystem services:

- Noise regulation
- Thriving animals, fungi and plants; pollination

Measures (actions):

Q1_M01 Mapped

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

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and
- policy-makers (politicians, government regulators, local government and parish councils)
- local government officers,
- general public



Q1 Quality and condition: Dark, quiet places

Measures (actions):

Q1_N01 Not mapped

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers

Q1_S01 Supporting

Consider how to minimise noise disturbance in sensitive natural spaces, such as designated sites.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



Q1 Quality and condition: Dark, quiet places

Measures (actions):

Q1_S02 Supporting

Use lighting only if it is essential for security or safety, and the minimum necessary to achieve it. Identify alternative solutions (such as white paint on steps). Lighting used near water should be well designed to mitigate the impacts of new development.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



Q1 Quality and condition: Dark, quiet places

Measures (actions):

Q1_S03 Supporting

Adopt professional, nature-friendly practices to reduce light and noise to unlock the full impact of habitat creation and enhancement efforts.

Practical actions include:

- Direct, screen and minimise all light spillage from private, public and commercial buildings, and roads.
- Place lights lower (under the canopy) so that species above the 'light-line' can still move around. Direct lights downwards, or design them to prevent upward, sideways, and outward spillage.
- Use warm, low-lux lighting; ensure colour and intensity are appropriate for the wider setting. LED lights are best (low intensity and dimmable.)
- Use energy- and pollution-efficient equipment.

Seek advice for further ideas and follow current best practice.

Who could do this?

- landowners (public and private sector),
- land-managers,
- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- general public



Q1 Quality and condition: Dark, quiet places

Measures (actions):

Q1_S04 Supporting

Retain dark corridors within development sites. 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. Ensure this is balanced against safety and accessibility needs.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Q1_S05 Supporting

Limit streetlighting. Where streetlights are being replaced for energy efficiency reasons, make sure ecologically sensitive lighting is used. Design streetlights so that light goes where it's needed; reduce light spill (tilt downwards). This is likely to play a key role in supporting light-averse bat species, such as brown long-eared bats.

Who could do this?

- planners,
- developers,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



Q1 Quality and condition: Dark, quiet places

Measures (actions):

Q1_S06 Supporting

Public: Limit exterior lighting on buildings, driveways and garage doors. Timers or heat/motion-sensors may have their uses, but they can become a nuisance; it's better to reduce the number of lights used and place them carefully. Support may be available from organisations in the area.

Who could do this?

- general public,
- academic/business/anchor institutions

Q1_S07 Supporting

Raise public awareness about environmentally damaging lighting. Support public efforts to tackle light pollution and promote 'dark skies'.

Who could do this?

- environmental partners,
- local government officers,
- media



Q2 Quality and condition: Healthy soils

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.

Ecosystem services:

- Flood protection
- Clean air
- Clean water
- Climate regulation
- Cultivated crops
- Thriving animals, fungi and plants; pollination
- Erosion control

Measures (actions):

Q2_M01 Mapped

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

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- local government officers



Q2 Quality and condition: Healthy soils

Measures (actions):

Q2_N01 Not mapped

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

Practical actions include:

- Remove or reduce pesticides and herbicides.
- Reduce nutrients such as fertilisers.
- Reduce tillage.
- Restore soils where they have been harmed by contaminants.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors

Q2_S01 Supporting

Work with larger developments to create soil conservation and waste management plans.

Who could do this?

- planners,
- developers



Q2 Quality and condition: Healthy soils

Measures (actions):

Q2_S02 Supporting

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

Who could do this?

- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Q2_S03 Supporting

Create 'zero pesticide' areas and publicise these.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- planners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers



Q2 Quality and condition: Healthy soils

Measures (actions):

Q2_S04 Supporting

Soil aeration and reducing footfall.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- farm advisors,
- environmental partners,
- local government officers

Q2_S05 Supporting

If you have a garden, allotment or other space, make the soil as healthy as possible. Minimise use of pesticides, herbicides and fertilisers. Compost kitchen waste and add that to the soil. Adopt approaches such as no-dig. Support may be available from organisations in the area.

Who could do this?

- general public,
- local and community groups,



Q2 Quality and condition: Healthy soils

Measures (actions):

Q2_S06 Supporting

Identify areas where soil improvement, including aeration, can contribute to wider environmental goals.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Q2_S07 Supporting

Launch an education drive so that all citizen and corporate landowners understand the importance of soil and their role in enhancing its life-giving properties.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils),
- local government officers,
- academic/business/anchor institutions



Q3 Quality and condition: Ecosystem balance

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.

Ecosystem services:

- Thriving animals, fungi and plants; pollination
- Cultural benefits

Measures (actions):

Q3_N01 Not mapped

Plant native species and/or allow natural regeneration.

Who could do this?

- farmers,
- landowners (public and private sector),
- land-managers,
- local government officers,
- general public



Q3 Quality and condition: Ecosystem balance

Measures (actions):

Q3_S01 Supporting

Promote practices that minimise risk of spreading invasive species. For example:

- Embed biosecurity/biofouling communication for both public and contractors (signs, education).
- Embed biosecurity/biofouling practices (washdown stations at key sites).
- Include biosecurity requirements in contractor arrangements.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Q3_S02 Supporting

The guidance says that, where habitat creation or enhancement is taking place, measures to control and monitor invasive species such as Japanese knotweed, giant hogweed and floating pennywort are appropriate, as long as doing so will be effective (it will increase the likelihood of the area becoming important for biodiversity in the future), without being undermined by lack of action elsewhere. Include pragmatic approaches, led by volunteers.

Who could do this?

- landowners (public and private sector),
- land-managers,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



Q3 Quality and condition: Ecosystem balance

Measures (actions):

Q3_S03 Supporting

Support partners' wider efforts and existing programmes that:

- promote ambitious joint catchment-level approaches to eradicating invasive non-native species
- seek to improve monitoring and reporting
- hope to develop a regional biosecurity plan to reduce and monitor spread in the long-term.

Who could do this?

- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Q3_S04 Supporting

Where species (grey squirrels, deer, signal crayfish, American mink for example) cause a problem for ecosystem balance, manage these. These actions help to support species such as water vole and white-clawed crayfish.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)



Q3 Quality and condition: Ecosystem balance

Measures (actions):

Q3_S05 Supporting

Work with land managers to coordinate landscape-scale actions that support the recovery of species and habitats.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Q3_S06 Supporting

Support joint working with landowners to increase the chance of successful species control.

Who could do this?

- farm advisors,
- environmental partners,
- decision-makers and policy-makers (politicians, government regulators,
- local government and parish councils),
- local government officers



Q3 Quality and condition: Ecosystem balance

Measures (actions):

Q3_S07 Supporting

Monitor new (non-native) species to ascertain whether they are a threat. Explore surveying and mapping initiatives that could identify present and predict future movement.

Who could do this?

- environmental partners,
- decision-makers and policy-makers (politicians, government regulators, local government and parish councils)

Q3_S08 Supporting

Ensure you reduce the risk of spreading invasive species. Check, clean and dry boats, water equipment and wetsuits to avoid spreading species such as Japanese knotweed, Himalayan balsam and floating pennywort. Be 'Plant Wise' in gardens/allotments. Volunteer to help remove these from natural spaces. Support may be available from organisations in the area.

Who could do this?

- volunteer organisations,
- local and community groups,
- general public

Priority species

This table lists the 42 West Yorkshire priority species, and assemblages of species, and the habitats they need. The table is ordered by taxon groups, with species arranged in alphabetical order, followed by assemblages.

Please refer to Appendix 6 for the full set of measures.

S1 Species: Bees, wasps and ants

	Mapped, not mapped, supporting
S1_N01 Species: Bilberry bumblebee Habitats: Grasslands and uplands: flower-rich meadows, willow grasslands and moorland habitat mosaics.	Not mapped
S1_N02 Species: Large carder bee Habitats: Grasslands and uplands: bog habitats and upland meadows.	Not mapped
S1_N03 Species: Deadwood insects, especially large scissor-bee, and yellow-marked wasp <i>Crossocerus binotatus</i>. Habitats: Woodland and water.	Not mapped

S2 Species: Bees, wasps and ants/butterflies and moths assemblage

Mapped, not mapped, supporting

S2_N01

Species: **Brownfield insects such as wormwood moth, dingy skipper all rely heavily on the provision of brownfield habitats.**

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

Not mapped

S3 Species: Butterflies and moths

Mapped, not mapped, supporting

S3_N01

Species: **White-letter hairstreak**

Habitats: Grasslands and woodlands; anywhere with elm, including wych elm; hedgerow; meadows; woodlands.

Not mapped

S4 Species: Molluscs

Mapped, not mapped, supporting

S4_N01

Species: **Depressed river mussel**

Habitats: Water: Including canals, ditches, rivers.

Not mapped

S5 Species: Plants

	Mapped, not mapped, supporting
S5_M01 Species: Calcareous woodland plants such as yellow bird's-nest and bird's-nest orchid Habitats: Woodland: Leaf litter in shady woods under beech/hazel on calcareous soils, sometimes secondary woodland or coniferous plantation on acidic soils.	Mapped
S5_M02 Species: Magnesian Limestone plants, including autumn lady's tresses, burnt orchid, pale St John's-wort, pasqueflower, purple milk-vetch, rare spring-sedge, squinancywort and thistle broomrape. Habitats: Grasslands; Limestone.	Mapped
S5_N01 Species: Baneberry Habitats: Woodland: Limestone, deciduous woodland.	Not mapped
S5_N02 Species: Floating water-plantain Habitats: Water: Canals, slow-flowing rivers.	Not mapped
S5_N03 Species: Fly orchid Habitats: Woodland: Deciduous woodland and margins (typically ash and elm) on calcareous soils, also scrub and hazel coppice; limestone; exposed limestone in quarries and spoil heaps.	Not mapped
S5_N04 Species: Killarney fern Habitats: Water: running water on steep ground.	Not mapped

S5 Species: Plants

Mapped, not mapped, supporting

S5_N05

Species: Marsh helleborine
Habitats: Water: Fen; marsh; meadows.

Not mapped

S5_N06

Species: Moonwort
Habitats: Grasslands: Western, unimproved species-rich grasslands with base-rich influences.

Not mapped

S5_N07

Species: Northern spike-rush
Habitats: Water: Ditches; freshwater; pools; quarries; springs.

Not mapped

S5_N08

Species: Opposite-leaved pondweed
Habitats: Water: Canals; ditches; freshwater; ponds; streams.

Not mapped

S5_N09

Species: Petty whin
Habitats: Grasslands and water: Bog; drier fringes of bogs, damp pasture where there is some grazing; grasslands; heath; heathland; mire.

Not mapped

S5_N10

Species: River water-crowfoot
Habitats: Water: Freshwater; rivers; streams, especially fast flowing.

Not mapped

S5 Species: Plants

Mapped, not mapped, supporting

S5_N11

Species: Yellow star-of-Bethlehem

Habitats: Water and woodland: Hedgerows; riversides; stream banks; woodland.

Not mapped

S6 Species: Birds

Mapped, not mapped, supporting

S6_M01

Species: Upland birds, such as golden plover, merlin, ring ouzel, short-eared owl, whinchat. All rely on the provision of good quality habitats.

Habitats: Upland: Moorland, wet and dry heath, rough grasslands and rocky outcrops.

Mapped

S6_N01

Species: Barn owl

Habitats: Grasslands: Arable field margins; ditches; farmland; grasslands; rough grasslands.

Not mapped

S6_N02

Species: Curlew

Habitats: Grasslands and upland: Bog; moor; moorland; rough grasslands; wet grasslands.

Not mapped

S6_N03

Species: Lapwing

Habitats: Grasslands and uplands: Arable fields; meadows; moorland; rough grasslands.

Not mapped

S6 Species: Birds

Mapped, not mapped, supporting

S6_N04

Species: Redshank

Habitats: Grasslands and water: Bog; fen; heath; marsh; meadows; moorland; wet grasslands.

Not mapped

S6_N05

Species: Snipe

Habitats: Grasslands and water: Short sward grasslands with rush; wetlands.

Not mapped

S6_N06

Species: Twite

Habitats: Grassland and uplands: Acid grassland mosaic; hay meadows; mixed farmland; heathland; moorland; upland.

Not mapped

S6_N07

Species: Woodcock

Habitats: Woodland: Deciduous woodland; heath; mixed woodland.

Not mapped

S6_N08

Species: Yellow wagtail

Habitats: Grasslands: Arable; farmland; meadows.

Not mapped

S6 Species: Birds

S6_N09

Species: Farmland birds, such as corn bunting, grey partridge, kestrel, linnet, skylark, tree sparrow, yellowhammer. All rely on the provision of good quality farmland habitats.

Habitats: Grasslands and trees/woodland: Farmland, arable fields, hedgerows, tall sward grasslands, rough grasslands.

Mapped, not mapped, supporting

Not mapped

S6_N10

Species: Reedbed birds, such as bittern, bearded tit and marsh harrier. All rely on the provision of good quality reedbed habitats.

Habitats: Water: Freshwater and wetlands, particularly reedbeds.

Not mapped

S6_N11

Species: Urban birds, such as black redstart, house martin, house sparrow, peregrine, starling and swift. All rely on the provision of good quality urban habitats.

Habitats: Urban/built: Urban areas, some moorlands, parks and gardens.

Not mapped

S6_N12

Species: Wetland birds, such as black-necked grebe, common crane, common sandpiper, common tern, garganey, little ringed plover, pochard, spoonbill. These all rely on the provision of good quality wetland habitats.

Habitats: Water: Freshwater and wetlands.

Not mapped

S7 Species: Reptiles

Mapped, not mapped, supporting

S7_N01

Species: Reptiles, including adder, grass snake, common lizard and slow-worm.

Habitats: Grasslands and upland: main habitats are heathland, moorland, open woodland, mire, bog, acid grasslands, calcareous grasslands, with some woodland and grassland suitability. Tall sward grasslands, sometimes brownfield sites.

Not mapped

S8 Species: Mammals

Mapped, not mapped, supporting

S8_N01

Species: Hedgehog

Habitats: Trees/woodland and urban/built: Deadwood; gardens; hedgerows; scrub; woodland.

Not mapped

S8_N02

Species: Red squirrel

Habitats: Woodland: broadleaved, coniferous and mixed woodlands.

Not mapped

S8_N03

Species: Water vole

Habitats: Water: Becks; canals; ditches; fen; field drains; freshwater; lakes; meadow; moor; pasture; Riparian habitats; rivers.

Not mapped

S8 Species: Mammals

Mapped, not mapped, supporting

S8_N04

Species: Light-averse bats including: Brandt's bat, brown long-eared bat, Daubenton's bat, Natterer's bat, whiskered bat.

Habitats: Water and Woodland: Woodland edge; river and canal corridors; wet grasslands; fen; standing water bodies.

Not mapped

S9 Species: Crustaceans

Mapped, not mapped, supporting

S9_N01

Species: White-clawed crayfish

Habitats: Water: Clean; clear headwaters preference; freshwater; rivers; stoney habitat; streams.

Not mapped

S10 Species: Amphibians

Mapped, not mapped, supporting

S10_N01

Species: Common toad

Habitats: Water: Breeding habitats are permanent water bodies like large ponds, lakes, gravel pits, ditches/dykes and fast-flowing becks. Terrestrial habitat includes woodland, hedgerows, rough grasslands, scrub and farmland, patchy distribution in highly developed areas. gardens; grasslands; large ponds; ponds; scrapes; seasonal wet areas; woodland.

Not mapped

S10_N02

Species: Great crested newt

Habitats: Water: open shallow margins free from vegetation; broadleaved woodland; farmland; fen; grassland; hedgerow; large ponds; marsh; ponds; predominantly lowland species, mineral quarry pools, lakes, ditches/dykes, Prefers a well vegetated aquatic habitat without fish; scrapes; scrub; seasonal wet areas.

Not mapped

S11 Species: Fish

S11_N01

Species: Freshwater fish species, including: Atlantic salmon, brown/sea trout, bullhead, European eel, river lamprey. Each of these require similar actions linked to good quality freshwater habitats.

Habitats: Water: Rivers and streams with clear headwaters and a functional and connected riparian zone.

Mapped, not mapped, supporting

Not mapped

S12 Species: Fungi

S12_N01

Species: This includes a range of ancient grassland/CHEGD fungi, such as: Big blue pinkgill, big brown pinkgill and big slate blue pinkgill.

Habitats: Grassland: Ancient or species-rich grassland.

Mapped, not mapped, supporting

Not mapped

Species measures

This table lists the **42 West Yorkshire priority species**, and assemblages of species, the habitats they need and the measures to support them. The table is ordered by taxon groups, with species arranged in alphabetical order, followed by assemblages. The full **Species Longlist** and the **Priority Species List** research report are available online.

Three species assemblages are mapped: calcareous woodland plants (S5_M01), Magnesian Limestone plants (S5_M02), and upland birds (S6_M01). The other measures are unmapped or supporting.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S1: Bees, wasps & ants	S1_N01 Bilberry bumblebee	-	  Grassland and upland: Flower-rich meadows, willow grasslands and moorland habitat mosaics.	• Create specialist habitats and manage these to ensure forage areas and nesting sites persist (such as south facing embankments). • Provide heath and hedgerow habitats with varying ages and structure. • Nature-friendly maintenance and management. • Identify and monitor population hotspots. • Use alternative grazing models that incorporate traditional breeds of livestock and create tussock grassland mosaic habitat. • Engage with and support landowners and land managers to avoid use of pesticides, herbicides and nitrates, particularly in hotspot areas. • Avoid overgrazing and recreational pressures in population hotspots. • Prevent wildfires. • As a precaution, avoid placing honeybee hives in areas where rare wild bees are present. • Promote further research into the impacts of managed honeybees on wild bees and the best ways to identify and mitigate detrimental impacts. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S1_N02 Large carder bee	-	  Grassland and upland: Bog habitats and upland meadows.	• Create specific grassland habitats, with extensive areas of tall, but open, flower-rich grassland, especially those which have many flowers with long corollae. • As a precaution, avoid placing honeybee hives in areas where rare wild bees are present, • Promote further research into the impacts of managed honeybees on wild bees and the best ways to identify and mitigate detrimental impacts. • Communicate, engage, educate and otherwise involve the public.
	S1_N03 Deadwood insects	Large scissor-bee, and yellow-marked wasp <i>Crossocerus binotatus</i>	  Woodland and water: Requires dead wood and / or hollow stems (such as that abundant in scrub). Dead wood in woodlands, parklands, wetlands and non-agricultural settings.	Both specifically require deadwood habitats: • Leave dead wood in woodlands, parklands, wetlands and non-agricultural settings. This will help insects that need this and/or hollow stems (such as that abundant in scrub) • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S2: Bees, wasps & ants / butterflies & moths assemblage	S2_N01 Brownfield insects	Wormwood moth, dingy skipper	 Urban / built: Sandy habitats such as brownfield sites with varying microtopography. Brownfield sites. Bare, usually dry areas.	All these species rely heavily on the provision of brownfield habitats, with some further specific actions: • Implement a programme of targeted invertebrate surveys starting with sites identified by Buglife in the draft Inventory of Open Mosaic Habitats on Previously Developed Land. • 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 including raising awareness of the biodiversity value of sites and the importance of sustainable management; providing valuable expertise and support (including signposting to funding opportunities and initiatives). • Dingy skipper – would benefit from more bird’s foot trefoil in these areas. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S3: Butterflies & moths	S3_N01 White-letter hairstreak	-	  Grassland and woodland: Anywhere with elm, including wych elm; hedgerow; meadows; woodland.	• Retain elm trees and plant new disease-resistant elms given the threat of Dutch elm disease, ensuring due consideration of the different hybrids and local growing conditions, especially within two kilometres of existing elm woodlands. • Allow elm suckers to grow where they appear. • In areas where scrub or woods show evidence of Dutch elm disease, introduce coppicing on a 10-year cycle. • Manage hedgerow shelterbelts that contain elm and avoid cutting edges where new elm suckers appear. • Enhance rides and glades and the network of these within woodlands. • Encourage flowering plants such as bramble, hogweed, and wild privet, particularly in the shrub layer and field margins close to suitable breeding sites. • Retain field maple and lime trees close to elms within hedgerows and woodlands. • Encourage elm and some ash trees to grow within hedges, providing assembly points and shelter. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S4: Molluscs	S4_N01 Depressed river mussel	-	 Water: Including canals, ditches, rivers.	• Improve water quality in the vicinity of mussel populations including: reducing sediment and nutrient run-off (e.g. through measures like riparian fencing, creating buffer zones, and managing agricultural practices; improving river channel stability (e.g. removing weirs or other structures that alter natural water flow); enhancing habitat structure (e.g. adding large woody debris to improve habitat for host fish and improving the survival of fry and juvenile mussels). • Ensure that all agencies, landowners and managers who are likely to undertake work that may affect this species are aware of and take account of its presence. • Conduct further research to assess the potential impact of signal crayfish on the species, and how any impacts can be reduced. • Communicate, engage, educate and otherwise involve the public.
S5: Plants	S5_M01 Calcareous woodland plants	Yellow bird's-nest, bird's-nest orchid	 Woodland: Leaf litter in shady woods under beech/hazel on calcareous soils, sometimes secondary woodland or coniferous plantation on acidic soils.	• Protect existing sites where they occur, to maintain the mycorrhizal communities and relationships. • Promote further research to understand the distribution, status and ecology of these species. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S5_M02 Magnesian Limestone plants	Autumn lady's tresses, burnt orchid, pale St John's-wort, pasqueflower, purple milk-vetch, rare spring-sedge, squinancywort, thistle broomrape	 Grassland; Limestone.	Each of these species rely on Magnesian Limestone habitats in West Yorkshire, with some further specific actions: • Conserve existing sites where these species are found. • Adopt specific conservation grazing management strategies. This could include: The introduction or maintenance of light grazing through autumn and winter (for example by sheep), enabling periodic disturbance of soil and turf, and thereby creating bare ground to support these species to regrow from new seeds. Some species depend on grazing during the flowering and seeding time being avoided. This can vary between spring and summer (dependent on the species present). • 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.
	S5_N01 Baneberry	-	 Woodland: Limestone, deciduous woodland	• Protect and enhance existing colonies. • Undertake surveys to update the current distribution of the species, initially focusing on sites where the species has previously been recorded, to inform management requirements. • If reintroduction is deemed necessary, start programme of growing the species to restock or reintroduce to current and former sites. Records from old floras and BSBI atlases, alongside data centre records, should also be used to locate the most appropriate sites. • Assess the suitability of reintroducing the species in appropriate areas. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S5_N02 Floating water-plantain	-	 Water: Canals, slow-flowing rivers.	- Minimise excessive disturbance in areas where this plant grows, such as from intensive boat traffic or dyke maintenance. Some degree of disturbance will, however, help to reduce competition from other plants. - Minimise shade from trees and adjacent development. - Research and monitor any expansion of the species to other parts of the canal and associated river networks, and any requirements for vegetation, drainage and water supply management. - Communicate, engage, educate and otherwise involve the public.
	S5_N03 Fly orchid	-	 Woodland: Deciduous woodland and margins (typically ash and elm) on calcareous soils, also scrub and hazel coppice; limestone; exposed limestone in quarries and spoil heaps.	- Enhance and create good quality open limestone woodland and grassland edge habitats. - Manage some suitable woodlands by coppicing, scrub management, and deer control. - Assess the suitability of reintroducing the species in appropriate areas. - Communicate, engage, educate and otherwise involve the public.
	S5_N05 Marsh helleborine	-	 Water: Fen; marsh; meadows.	- Maintain water levels for consistently damp or seasonally inundated habitat with low nutrients, such as fen. - Reduce competition from other plants by maintaining open spaces. - Protect existing plants from heavy grazing. - Start programme of growing the species to restock or reintroduce to current and former sites. - Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S5_N06 Moonwort	-	 Grassland: Western, unimproved species-rich grassland with base-rich influences.	• Gather more information on the current distribution of this species. • Protect existing plants from habitat enhancement, e.g. in upland tree planting schemes, which should have regard to and account for the species' presence. • Communicate, engage, educate and otherwise involve the public.
	S5_N07 Northern spike-rush	-	 Water: Ditches; freshwater; pools; quarries; springs.	• Reduce spate events given that this species depends on silted gravel deposits in slack areas of river. • Promote specific habitat management such as upstream natural flood mitigation works where suitable. • Communicate, engage, educate (e.g. including species identification) and otherwise involve the public.
	S5_N08 Opposite-leaved pondweed	-	 Water: Canals; ditches; freshwater; ponds; streams.	• Adopt management that aims to restore good quality, clear, base-rich ditches and streams, particularly to enable possible re-establishment in headwaters. • Manage areas where the species is present to clear competitors. • Assess the suitability of reintroducing the species in appropriate areas. • Communicate, engage, educate and otherwise involve the public.
	S5_N09 Petty whin	-	 Grassland and water: Bog; drier fringes of bogs, damp pasture where there is some grazing; grassland; heath; heathland; mire.	• Create good quality, low nutrient, unimproved heathland habitats that are extensively grazed. • Assess the suitability of reintroducing the species in appropriate areas. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S6: Birds	S5_N10 River water-crowfoot	-	 Water: Freshwater; rivers; streams - especially fast flowing.	• Improve water quality across watercourses in West Yorkshire. • Allow areas of stable substrate to establish in large rivers. • Reduce spate events in rivers. • Promote specific habitat management such as upstream natural flood mitigation works where suitable. • Communicate, engage, educate and otherwise involve the public.
	S5_N11 Yellow star-of-Bethlehem	-	 Water and woodland: Hedgerows; riversides; stream banks; woodland.	• Remove invasive species on riverbanks where the species is present. • Promote further research to understand its current distribution. • Communicate, engage, educate and otherwise involve the public.
	S6_M01 Upland birds	Golden plover, merlin, ring ouzel, short-eared owl, whinchat	 Upland: Moorland, wet and dry heath, rough grassland and rocky outcrops	These species all require the provision of good quality habitats, with some further specific actions: • Provide a mosaic of specific habitats in the uplands, including areas of shrub and light tree cover, at varying ratios depending on topology, to create a complex and varied mosaic landscape that can support high bird biodiversity. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S6_N01 Barn owl	-	 Grassland: Arable field margins; ditches; farmland; grassland; rough grassland.	• Mitigate for the loss of nesting sites during the conversion of agricultural buildings, including the use of permanent owl lofts. • Retain rough permanent mammal-rich grassland habitats. • Communicate, engage, educate and otherwise involve the public.
	S6_N02 Curlew	-	 Grassland and upland: Bog; moor; moorland; rough grasslands; wet grassland.	• Identify, safeguard and monitor nesting sites. • Protect nesting sites from predators, livestock and human disturbance using fencing, signage or other exclusion methods. These actions should help to increase the success of breeding curlews to hatch chicks. • Avoid cutting from March to July or adopt mowing regimes that are designed to allow more chicks the chance to escape and survive. • Restrict cattle and sheep grazing in specific areas until outside of the nesting season. • Restrict the aeration, liming and manuring of fields until outside of the nesting season. • Implement some rush cutting management. • Engage and raise awareness with farmers, landowners, land managers and the wider public, to build support. • Target agri-environment payments towards enhancing breeding sites for ground nesting birds, by payment to move away from silaging while maintaining hay and or grazing of sites. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S6_N03 Lapwing		  Grassland and upland: Arable fields; meadows; moorland; rough grassland.	- Identify, safeguard and monitor nesting sites. - Protect nesting sites from predators, livestock and human disturbance using fencing, signage or other exclusion methods. - Engage and raise awareness with farmers, landowners, land managers and the wider public, to build support in trying to save nests, particularly in areas where land management appears to be working. - Communicate, engage, educate and otherwise involve the public.
	S6_N04 Redshank	-	  Grassland and water: Bog; fen; heath; marsh; meadows; moorland; wet grasslands.	- Collate information on breeding sites to support targeted agri-environment scheme delivery. - Avoid tree planting near to known sites. - Create in-field scrapes or shallow ditches with muddy edges, to aid chick feeding. - Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S6_N05 Snipe	-	  Grassland and water: Short sward grassland with rush; wetlands.	• Identify, safeguard and monitor nesting sites. • Protect nesting sites from predators, livestock and human disturbance using fencing, signage or other exclusion methods. • Increase areas of seasonally wet habitat. • Create a mosaic of vegetation heights in the habitats where the species occurs. • Engage and raise awareness with farmers, landowners, land managers and the wider public, to build support. • Follow voluntary conservation measures as recommended in BASC's 'Sustainable Shooting Code of Practice for Wildfowl Quarry Species'. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S6_N06 Twite	-	 Grassland and upland: Acid grassland mosaic; hay meadows; mixed farmland; heathland; moorland; upland	- Enhance feeding habitat: Maintain and restore species-rich hay meadows, wildflower-rich pastures, and weedy field margins; cut hay after mid-July; limit fertiliser, herbicide, and broad-leaved plant control to ensure year-round seed availability near moorland. - Support nesting habitat: Manage heather moorland to retain tall heather near in-bye land, maintain small bracken patches on steep slopes, and avoid burning areas with limited bracken. - Sensitive land management: Use rotational, low intensity burning or light grazing to maintain a mosaic of heather ages and habitats. - Reduce disturbance and risk: Avoid tree planting near breeding areas and ensure suitable habitats remain open and connected within 2–3 km of moorland. - Support populations and engagement: Consider supplementary feeding where appropriate. Also communicate, engage, educate and otherwise involve the public.
	S6_N07 Woodcock	-	 Woodland: Deciduous woodland; heath; mixed woodland.	- Diversify woodland structure: Create and manage open spaces through traditional management such as thinning and coppicing, to develop a mosaic of woodland ages and types. - Improve woodland access and habitat: Create or widen rides (ideally 8m+), and mow rides and clearings to provide suitable feeding and breeding display areas. - Enhance wet and edge features: Manage vegetation along ditches and ponds and create wet features to retain ground moisture into late summer. - Minimise disturbance: Restrict dog access and time woodland operations carefully, avoiding machinery use during the breeding season. - Engage stakeholders: Work with the shooting community. Also communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S6_N08 Yellow wagtail	-	 Grassland: Arable; farmland; meadows	- Set up areas for low/reduced input grassland and spring sown cereals/mixed cropping, to boost insect numbers and extend the breeding season. - Provide more widespread mixed farmland habitats that incorporate both arable and grazing land uses. - Avoid mowing or crop harvesting during periods where nests will be impacted. - Communicate, engage, educate and otherwise involve the public.
	S6_N09 Farmland birds	Corn bunting, grey partridge, kestrel, linnet, skylark, tree sparrow, yellowhammer	  Grassland and trees / woodland: Farmland, arable fields, hedgerows, tall sward grassland, rough grasslands.	These species are all linked to key farmland habitats, with some further specific actions: - Provide and maintain seed sources, especially during late winter either by directly providing seed or by allowing plants to go to seed in suitable areas. - Adopt actions that ensure an increased presence of invertebrates on and around farmland. - Increase areas of unfarmed wild corners. - Adopt organic or regenerative grazing and farming practices with reduced chemical inputs. - Avoid, reduce, or delay ploughing after harvest. This will help to increase winter stubble cover and green cover crops. - Avoid cutting all hedges annually. - Increase the adoption of wildflower, grass and nectar rich margins. This can be essential in helping to boost insect populations and provide summer food resources for breeding birds. - Provide nesting boxes (often species specific) as and when required (e.g. for tree sparrows). This will help to increase breeding opportunities. - Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S6_N10 Reedbed birds	Bittern, bearded tit, marsh harrier	 Water: Freshwater and wetlands, particularly reedbeds.	These species all require the provision of good quality reedbed habitats, with some further specific actions: • Create, extend and manage good quality and large reedbeds. • Lower any reedbeds at risk from drying out and manage reed structures to promote structural diversity. • Manage reedbeds using techniques such as cyclical cutting. • Avoid agricultural activities or activities of high disturbance that can cause soil aeration or compaction, particularly on breeding sites and during the breeding season. • Communicate, engage, educate and otherwise involve the public.
	S6_N11 Urban birds	Black redstart, house martin, house sparrow, peregrine, starling, swift	 Urban / built: Urban areas, some moorlands, parks and gardens.	These species all require the provision of good quality urban habitats, with some further specific actions: • Raise awareness and education on these species. • Identify, safeguard and monitor existing nesting sites. • Mitigate against the loss of nest sites by putting up suitable Swift bricks or boxes, ensuring they are not disturbed or removed. This is particularly relevant to all new build developments and Local authority properties undergoing roof renovation. • Create bog gardens and areas of long grass in and among urban areas. • Promote wildlife friendly and pesticide-free gardening, leading by example from district and parish/town councils. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S6_N12 Wetland birds	Black-necked grebe, common crane, common sandpiper, common tern, garganey, little ringed plover, pochard, spoonbill	 Water: Freshwater and wetlands.	These species all require the provision of good quality wetland habitats, with some further specific actions: • Maintain early successional habitats to benefit open-ground nesting species such as little ringed plover. • Maintain islands to provide habitat for ground nesting species such as common tern. • Create and maintain areas of extensive, shallow, vegetated water during breeding months. This includes by providing reeds and greater pond sedges within these areas for nesting. • Adopt seasonal grazing on the relevant sites that can help to create an optimal sward. • Avoid agricultural activities or activities of high disturbance that can cause soil aeration or compaction, particularly on breeding sites and during the breeding season. • Manage water levels where possible and appropriate over the year to benefit wintering, passage and breeding birds. • Avoid shooting of pochard as per the voluntary moratorium recommended in BASC's 'Sustainable Shooting Code of Practice for Wildfowl Quarry Species'. • Provide bare and open (early successional) areas for ground nesting species, such as little ringed plover and common tern. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S7: Reptiles	S7_N01 Reptiles	Adder, common lizard, grass snake, slow-worm	  Grassland and upland: main habitats are heathland, moorland, open woodland, mire, bog, acid grassland, calcareous grassland, with some woodland and grassland suitability. Tall sward grasslands, sometimes brownfield sites.	These species require similar actions for delivery: • Implement restrictions on non-native predator species (such as pheasant) at least in areas of core habitat and at breeding sites. • Reduce non-native predator species (such as pheasant) at least in areas of core habitat and at breeding sites. • Restrict disturbance and aggravation from dogs where possible. • Identify and protect adder breeding sites, particularly given the tendency of the species to remain faithful to them. • Provide better and more connected habitat mosaics for prey species, including amphibians and ground nesting birds. • Consider reptile conservation implications throughout peatland restoration work. • Provide and promote information boards and online information that presents snakes and lizards in a positive light. • Increase the recording of these species, to further the development of the current understanding of the status and distribution of them. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S8: Mammals	S8_N01 Hedgehog	-	  Trees / woodland and urban / built: Deadwood; gardens; hedgerows; scrub; woodland.	• Consider habitat connectivity in traffic schemes. • Create habitat piles and hedgehog homes. • Reduce barriers to movement across urban areas. This could include through actions such as the creation of hedgehog 'neighbourhoods' where gardens are connected by hedgehog holes. • Reduce light pollution and litter in parks and gardens. • Encourage the use of less pesticides in domestic gardens. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S8_N02 Red squirrel	-	 Woodland: broadleaved, coniferous and mixed woodlands	• Take action to support the potential return of red squirrels to West Yorkshire. • Conduct feasibility studies to ensure the best chance of success. • Connect habitats especially between Keighley, Calderdale and Kirklees. Plant suitable habitats: mixed woodland trees such as blackthorn, bird cherry and hawthorn, and promote the use of good practice guidance for woodland management and forestry operations. Avoid planting beech, hazel and oak in areas with or near red squirrel populations. • Explore all potential different approaches to grey squirrel management. • Increase uptake of grant schemes. • Improve relations between landowners and managers, local communities and businesses, to encourage greater involvement in red squirrel conservation. • Increase/improve evidence-based data recording/mapping, and data sharing. • Protect red squirrel habitats from development through interaction with the planning system. • Communicate, engage, educate and otherwise involve the public around red squirrel conservation.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S8_N03 Water vole	-	 Water: Becks; canals; ditches; fen; field drains; freshwater; lakes; meadow; moor; pasture; Riparian habitats; rivers.	- Identify, monitor and safeguard key remaining population strongholds and breeding areas. - Manage and exclude the invasive and non-native mink. This includes through the provision of extended and dedicated long term funding to support relevant projects, where applicable. - Prevent trampling and intensive grazing by livestock near to water vole strongholds. - Ensure that water bodies and water courses or ditches where water vole populations are present are managed carefully. - Consider the creation of soft banks that allow direct access to the water in riverside bank, ditch and watercourse management, as well as the provision of more emergent wetland vegetation for food. These actions should be considered while also avoiding the overshadowing of the water completely from scrub and/or trees. - Engage in region-wide Water Vole Recovery Strategy as developed. - Communicate, engage, educate and otherwise involve the public.
	S8_N04 Light averse bats	Brandt's bat, brown long-eared bat, Daubenton's bat, Natterer's bat, whiskered bat.	  Water and Woodland: Woodland edge; river and canal corridors; wet grassland; fen; standing water bodies.	- Identify and map dark corridors in detail, to maintain and enhance their suitability for roosts and feeding. - Avoid or minimise (such as using low-intensity/warm white light LED, downward-facing lights with motion sensors) the use of artificial lighting near key bat habitats and features. - Encourage collaboration between developers, ecologists, and local authorities to ensure that lighting design minimizes impacts on bats. - Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S9: Crustaceans	S9_N01 White-clawed crayfish	-	 Water: Clean; clear headwaters preference; freshwater; rivers; stoney habitat; streams.	• Undertake dedicated surveying of watercourses to identify populations of this species, but also of the invasive American signal crayfish. • Identify from surveying any areas that currently provide refuge arc sites and carefully consider reintroductions into such sites. • Manage instream habitats to provide consistent, steady flows of good or very good quality water. This could include the management of riverbanks to support numerous natural or artificial refugia, offering opportunities to hide from predators. • Promote the essential adoption of check, clean and dry biosecurity measures. • Consider the removal of fish passes and weirs carefully, to avoid creating a passage for non-native crayfish. This will also protect many fish and invertebrates from predation in specific areas. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S10: Amphibians	S10_N01 Common toad		 Water: Breeding habitats are permanent water bodies like canals, large ponds, lakes, fast flowing becks, gravel pits, ditches/dykes. Terrestrial habitat includes woodland, hedgerows, rough grassland, scrub and farmland, patchy distribution in highly developed areas; gardens; grassland; large ponds; ponds; scrapes; seasonal wet areas; woodland.	• Monitor migration routes and implement mitigation as necessary. • Increase the uptake of nature-friendly elements of highways design codes. • Create pond habitats that also include associated terrestrial grassland/fen. This relates to a need to try to avoid locations with high nitrogen input arable and silage fields which will cause eutrophication of small ponds. • Establish community groups to monitor toad movements and do toad patrols. • Create and manage ponds in ways which ensure diversity within pond structure, depth, shape, and edge vegetation. • Provide foraging habitats and undisturbed areas of deadwood or stones for hibernation in breeding ponds. • Ensure that new developments include requirements for amphibian friendly landscaping. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
	S10_N02 Great crested newt		 Water: broadleaved woodland; farmland; fen; grassland; hedgerow; large ponds; marsh; open shallow margins free from vegetation; ponds; predominantly lowland species, mineral quarry pools, lakes, ditches/dykes, Prefers a well vegetated aquatic habitat without fish; scrapes; scrub; seasonal wet areas.	• Create and maintain fish free ponds, which ideally are near to other ponds that could support great crested newts. • Create and manage ponds in ways which ensure diversity within pond structure, depth, shape, and edge vegetation. • Provide foraging habitats and undisturbed areas of deadwood or stones for hibernation in breeding ponds. • Deepen ponds that have already been created to prolong the life of them. • Conduct further research to determine whether the District Level Licensing scheme is working and to modify the approach taken if there is a problem with current habitat design and chosen locations. • Conduct further research to understand the distribution of the species. This may include focusing on pond occupation and breeding success. • Conduct further research to map wetlands and ponds across the county to identify connectivity potential. • Ensure that new developments include requirements for amphibian friendly landscaping. • Monitor the spread of the non-native alpine newt.

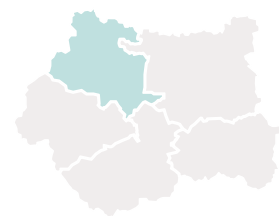
Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S11: Fish	S11_N01 Freshwater fish	Atlantic salmon, brown/sea trout, bullhead, European eel, river lamprey	 Water: Rivers and streams with clear headwaters and a functional and connected riparian zone.	Each of these species require similar actions required for their recovery linked to good quality freshwater habitats, including: • Ensure that compensation flows align with the Water Framework Directive requirements. • Ensure that abstraction licences are future proofed against climate change. • Remove weirs and other barriers within watercourses when suitable, having due regard to the potential impacts on other species e.g. white-clawed crayfish. • Provide bespoke fish passes at suitable structures along rivers to enable fish to move between river sections and lay eggs to reproduce (salmonid passes for trout and eel passes for eels). This is particularly relevant in areas where weir and barrier removal may not be suitable. • Promote the essential adoption of check, clean and dry biosecurity measures. • Communicate, engage, educate and otherwise involve the public.

Taxon group	Species common name or collective assemblage name	Species included in the assemblage if applicable	Associated habitats	Potential measure (the action/s needed help the relevant species or assemblage to recover)
S12: Fungi	S12_N01 Ancient grassland/CHEGD fungi	Big blue pinkgill, big brown pinkgill, big slate blue pinkgill, bitter waxcap, black magic, blushing waxcap, brightsky pinkgill, butterscotch waxcap, citrine waxcap, crimson waxcap, dark-purple earthtongue, date waxcap, dingy waxcap, felted pinkgill, fibrous waxcap, glistening waxcap, gloomy earthtongue, goblet waxcap, jubilee waxcap, lilac pinkgill, matt fanvault, matt pinkgill, mealy meadowcap, mealy pinkgill, nitrous waxcap, oily waxcap, olive earthtongue, orange waxcap, papillate waxcap, pink waxcap, powdercap strangler, rufous earthtongue, scalyfoot waxcap, shadowed waxcap, shortspored earthtongue, skinny club, slender waxcap, splendid waxcap, straw club, toasted waxcap, violet coral, yellowfoot waxcap, an earthtongue (<i>Microglossum fuscrobens</i>), an earthtongue (<i>Microglossum pratense</i>)	 Grassland: Ancient or species rich grassland.	Each of the species within this assemblage require the following actions: • Avoid tree planting and meadow creation on existing sites, in accordance with current government guidance. • Maintain, protect and enhance ancient grassland sites through targeted management and continuing low inputs. • Increase survey effort, to increase ecological understanding and awareness of these fungi, and to identify further potential existing sites of importance. This will further inform management requirements and flag areas of imminent, detrimental land use change. • Include these grasslands on the Grassland Inventory, so that they can be eligible for Low Input Grassland supplements in Agri-environment schemes like SFI. • Ensure that these areas are mapped as priority habitat due to their global importance. • Ensure that the grasslands continue to receive appropriate grazing management rather than no or low grazing. • Communicate, engage, educate and otherwise involve the public.

Part 5 ~~~~~

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.

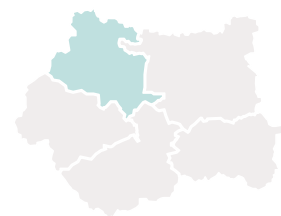
The result is a thriving peregrine population and an interactive urban trail that guides visitors to key vantage points around the city. Each stop offers insights into the birds' behaviour, their history in Bradford and the wider role of urban habitats in wildlife recovery.

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



The Bradford Urban Wildlife Group installed nest boxes on Lister's Mill in Bradford. This supports the peregrines that breed there.

© Alan Tremmerthick



Bradford – Public landowner

Reviving Ilkley Moor for people and the planet

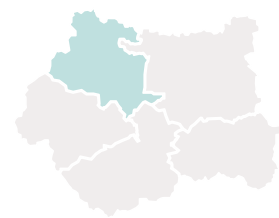
Stretching above the Wharfe Valley, Ilkley Moor is one of West Yorkshire's most treasured landscapes and, thanks to a major restoration project, its future is looking brighter than ever. As the local authority landowner, Bradford Council has taken a leading role in protecting and restoring this vast 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.

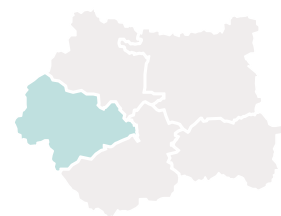
The greenery of City Park softens the city's architecture, improves its quality and offers shade and shelter, making it a welcoming destination in all seasons. Carefully selected plants provide year-round greenery and connectivity for bees, butterflies and other pollinators, while open spaces invite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



Once, it was concrete and tarmac. Today, wildflowers bloom in Bradford's City Park.
© Bradford Council



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.

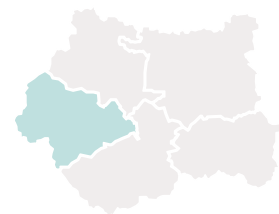
Peatlands are key to tackling climate change, storing vast amounts of carbon, while healthy heathlands provide habitat for rare birds, insects and plants. Years of overuse had left this moorland vulnerable, but the community's vision and action, with expert guidance from the Yorkshire Peat Partnership 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/>



The local community took ownership of an area of degraded heath and peatland in Calderdale and set about restoring it. © Bridestones Rewilded



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 chances of survival for the white-clawed crayfish.

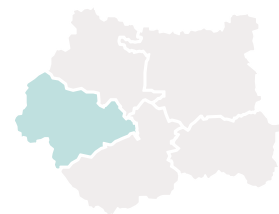
One key aspect has involved designating Jerusalem Farm as a Local Wildlife Site to ensure that the river where the species live can be protected and enhanced. Enhanced biosecurity measures, including installing educational signs and boot-scrubbing stations, will help to prevent the spread of disease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



Native white-clawed crayfish face a perilous threat, but conservation efforts in Luddenden Foot, Calderdale, offer a ray of hope.

© Calderdale Council



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.

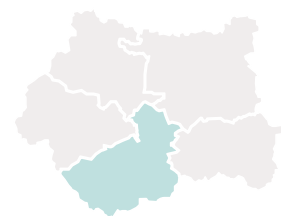
Beyond benefiting wildlife, the restored clough woodlands will capture carbon to tackle climate change, improve water quality and provide protection for homes and businesses in Calderdale and Kirklees by slowing the flow of water running off the moors.

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



Clough woodlands were lost from large parts of the South Pennine Moors. Today, environmental partners are restoring them to some steep-sided ravines in Calderdale and Kirklees.

© Yorkshire Water



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.

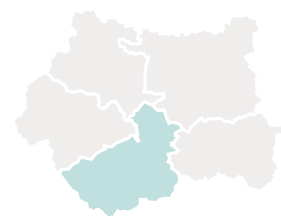
Now, hope is returning to the Holme Valley. A local landowner, working hand in hand with water vole expert Derek Gow, have reintroduced the small mammals to a stretch of the river at Black Syke, where wetlands and freshwater provide ideal habitat conditions.

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.



Water voles disappeared from many waterways. If this Kirklees reintroduction programme is successful, water voles could thrive here once more. © River Holme Connections



Kirklees – Local authority landowner

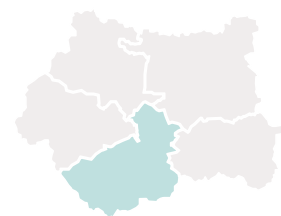
Dewsbury's newest public open space restores land for people and nature

Dewsbury Country Park, once the site of the Lower Spen Valley Landfill, is being transformed into a vibrant greenspace 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 an area 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

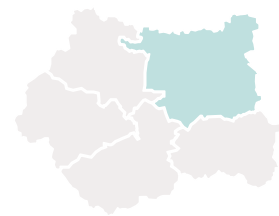
Reconnecting fragments of ancient woodlands in Kirklees with the White Rose Forest

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 forces 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.





Leeds – Private landowner

Harewood Estate's decade-long landscape restoration journey

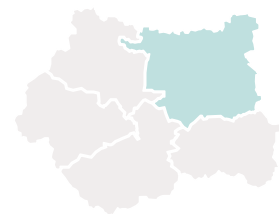
The iconic Harewood Estate is embarking on a bold, 10-year landscape restoration project to breathe new life into its historic parkland, woodlands and gardens. The aim is to enhance biodiversity, sustainability and visitor experience, creating a living landscape that delivers more benefits for both wildlife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

Spanning 4,000 acres, the estate is a treasure trove of history and nature, featuring more than 100 listed structures, 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 prioritises 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 and 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.



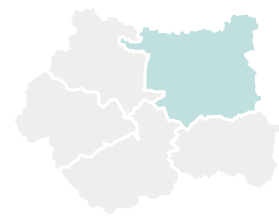
These measures not only support threatened species but also enhance the sustainability and resilience of the estate, reducing reliance on pesticides and fertilisers, while maintaining productive, high-quality crops.

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

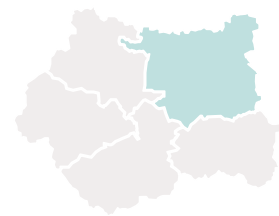
Taking swift action for wildlife at homes in Leeds

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, such as the Calderdale Swift Project in North Halifax and Todmorden, as well as Wakefield Swifts, are helping to create a network of 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

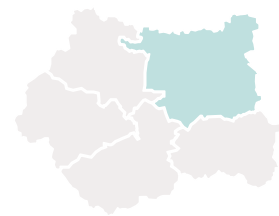
Once an open-cast coal mine in the Aire Valley between Leeds and Castleford, the site that is now RSPB St Aidan's Nature Park was flooded in 1988 following a riverbank collapse. Leeds City Council's Minerals Planning Team guided the restoration of the land to be designed for nature and people and negotiated 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 bittern, 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, taking 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 greenspace, 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.

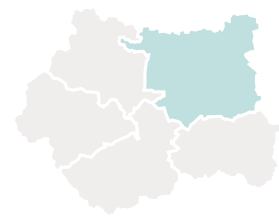
Once straightened and constrained, parts of the beck are now being ‘re-wiggled’, allowing it to follow a more natural, meandering course. Along its banks, a newly planted riparian buffer strip of native trees provides shade for aquatic wildlife, stabilises the riverbank and creates habitat, while fencing 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.



Tyersal Beck in Leeds was once artificially straightened, causing environmental damage. Now re-wiggled, it meanders once more.
© Aire Rivers Trust / Environment Agency



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 greenspaces, 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.

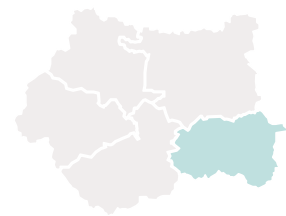
The university's commitment extends beyond the campus. In partnership with Brudenell Primary School, it has also planted a forest garden to connect children with the natural world. The Roger Stevens Pond, once a cooling pond, is now a biodiverse area used for research and relaxation, featuring floating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





Wakefield – Community Action

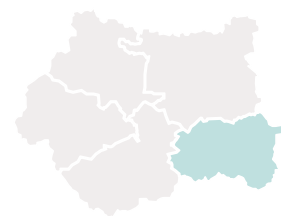
Digging deep to recreate a network of freshwater habitats

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

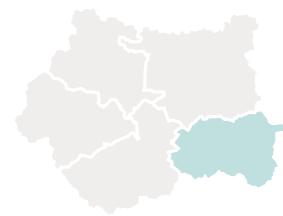
With just 3.8 per cent of woodland cover, compared to the national average of 10.5 per cent and Europe's 30 per cent, Wakefield is one of the least wooded districts in the country. To change that, Wakefield Council has partnered with the White Rose Forest – part of the ambitious Northern Forest programme 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.



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'.



Invasive scrub had smothered rare wet heath at Seckar Wood in Wakefield. The council, with volunteers, cleared it. The heath is now recovering. © Wakefield Council

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 smother 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.

Part 6

Appendices



Appendix 1:

Strategic context

This section contains the key plans and strategies considered for this **West Yorkshire Local Nature Recovery Strategy**. We also want to make sure that the 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 30 by 30

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 4 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 West Yorkshire 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 Strategic Plan 2025-2050

This 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 insight 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.

[†] 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.

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 as big an 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.



Appendix 2:

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^[42].

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.

[42] 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/>

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



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.

	Economic resilience	Net Zero	Climate adaption	Food security	Health and wellbeing	Water security
Timber and other wood products	▲					
Produce from the sea	▲			▲		
Cultivated crops	●			●		
Plentiful water	▲	▲	▲	▲	▲	▲
Reared animals and outputs	▲			▲		
Clean water	▲			▲	▲	▲
Clean air	●				●	
Noise regulation	●				●	
Urban cooling	●		●		●	
Erosion control	▲		▲	▲		▲
Flood protection	▲		▲	▲	▲	▲
Polination	●		●	●		
Thriving plants and wildlife	▲	▲	▲	▲	▲	▲
Pest and disease control	●		●	●		
Climate regulation	▲	▲	▲	▲	▲	▲
Cultural benefits	▲				▲	

Key

High risk



Medium-high risk



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** – Blue and green links rich in nature through, between and beyond towns and cities
- B3** – Species-rich 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 will reduce the significant risks that important West Yorkshire policy areas face from a natural environment that is degraded and failing.

Appendix 3:

Targets and evaluation

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 are being developed, with **details still to be agreed**. They reflect the strategy's vision and three objectives (see above) around species and habitats, ecosystem services, and people.



Unequal access. Less than half of people who live in West Yorkshire can easily and safely walk to a natural greenspace such as the Leeds-Liverpool canal within 10 minutes.

Target 1: A decrease in the number of Yorkshire Species of Concern deemed as 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 rewetted peatland 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.

Appendix 4: Public ecosystem services from priority ‘teamwork’



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



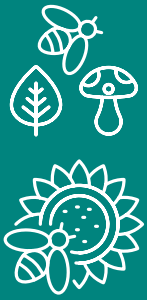
Urban cooling

- **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 woodlands 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 woodlands 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 woodlands 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 woodlands 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 woodlands 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 woodlands 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 5: Values – Pricing nature, caring for 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^[43].

- 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 (annual values in 2010 prices).
- 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 per annum**.
- Restoring peatlands to reduce carbon can deliver climate benefits worth between **£664 and £4,313 per hectare annually**.
- Healthy soil, often overlooked, provides erosion control services worth up to **£241 per hectare per annum (2009 prices)**.
- 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 (2022 prices)**.
- 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 attempt to make the case that investing in nature is not just about conservation, it's about securing economic, social, and environmental prosperity – 'national wealth'^[44] – for generations to come. The Dasgupta review^[45] concluded that the economic benefits of strong and early action to reduce biodiversity loss far outweigh the economic costs of not acting.

[43] 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>

[44] 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/>

[45] 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 treating nature as an asset that generates calculable benefits[†] is the best way to persuade people to invest in nature recovery.

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.

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. 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^[46].



Value and values. The cost of not restoring nature in West Yorkshire would be astronomical. Price-tags alone cannot express what nature means to people and what motivates us to act. © Street Space

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

[46] 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/>

Appendix 6:

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	These are England's most valuable habitats. They have a high biodiversity value and have significant protection in the National Planning Policy Framework. For West Yorkshire, these are: ancient woodland, ancient and veteran trees, blanket bog and lowland fens.

Term	West Yorkshire Local Nature Recovery Strategy definition
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 8:

Further reading and resources

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Zero Carbon Calderdale (2023) Calderdale Climate Action Plan 2023-26. Strategy for Calderdale Council. [Online.] [Accessed 08/09/2025.] Available at: <https://new.calderdale.gov.uk/>



Resources

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**To find out more about the Local Nature
Recovery Strategy and sign up for updates**

[www.westyorks-ca.gov.uk/resources/
local-nature-recovery-strategy/](http://www.westyorks-ca.gov.uk/resources/local-nature-recovery-strategy/)



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