Draft Worcestershire Local Nature Recovery Strategy

Statement of Biodiversity Priorities

August 2025

worcestershire county council

Foreword

This Local Nature Recovery Strategy sets out a clear vision and practical actions to halt and reverse the decline of nature in Worcestershire. It provides a roadmap for restoring habitats, connecting wildlife corridors, and engaging communities in nature's recovery. To restore nature, we all have a role to play; residents, gardeners, farmers, local businesses, local government and community groups can all help.

Worcestershire is renowned for its rolling hills and ancient woodlands, its orchards and meadows, and vibrant river valleys. Our county's distinctive landscapes, from the serene Malvern Hills to the lush Severn Vale, not only inspire residents and visitors but also provide vital habitats for a rich diversity of wildlife. The benefits our natural environment provides are fundamental to our identity, well-being, and quality of life.

Despite this, Worcestershire's habitats and species are facing unprecedented challenges. Nature's decline is urgent and alarming: recent studies show that one in six species are threatened with extinction and over 40% of the UK's species have declined in the last 50 years. Nature is under increasing pressure from habitat loss, fragmentation, climate change and pollution. Worcestershire's wildlife is not exempt from these national trends.

Together, we can make a difference: changes in our gardens like creating "hedgehog highway" gaps in fences, allowing parts of our gardens to remain wild and untidy, making a garden pond, reducing pesticide use or putting up a swift nest box might all feel like 'small' actions, but multiplied across the county, cumulatively, we can make a massive difference and help to reverse nature's decline. Together, these small changes will help the return of our wildlife, like the once common sights of hedgehogs and swifts.

Making the right investments in nature recovery supports sectors including agriculture, forestry, tourism, and recreation. The value of the benefits we obtain from nature in the UK was calculated at £87 billion in 2022. Investing in nature's recovery is not just an environmental imperative for its own sake; it's an economic opportunity. Natural Flood Management schemes, floodplain restoration, woodland planting and sensitive management of watercourses and field margins are all increasingly recognised as cost-effective ways to reduce flood risk, enhance wildlife habitats and improve water quality.

Together, by valuing, protecting, and investing in Worcestershire's natural heritage, we can ensure our beautiful landscapes and vibrant ecosystems endure and flourish. I encourage everyone to embrace this strategy and join us in safeguarding the remarkable natural environment that enriches our county, now and for generations to come.

Ian Cresswell
Cabinet Member for Environment
Worcestershire County Council

Contents

Executive Summary

A Local Nature Recovery Strategy (LNRS) is a spatial strategy required by the Environment Act 2021 to guide where and how nature recovery can best be achieved.

The Worcestershire Local Nature Recovery Strategy consists of two parts:

- A Statement of Biodiversity Priorities (this document)
- An interactive Local Habitat Map

The Local Habitat Map and user guides can be accessed here.

1. The role of Local Nature Recovery Strategies

The overarching purpose of a Local Nature Recovery Strategy is to set out agreed local priorities for nature's recovery, map the most valuable existing areas for nature, and suggest Potential Measures (on-the-ground actions) for creating or enhancing habitats and recovering populations of species.

Everyone who wants to contribute to nature's recovery will find suggested Potential Measures within the Worcestershire LNRS that are applicable to them. There are actions that people can take within their homes and gardens, as well as actions that can be taken by those who own or manage larger areas of land or water. Potential Measures suggested for recovering and enhancing nature are purely advisory, helping to guide landowners and land managers in making the best decisions.

The LNRS also has purposes which are defined in legislation:

1. Local Nature Recovery Strategies have a statutory role to spatially guide the delivery of Biodiversity Net Gain (BNG). Once published, a relevant LNRS must be the only document used to identify places and habitats of High Strategic Significance for nature in BNG calculations. To receive the Strategic Significance[1] uplift, the BNG habitat creation or enhancement must deliver the Potential Measure suggested for that location.
2. All public authorities[2] have a duty to conserve and enhance biodiversity and must "have regard" to relevant Local Nature Recovery Strategies in the process. This includes Local Planning Authorities within the process of plan-making. Consideration should be given to how areas mapped within a LNRS and the Potential Measures proposed for them should be reflected in the plan, including the extent of safeguarding which should be applied in those locations.

The legal framework for preparation of Local Nature Recovery Strategies is contained within Part 6 of the Environment Act 2021 (legislation.gov.uk).

Government policy on the preparation of Local Nature Recovery Strategies can be found here: Local nature recovery strategies - GOV.UK (www.gov.uk).

1 Applying the High Strategic Significance factor within Biodiversity Net Gain calculations provides an uplift of 15% when calculating the value of 'Biodiversity Units', based on the geographical location of where the habitat creation or enhancement takes place

2 A public authority is an organisations that carries out functions which are in the public interest, for example local councils, police and other emergency services, and housing authorities.

2. Worcestershire's biodiversity

The LNRS highlights the habitats and species which are currently of greatest importance within Worcestershire as well as what the key opportunities are for recovering or enhancing nature. The county is nationally important for habitats such as lowland meadow, traditional orchard, ancient woodland and ancient trees, and has an obligation to protect and enhance such habitats where they currently exist as well as look to the future with a vision to create and restore more, bigger and better areas of well-connected, well-managed habitat. Opportunities to recover nature are also linked to the delivery of wider benefits both for the environment and for people. For example, Worcestershire's extensive river valleys offer a huge restorable resource of valuable floodplain grasslands, which could provide habitat for threatened species such as Curlew, support an improvement in water quality in our rivers, sequester carbon, and store water for longer to reduce the impacts of flooding.

Our wildlife living in these habitats is equally special. Some of the species for which Worcestershire is notable exist here due to the high concentration of traditional orchard and ancient trees, for example the Noble Chafer beetle and other decaying wood-dependent insects. Our lowland meadows are home to grassland butterflies such as the Marbled White and plant species including Cowslip, Dyer's Greenweed, Adder's-tongue Fern and Green-winged Orchid. Our main rivers are breeding grounds for European protected fish species such as the Atlantic Salmon and Twaite Shad, whilst smaller and more isolated watercourses support small remaining populations of White-clawed Crayfish. Our ancient woodlands are home to Dormice, Wood White butterflies, and plants such as Narrow-leaved Helleborine.

3. Protecting nature

The LNRS defines Worcestershire's existing Areas of Particular Importance for Biodiversity (APIBs). These are sites with a statutory or non-statutory nature conservation designation, which form the core of our county's existing nature network. 16,727.9 hectares of land within Worcestershire (9.6% of the total land area) is covered by one of these designations. Of that total, 3,900 hectares across 115 individual sites are protected by (EU) Special Area of Conservation, (UK) Site of Special Scientific Interest, or (UK) National Nature Reserve legislation. Many more sites are identified through local, non-statutory systems as being of at least county importance for the habitats and species that occur on them. In Worcestershire these sites are called Local Wildlife Sites, Local Geological Sites, Roadside Verge Nature Reserves and Grassland Inventory Sites. Worcestershire also has parts of two nationally protected landscapes: the Malvern Hills National Landscape and the Cotswolds National Landscape.

Government has made an international commitment that 30% of England's land and seas should be effectively conserved and enhanced for nature by 2030: the '30 by 30' target. In preparing the LNRS and mapping suggested Potential Measures, consideration was given to how Worcestershire can contribute to this international obligation. Under the criteria for what currently counts towards 30 by 30, Worcestershire's baseline is 3.4% of our land area.

Explore the Local Habitat Map

4. Threats and pressures on nature

Great Britain is one of the most nature-depleted countries in the world. Habitats and species are under huge pressure from threats including the loss of natural habitat to development, the severance of habitat corridors by our transport infrastructure, the long-term effects of intensive agriculture, invasive or non-native pests and diseases, and pollution that severely affects water quality in our rivers and streams. The impact of global climate change will challenge both the natural environment and people, requiring steps to mitigate and adapt to hotter, drier summers and warmer, wetter winters.

The Worcestershire State of Nature Report 2023[3] set out how some of these threats are impacting biodiversity within our county, with statistics including that just 1.5% of our watercourses are in good ecological condition. The Potential Measures proposed by the LNRS aim to address some of these threats and reverse the declines in habitat quality and extent that have led to species loss and the degradation of our natural resources.

5. Worcestershire's Biodiversity Priorities

The LNRS proposes 68 Biodiversity Priorities, including 38 focused on the creation and enhancement of habitats, 26 focused on supporting the recovery of populations of species, and 4 focused on protecting and improving the condition of two of our most fundamental natural resources: soil and water.

The Biodiversity Priorities and their associated Potential Measures are grouped into six themes containing the habitats and environmental issues considered to be a priority for Worcestershire. In addition, 16 individual species and 10 species assemblages (incorporating a further 35 species) have been prioritised as needing bespoke Potential Measures to support the recovery of their populations or expansion of their range.

3 65847 Worcestershire State of Nature Report

Explore the Local Habitat Map

Worcestershire's Biodiversity Priority themes:

Water and Wetlands	Rivers and streams	Groundwater dependent habitats	Still freshwater habitats	Fen, marsh, swamp and reedbed	Saline habitats	
Trees, Scrub and Woodland	Native woodland and trees	Hedgerows	Wood pasture and parkland	Ancient and veteran trees	Scrub	Traditional orchard
Open Habitats	Floodplain meadow and wet grassland	Lowland meadow	Acid grassland and lowland heathland	Calcareous grassland	Arable farmland habitats	
Habitat Connectivity	Local sites network	Strategic nature corridors	Road verge management	Artificial light at night		
Earth Heritage	Soils	Rock and scree habitats				
Green Infrastructure	Green spaces in the built environment	Ecological sensitivities or contraints				

Explore the Local Habitat Map

Worcestershire's Species Priorities:

Species

Individual Species

Water vole	Adder	Dormouse	Pied Flycatcher	Hedgehog
Nightingale	Brown Hairstreak	White-clawed Crayfish	Toad	Tutle Dove
Kentish Glory	True Service Tree	Black Poplar	Six-spotted Pot Beetle	Longhorn Lime Beetle
Poplar Leaf-rolling Weevil				

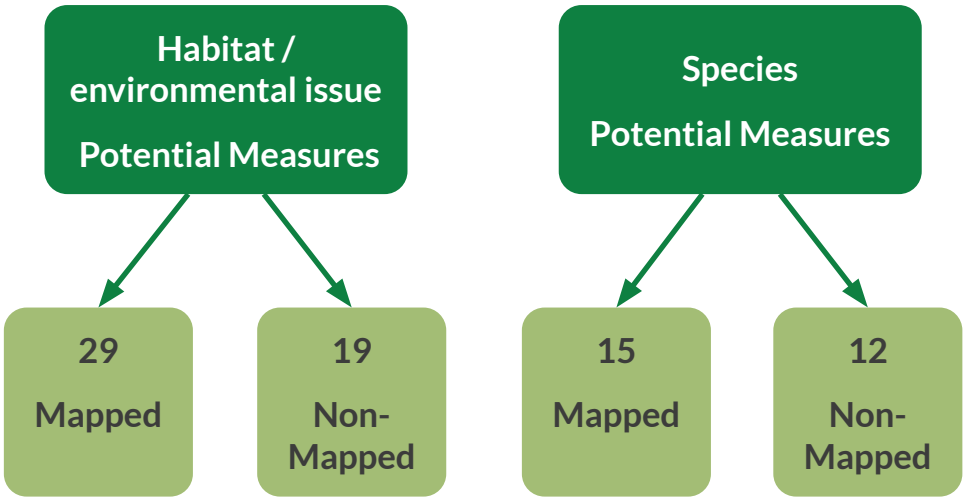
Species assemblages

House Martin & Swift	Barbastelle and Bechstein's bats	Lapwing, Curlew and Redshank	Narrow-leaved Helleborine and White Helleborine	Corn Bunting, Grey Partridge and Yellow Wagtail
Pearl-bordered Fritillary & Small Pearl-bordered Fritillary	Greater Horseshoe, Lesser Horseshoe, Brandt's and Serotine Bats	Elongated Sedge, Alder Bolete, Pholiota lucifera and Laccaria purpureobadia	Tower Mustard, Deptford Pink, Sand Catchfly, Round-leaved Wintergreen and Round-leaved Sundew	European Eel, Sea Lamprey, River Lamprey, Brown trout, Atlantic Salmon, Allis Shad, Twaite Shad and Barbel

Explore the Local Habitat Map

6. Potential Measures for recovering and enhancing nature

The LNRS suggests a series of Potential Measures for recovering and enhancing nature. These are practical actions which will achieve the biggest gains for nature when delivered in the right location. The Local Habitat Map which accompanies the strategy displays 44 mapped Potential Measures, which are targeted to specific locations. There are also 31 non-mapped Potential Measures, which would be beneficial for nature anywhere within Worcestershire.



7. Wider environmental benefits of nature recovery

Delivering gains for nature through the creation and enhancement of habitats can also deliver wider benefits for the natural environment and for people. The LNRS identifies 9 important environmental co-benefits to nature recovery and considers how the Potential Measures suggested for Worcestershire can contribute to delivering these.

The environmental co-benefits used by the LNRS are:

- Air Quality
- Water Quality
- Water Availability
- Flood Risk Reduction
- Soil Health and Protection
- Carbon Sequestration
- Pollination Services
- Climate Regulation
- Health and Well-Being

Explore the Local Habitat Map

8. How you can use the Local Nature Recovery Strategy

The Local Habitat Map is the primary way to discover which mapped Potential Measures might best benefit nature in your location. The Local Habitat Map and user guides can be accessed here.

The Local Nature Recovery Strategy (LNRS) is not a delivery plan. Landowners of the areas mapped are not obliged to deliver the opportunities identified. It does not prevent land use change. The habitat map is not definitive; it is based on the best available data at the time and may therefore not always accurately reflect what is on the ground. Before undertaking a Potential Measure, permission from the landowner must be granted, the necessary surveys/assessments must be undertaken, and appropriate consents and approvals obtained from relevant authorities.

The full table of Potential Measures in Section 4.3 of this strategy document lists both mapped and unmapped Potential Measures. The unmapped measures can be delivered anywhere, as long as existing valuable habitats are protected, and the current land use would support the intended change or enhancement.

A series of guidance notes have been published to help everyone in Worcestershire take part in the effort to recover nature. The guidance notes are written for different audiences and will help you to select the most appropriate Potential Measures to deliver in your location. Find the guidance notes on the Worcestershire County Council LNRS webpage.

9. Implementation, monitoring and review of the LNRS

Legal mechanisms for implementation of the LNRS are Biodiversity Net Gain and the delivery of the 'Biodiversity Duty[4]', which places a legal obligation on public authorities to conserve and enhance biodiversity. It is expected that other mechanisms, including Government funding for nature recovery or the delivery of environmental services, will in future require alignment with LNRS Potential Measures.

As part of English government devolution[5] the role of coordinating and delivering LNRS will fall to Strategic Authorities and this is likely to comprise convening local partnerships, helping to coordinate practical action, seeking and securing funding, coordinating investment in nature recovery and wider environmental delivery, and monitoring and reporting on delivery of LNRS.

The Secretary of State will authorise the reviewing and republishing of LNRS within a period of 3-10 years. This review will show what actions have been taken for nature recovery since the LNRS was last published and consult with stakeholders to agree the Priorities and Potential Measures that should be taken forward into the next iteration of LNRS.

4 Complying with the biodiversity duty - GOV.UK
5 English Devolution White Paper - GOV.UK

Chapter 1. Introduction

What is this document?

This is the Local Nature Recovery Strategy (LNRS) for the county of Worcestershire.

The strategy has been prepared by Worcestershire County Council (the 'Responsible Authority' for LNRS preparation), assisted by seven 'Supporting Authorities' and a steering group of local stakeholder organisations and experts.

In Worcestershire, the Supporting Authorities for LNRS preparation are Natural England, Bromsgrove District Council, Malvern Hills District Council, Redditch Borough Council, Worcester City Council, Wychavon District Council, and Wyre Forest District Council.

Preparation of the LNRS was assisted by the following organisations:

- Bumblebee Conservation Trust
- Canal & River Trust
- Environment Agency
- Farming and Wildlife Advisory Group
- Forestry Commission
- Heart of England Forest
- Herefordshire and Worcestershire Earth Heritage Trust
- Kemerton Conservation Trust
- Malvern Hills National Landscape
- National Trust
- National Farmers Union (NFU)
- Severn Rivers Trust
- University of Worcester
- Worcestershire Biological Records Centre
- Worcestershire Local Enterprise Partnership
- Worcestershire Wildlife Trust
- Wyre Community Land Trust

Explore the Local Habitat Map

What is the purpose of a Local Nature Recovery Strategy?

The core purpose of the LNRS is to set out agreed local priorities for nature's recovery, map the most valuable existing areas for nature, and map specific proposals ('Potential Measures') for creating or enhancing habitats and recovering populations of species.

The strategy is accompanied by a Local Habitat Map, which shows existing areas of particular importance for biodiversity, and areas that could become of particular importance if the Potential Measures for nature recovery are undertaken in that location.

Government policy on the preparation of local nature recovery strategies can be found here Local nature recovery strategies - GOV.UK (www.gov.uk).

The legal framework for preparation of local nature recovery strategies is contained within Part 6 of the Environment Act 2021 Environment Act 2021 (legislation.gov.uk).

How to use the Local Nature Recovery Strategy

To be fit for purpose the LNRS must guide and inform nature recovery activity and provide a clear understanding of what the priorities and proposals for on-the-ground action mean for those who wish to contribute to delivery of the strategy. Guidance on how to use the LNRS will be published alongside the final document containing information for the following audiences:

- Nature recovery for owners and managers of farmland
- Nature recovery on sites already of importance for biodiversity (for example Sites of Special Scientific Interest and Local Wildlife Sites)
- Nature recovery on land owned by public or statutory bodies and non-farming businesses (for example road and rail corridors, industrial and retail parks, National Health Service (NHS) estate, His Majesty's Prison (HMP) estate)
- Nature recovery within communities or in schools
- Nature recovery at home and in gardens
- Nature recovery through Biodiversity Net Gain

Preparation of the Local Nature Recovery Strategy

Timeline

November 2022
LNRS Steering Group formed consisting of key partners and stakeholders

January-December 2023
LNRS preparation timetable drafted

Phase 1 Task & Finish Groups operational to:

1) Prepare Stakeholder Engagement Plan
2) Prepare Worcestershire State of Nature Report
3) Consider data requirements for Local Habitat Map
4) Prepare documents for Issues and Options Consultation

November 2023
Worcestershire State of Nature Report published

January-February 2024
Issues and Options Consultation live

May 2024-February 2025
Phase 2 Task & Finish Groups operational to:

1) Prepare the final list of draft Biodiversity Priorities
2) Collate and analyse species data
3) Prepare table of suggested draft Potential Measures
4) Prepare draft Local Habitat Map

April-June 2025
Preparation of documents for Draft LNRS Public Consultation and seeking of authorisation from Supporting Authorities

Summer 2025
Draft LNRS Public Consultation

TBC
Publication of Worcestershire Local Nature Recovery Strategy

Explore the Local Habitat Map

Stakeholder engagement

Local Nature Recovery Strategies should be produced in collaboration with partners and stakeholders from all sectors. Strategies should seek to provide a single vision for nature recovery and the use of nature-based solutions that speaks to all interested parties within the strategy area. Strategies must include locally agreed priorities for nature's recovery that have been decided on collaboratively and transparently, using the best available local knowledge and expertise. Effective stakeholder engagement is vital to achieving this.

Key aspects of stakeholder engagement undertaken in the preparation of the Worcestershire Local Nature Recovery Strategy include:

- An Issues and Options Consultation which ran during January-February 2024 and received almost 200 responses. People told us what they felt the biggest threats were to nature in Worcestershire, what they felt the habitat and species priorities for the county should be, where they believed the best opportunities were to deliver the biggest gains for nature, and what wider environmental benefits those actions for nature had the potential to achieve.
- A series of focused workshops with key partners and local experts to develop and refine the draft Biodiversity Priorities and suggested Potential Measures.
- A series of farming events including a Nature-Friendly Farming conference in November 2024, which collectively brought together around 100 landowners, farm advisors and land agents. Attendees heard about and gave feedback on the emerging draft of the LNRS, listened to talks which showcased existing nature recovery projects, and were signposted to potential sources of funding for the delivery of nature recovery and environmental outcomes.
- Attendance at meetings or events to present and obtain feedback on the emerging LNRS from groups including: National Farmers Union; Country Land and Business Association; Local Access Forum; County Association of Local Councils; Worcestershire Local Nature Partnership; Worcester Nature Forum; Worcestershire Local Authority Planning Officers; Severn Trent Water; Worcester Show; Westlands Residents Group.
- A series of short films focused on nature recovery in Worcestershire and the upcoming LNRS public consultation, which have received nearly 600 views on YouTube.

The full Stakeholder Engagement Report can be found on the LNRS Evidence Base webpage.

Chapter 2. The State of Nature in Worcestershire

Further resources to support this section:

1. Worcestershire State of Nature Report 2023. This document was a key part of our evidence base for the LNRS Issues & Options Consultation and preparation of the Local Nature Recovery Strategy. The full report can be found here.
2. Worcestershire Habitat Inventory (WHI) maps habitat distribution and land use across the county. The WHI uses a combination of paper-based records, land-use datasets, aerial imagery, and a machine learning[6] process of analysis to incorporate a range of remote sensing data.
3. Worcestershire Landscape Character Assessment is a tool for identifying the patterns and individual combinations of features that make each type of landscape distinct and special to those who live and work in it.
4. LNRS State of Nature Storymap Collection

A Local Nature Recovery Strategy must include a description of the biodiversity of the strategy area. This should set out the habitats and species found in the area, any changes that have occurred in their distribution or extent, their local or national importance or whether they could feasibly become of importance. The LNRS should also identify the threats and pressures facing our wildlife and the wider environmental issues impacting the strategy area. This section of the strategy sets out this information and the LNRS State of Nature Storymap Collection provides supporting content.

6 A computational process where the use of statistical models and algorithms (rather than direct instruction) allows a computer to adapt and learn how best to draw inferences from patterns in data.

2.1 Worcestershire's landscape and ecology

Geology and soils

Our landscape and natural environment have been shaped by hundreds of millions of years of geological activity, resulting in a mosaic of different rock types that yield a rich patchwork of soil types. Within Worcestershire geological exposures can be found that date up to 700 million years ago, with the Malvern Hills incorporating one of the largest and best-exposed outcrops of Precambrian (<680 million years) rocks in England[7]. This geological diversity gives the county its ability to support a range of wildlife habitats and species.

Landscape Character

Landscape character describes the combined effects of the natural and the cultural processes which shape an area's unique landscape. The differences are sometimes subtle but variations in our landscape support different habitats and species and contain different characteristics inherited from past generations. Landscapes are not static and are constantly evolving due to long-term geological processes and the natural succession of habitats, but also due to how the land is used and managed by people. The county Landscape Character Assessment[8] maps these unique variations to 449 Landscape Description Units, which are assigned to one of 22 distinct Landscape Character Types.

Habitats and species

Worcestershire has some incredible natural habitats and an amazing diversity of species living within them, from common species to those for which our county is nationally important. To learn more about the UK's wildlife further information can be found at:

- Worcestershire Wildlife Trust - www.worcswildlifetrust.co.uk/wildlife
- Butterfly Conservation - butterfly-conservation.org
- Mammal Society - mammal.org.uk
- Bat Conservation Trust - www.bats.org.uk
- Buglife - www.buglife.org.uk
- British Dragonfly Society - british-dragonflies.org.uk
- RSPB - www.rspb.org.uk
- Amphibian and Reptile Conservation Trust - www.arc-trust.org

Wetland habitats

Worcestershire has extensive areas of **wet grassland** and **floodplain meadows** within its river valleys but what remains is very vulnerable to loss. Historically, floodplain meadows were managed to allow regular inundation by floodwater and were used to provide a hay crop and 'aftermath' grass growth for livestock grazing. Important plant species on these sites can include **Tubular Water-dropwort** and **Great Burnet** and they can be rich in insect life. Other wet grasslands are also present as damper habitat surrounding ponds, lakes and drainage channels.

7 Malverns Complex - Earth Heritage Trust

8 Landscape Character Assessment | Worcestershire County Council

Explore the Local Habitat Map

The level of historic loss and degradation of this habitat seen at a national level – an estimated 42% of floodplains in England have been separated from their river[9] – is very likely to be mirrored in Worcestershire. The habitat supports breeding, over-wintering and passage wetland and wader birds such as **Lapwing, Curlew** and **Redshank**, with some sites along the lower River Avon and River Severn being functionally linked with larger areas of protected habitat in the Severn Estuary.

Rivers and streams provide a vital wildlife corridor, linking fragmented habitats through often intensively farmed rural as well as urban landscapes. Worcestershire has seven main rivers: the Severn – the longest river in the UK at 354km – the Avon, the Teme, the Stour, the Salwarpe, the Arrow and the Isbourne. Most of these are typical of lowland rivers in that they meander through large floodplains. Hundreds of smaller watercourses also crisscross our landscape, nourishing other water-dependent habitats such as lakes and fens, and providing habitat for some of our most iconic mammals, such as **Water Vole** and **Otter**, and birds including **Kingfisher** and **Heron**. Worcestershire has some small remaining populations of the threatened **White-clawed Crayfish**, and the county has nationally important numbers of the **Common Clubtail** dragonfly. **Daubenton's Bats** specialise in hunting insects just above the water's surface along our river corridors. Our rivers are internationally important for several species of migratory fish, such as the **Twaite Shad**, **Atlantic Salmon** and the **European Eel**, which all travel huge distances between feeding and spawning grounds.

The value of **ponds and lakes** to wildlife is huge. The Worcestershire Habitat Inventory maps 8,020 ponds under 2 hectares in size (most are vastly smaller than this) and 53 water bodies over 2 hectares in size. The average pond density is 4.6 ponds per square kilometre throughout the whole county, with significant regional variation between 0-8.2 per square kilometre. Worcestershire has nationally significant strongholds of **Great Crested Newts** due to the prevalence of these unique high-density pond landscapes. Other important species living in ponds and associated wetland habitat include T**oad** and **Common Frog**. Several sites in Worcestershire are known for their diversity and abundance of dragonflies, including species such as the **Emperor Dragonfly, Southern Hawker** and **Large Red Damselfly.** Hartlebury Common contains an important acidic valley mire pool offering a unique plant assemblage, currently threatened by depleted groundwater levels.

Canals are a significant part of the green infrastructure network and have unique built, industrial, and cultural heritage. Canals provide important habitat for mammals such as **Otter, Water Shrew** and **Water Vole**, whilst bridges and tunnels can provide roosting, foraging and hibernation sites for **Lesser Horseshoe** and other species of bats. Reedbed fringes and off-line ponds add to the mosaic of habitats available to wildlife along the canal network. Worcestershire has almost 69 miles of canals, all of which is listed as Local Wildlife Sites. Bittell Reservoirs at Barnt Green, built to provide water to the Worcester and Birmingham Canal, is designated as a Site of Special Scientific Interest.

9 Floodplain Meadows in LNRS: key facts and background. Floodplain Meadows Partnership, 2024.

The extent of the historical loss of **fen and marshland** habitat is enormous: it is estimated that 3,400km2 of fen was present in England in the 17th century, but only 10km2 remains today[10], lost to agricultural drainage, development and neglect. Once common, it would have been found around groundwater-fed springs and seepages, and in river floodplains alongside other wetland habitats, such as at Longdon Marsh in the southwest of Worcestershire. Patches of fen and marshland surviving in Worcestershire now are generally fragmented and small, but those that remain and which are under restoration, such as Feckenham Wylde Moor, are extremely valuable, supporting species such as **Ragged Robin, Lady's Smock** and **Southern Marsh Orchid**. Marshland birds such as Snipe also still breed in the county in small numbers.

There are around 5,000 hectares of **reedbed** in the UK, but of the 900 or so sites contributing to this total only about 50 of those are greater than 20 hectares[11]. Reedbeds are not common or extensive in Worcestershire, although they do have a countywide distribution. The main resource is found on just 20 sites, including nature reserves such as Wilden Marsh, Upton Warren and Gwen Finch, with many other small pockets of reedbed in ponds and narrow fringes of habitat along rivers and ditches. The Droitwich Canal also supports locally significant reedbed habitat. Reedbeds are particularly important for the bird species they can support, including **Reed Bunting, Reed Warbler, Sedge Warbler, Cetti's Warbler** and **Water Rail**. Starling frequently roost in reedbeds and during winter months large murmurations can be seen over many of Worcestershire's reedbeds.

10 Fens - Freshwater Habitats Trust

11 Reedbeds | Wildfowl and Wetlands Trust

Wooded habitats

10% of Worcestershire's land area is covered in **woodland**, around 17,500 hectares; less than the UK average of 13.2%. However, the county does contain significant coverage of ancient woodland: 3.6% of land cover compared to the UK's 2.4%. Ancient woodland stretches to 6,253 hectares, including nationally important sites such as the Wyre Forest, Chaddesley Wood and Tiddesley Wood[12]. Important ancient woodland indicator species found in Worcestershire's woodlands include the **Wild Service** tree, the even rarer **True Service** tree, the **Small-Leaved Lime**, and ground flora such as **Bluebell, Herb-Paris, Dog's Mercury** and **Wood Anemone**. Northwest Worcestershire is particularly rich in woodland cover, and the influence of former Royal Forests and Chases is evident across the eastern central part of the county. Some of our woodlands, such as Monkwood and Grafton Wood, are important for woodland warblers including **Blackcap** and **Chiffchaff**. Woodlands in the west of Worcestershire support locally important populations of **Dormouse**. Many of our scarcer bat species also use woodland to hunt and to roost, including the rare **Bechstein's Bat**. Woodland butterflies important in Worcestershire include **Wood White** and **Pearl-bordered Fritillary**, whilst the Wyre Forest is important for scare moths such as **Common Fan-foot** and **Drab Looper**.

Historical estimates of the extent of **wet woodland** in the UK are in the region of 50,000-70,000 ha[13]. The Worcestershire Habitat Inventory (WHI) records a total of 112 hectares of wet woodland, mostly occurring as riparian woodland alongside rivers and streams, or associated with springs or flushes, wooded river valleys, old mineral workings and mill pools. This habitat is important for **Otter**, and for birds including **Willow Tit** and **Lesser Spotted Woodpecker**.

Because of the dampness and humidity wet woodlands are often rich in **mosses** and **lichens**, and they provide perfect habitat for many species of insects including those **craneflies** whose larvae are aquatic.

Hedgerows are characteristic of much of Worcestershire's countryside. Since 1945, 50% of Worcestershire's land area has undergone some kind of landscape character change, 28% of which resulted from field boundary loss through hedgerow removal in support of agricultural intensification[14]. Ancient hedgerows derived from woodland clearance may contain woody species such as **Wild Service** or **Small-Leaved Lime**. Worcestershire also lost very large numbers of hedgerow elm trees to Dutch Elm disease in the 1970s and 1980s, although **English Elm** is still an important surviving hedgerow shrub component in the county. Hedgerow networks in eastern Worcestershire provide the young, suckering blackthorn egg-laying habitat required by the **Brown Hairstreak** butterfly. Farmland bird species such as **Yellowhammer** and **Whitethroat** use hedgerows as nesting habitat and as features in the landscape to mark out and defend territories.

12 All data on the extent of woodland habitat in Worcestershire provided by Forestry Commission, 2024.

13 Wet woodland (UK BAP Priority Habitat description)

14 Worcestershire Landscape Character Assessment

The conservation value of **scrub** is often overlooked, but it can provide nectar, foliage and fruit, nesting habitat for birds such as **Linnet, Blackcap** and **Whitethroat**, and young blackthorn scrub provides egg-laying habitat for **Brown Hairstreak** butterfly. **Nightingale** requires patches of very dense woodland or woodland edge scrub habitat for breeding and Worcestershire is on the very northwestern edge of this bird's range. Scrub edges to fields provide a refuge for grassland plant species that are intolerant of grazing and shelter for insects. Scrub as part of a wetland or wet woodland mosaic can provide breeding or resting areas for **Otter**. Around 550ha of scrub woodland is mapped in Worcestershire, but this is limited to areas of scrub with a continuous closed-canopy greater than 0.25ha and is likely to be an underestimate.

Open habitats

Worcestershire is particularly significant for its **lowland hay meadows** and is thought to contain at least 20% of the habitat remaining in England. Iconic plant species of lowland meadows include **Common Knapweed, Lady's Bedstraw, Yellow Rattle** and **Green-winged Orchid**. This priority habitat also supports a rich insect life including species such as **Yellow Meadow Ant, Marbled White butterfly** and **Meadow Grasshopper**. Calcareous grasslands are most strongly associated with the Cotswolds scarp and outliers, although small areas of calcareous soils are found throughout the county, supporting species including **Bird's-foot Trefoil, Salad Burnet** and **Mouse-ear Hawkweed**.

Worcestershire's acid grasslands are found mostly along the tops and high slopes of the Malvern Hills, and in association with the heathland landscape of Wyre Forest district. Acid grasslands support species such as **Harebell, Wavy Hair Grass** and the **Hornet Robberfly**, and on the Malvern Hills the habitat supports a small but important population of **Adder**. In 2023 the total area of all unimproved semi-natural grassland types in Worcestershire was estimated to be 4,807 hectares, 2.8% of the county land area. 983.5 hectares of grassland is included within SSSI designations in Worcestershire: 398.49 hectares of lowland acid grassland, 48.49 hectares of lowland calcareous grassland, and 536.52 hectares of lowland neutral grassland[15].

Lowland heathland occurs at a number of geographically distinct sites across north Worcestershire although suitable soils are distributed across a much wider area, indicating that more extensive heathland may once have existed within the county. Our heaths support plant species such as **Bell Heather** and **Heath Dog Violet**, reptiles such as **Adder** and **Common Lizard**, the **Green Tiger Beetle**, and butterfly species including **Silver-washed Fritillary** and **Purple Hairstreak**. Worcestershire's heaths are linked ecologically and on landscape terms with those in Staffordshire, forming an area of landscape character known as the Mid Severn Sandstone Plateau[16].

15 All data on the extent of grassland habitat in Worcestershire taken from the *State of Worcestershire's Grasslands Report*, 2023.

16 Mid Severn Sandstone Plateau - National Character Area Profiles

Traditional orchards are a distinctive and much-loved feature of Worcestershire's landscape and can support significant biodiversity, including nationally rare, scarce, and declining species. The county is a hot spot for **Mistletoe** and for two insect species that live on it: the **Mistletoe Marble** moth and the **Mistletoe Weevil**. Along with Herefordshire and Gloucestershire, the county also holds nationally important populations of **Noble Chafer** beetle, whose larvae feed on the decaying timber of old fruit trees. Since 1950 the area of orchards in England has decreased by 63%, with up to 45% of remaining orchards in declining condition. Local data suggests that losses in Worcestershire may be closer to 85%. Despite this, the county still contains just over 2,000ha of the habitat, around 8% of all remaining traditional orchards in England[17].

Ancient and veteran trees are visible relics of past land-use, land-management, and land-ownership patterns whilst **wood-pasture and parkland** is a habitat structure consisting of large, open-grown trees situated within grassland maintained by grazing animals. They are especially valuable for the fungi, lichens, mosses and huge range of insects (1,700+ species) associated with decaying timber. In Worcestershire this includes **Stag Beetle** and **Violet Click Beetle**, the latter recorded from only three sites in Britain. Ancient trees provide nesting and roosting opportunities within their hollow trunks and fissured bark for both birds and bat species such as **Barbastelle**. Ancient and veteran trees are strongly associated with Worcestershire's many historic parks and gardens, as well as with woodland boundaries and hedgerows. In southeast Worcestershire there are nationally significant numbers of veteran **Black Poplar** pollards.

Around one third of Worcestershire's land area – c.60,000 hectares – is arable or horticultural **farmland**. Many different habitats for wildlife can be managed alongside farming operations, including species-rich hedgerows, ponds and nectar-rich wildflower margins. Birds such as **Lapwing** benefit from damp grassland and arable crops in proximity, with plots of bare ground provided for nesting. Bird seed plots coupled with grassy and flower-rich field margins benefit species such as **Corn Bunting** and **Yellowhammer**, as together these offer both the seeds required to feed adult birds and the insects needed for their chicks. Worcestershire is identified nationally as an important county for **arable flora**, a specialist group of plants growing on cultivated land and one of the most critically threatened groups of plants in Britain. These plants, such as **Common Poppy, Cornflower** and **Shepherd's Needle**, thrive in the habitat niches associated with bare soil and ground disturbance. Areas of rough, tussocky grassland provide ideal habitat for small mammals such as **Field Vole**, and consequently important hunting habitat for birds like **Barn Owl**.

Road verges are important wildlife corridors, usually comprised of grassland but often with trees and scrub, a hedgerow and perhaps an associated ditch or bank at the back. Worcestershire has a network of c. 8,000km of road verge. This includes a suite of Roadside Verge Nature Reserves identified as being valuable for wildflowers, including rare plant species such as **Tower Mustard** and **Deptford Pink**, or insect species such as **Glow Worm**. Many of the county's rural verges are remnants of the unimproved grassland that once existed in the field beyond the hedge, making road verges an important part of the network of lowland hay meadows in some parts of Worcestershire.

17 Traditional Orchard Project in England. Natural England Commissioned Report NECR077, 2011.

Urban habitats

Our cities, towns and villages can support a wide range of habitats and species. Urban habitats that can be rich in biodiversity include **public open spaces** such as allotments, churchyards, municipal parks, playing fields and school grounds, urban woodlands and community orchards. Worcester city is nationally important for **Swifts** and for its **Slow Worm** population, which can thrive in these types of habitats if left undisturbed. Linear features such as road verges, lines of street trees, and river, stream and canal corridors can also bring wildlife into urban areas. **Peregrine Falcons** nest in many of Worcestershire's major towns, making use of urban structures such as church spires that mimic their natural cliff and rock-face habitats. Many bat species have similarly adapted to living alongside the human population, with the **Common Pipistrelle** being the most widespread and frequently seen.

Brownfield sites, where previously built on or disturbed land is now disused, can also develop into a valuable habitat mosaic, particularly for plants and insects. The **Grizzled Skipper** butterfly is one species found in these habitats, recorded on old railway lines and sidings and old landfill sites. Approx 6% of Worcestershire's land area is residential **gardens**. Urban gardens managed sensitively for wildlife are extremely important habitat for **Hedgehogs**. A citizen science study[18] is measuring **tree canopy cover** in towns and cities. Four of Worcestershire's urban areas have been included in the study so far with the percentage of canopy cover (averaged over all Wards) in each calculated as: Bromsgrove: 13.4%; Kidderminster: 20.6%; Redditch: 25.4%; Worcester: 14.6%[19].

18 UK Urban Canopy Cover - Forest Research

19 Doick, K.J et al (2017). The Canopy Cover of England's Towns and Cities: baselining and setting targets to improve human health and well-being.

Explore the Local Habitat Map

2.2 Worcestershire's land use

Worcestershire has a total land area of 1,741km2 or 174,100 hectares, supporting a population of just over 600,000 people. Almost 75% of the county's population, approx. 440,000 people, live in our larger urban areas with around 160,000 people living in rural towns, villages or more isolated parts of the countryside. Developed areas of housing, commercial centres, roads and other infrastructure cover just under 15,000 hectares, with agricultural land, woodland, open spaces, water, gardens and other undeveloped land covering around 160,000 hectares[20].

Just over two thirds of our land area, 120,000 hectares, is farmed, generating £174 million annually for our economy and supporting 5,700 on-farm jobs. Arable and horticulture businesses account for around 63,000 hectares with livestock farming, including dairy, beef cattle, sheep, pigs and poultry, taking place on the remainder. Farmers also manage more than 5,300 hectares of farm woodland.

Within our four predominantly rural districts the percentage of land used for food production varies from 46% in Wyre Forest, through to 61% in Bromsgrove, 76% in Wychavon and 79% in Malvern Hills[21].

20 Government land use statistics https://www.gov.uk/government/statistics/land-use-in-england-2022

21 Government agricultural statistics: https://www.gov.uk/government/statistical-data-sets/structure-of-the-agricultural-industry-in-england-and-the-uk-at-june

2.3 Worcestershire's existing nature network

Areas of Particular Importance for Biodiversity (APIBs)

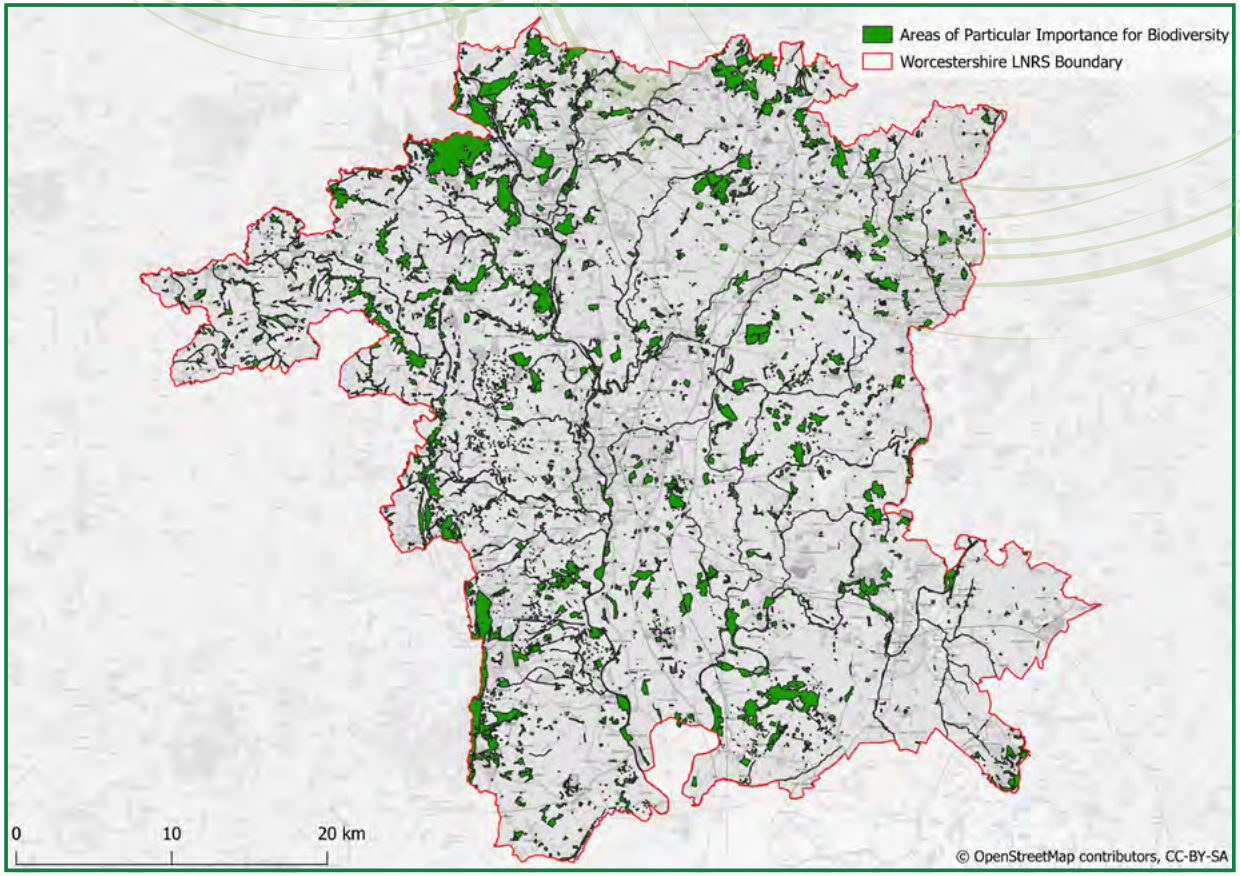
APIBs form the core of Worcestershire's existing nature network. They are defined by the LNRS statutory guidance and must appear on the LNRS Local Habitat Map. The most important of these sites are ones protected by EU or UK nature conservation legislation. Other sites are identified locally for their importance within the local nature network.

Nationally, APIBs consist of:

- Special Protection Areas (none in Worcestershire)
- Ramsar Sites (none in Worcestershire)
- Special Areas of Conservation
- Sites of Special Scientific Interest
- National Nature Reserves
- Local Nature Reserves
- Irreplaceable Habitat

In Worcestershire, other APIBs are:

- Local Wildlife Sites
- Local Geological Sites
- Roadside Verge Nature Reserves
- Grassland Inventory sites



Worcestershire's existing Areas of Particular Importance for Biodiversity (APIB)

Explore the Local Habitat Map

Worcestershire contains 3,900 hectares of land protected by **Special Area of Conservation** (SAC), **Site of Special Scientific Interest** (SSSI) or **National Nature Reserve** (NNR) designation. This represents 2.24% of the county. All these designations overlap to some extent, for example all SAC designations are based on underlying SSSI designations.

SACs are of international importance for nature conservation and are designated under the EU Directive on the Conservation of Natural Habitats. Worcestershire has two SACs, at Bredon Hill and Lyppard Grange, totalling 361 hectares.

SSSIs are protected under the UK's Wildlife and Countryside Act and are selected for being one of the best examples nationally of a particular habitat type. Worcestershire has 115 SSSIs totalling 3,701 hectares.

NNRs are designated under either the National Parks and Access to the Countryside Act or the Wildlife and Countryside Act and are established to protect some of our most important habitats, species and geology. These sites also have an educational and research function. Worcestershire has four NNRs totalling 1,575 hectares.

Worcestershire has 31 **Local Nature Reserves** covering 640 hectares. These sites are designated by the relevant local planning authority using powers under the National Parks and Access to the Countryside Act. They are important for providing local greenspace access as well as wildlife value.

Irreplaceable habitats are those considered to be of such high conservation value, and their creation or re-creation so difficult, that they are effectively irreplaceable if lost. A list of these habitats is included in Schedules 1 and 2 of the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024[22]. Habitats considered irreplaceable and which are found within Worcestershire are ancient woodland, ancient trees and veteran trees, and lowland fen.

Local Wildlife Sites and **Local Geological Sites** ('Local Sites') are a local, non-statutory designation of around 640 sites which significantly add to the county's rich network of ancient hedgerows, orchards, woodlands, heathlands, grasslands, rivers, wetlands and geological deposits or exposures. Just over 9,700 hectares of land in Worcestershire is listed as a Local Wildlife or Geological Site.

The county **Roadside Verge Nature Reserve** network includes verges that support rare or protected species or habitat characteristic of Worcestershire, such as remnants of lowland meadow.

Worcestershire's **Grassland Inventory** documents a snapshot of the extent and condition of all species-rich semi-natural grassland in the county, including those sites that are SSSI or Local Wildlife Sites. The total county semi-natural grassland resource is estimated as 4,800 hectares.

22 The Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024

Protected Landscapes

National Landscapes are the new name for Areas of Outstanding Natural Beauty (AONB), the first of which were designated in 1949 by the National Parks and Access to the Countryside Act. These are landscapes where the distinctive character and natural beauty (which includes its habitats and species) is so precious that it is safeguarded in the national interest. The primary purpose of the designation is to conserve and enhance this natural beauty, whilst taking account of the needs of its communities, the local economy, and the demand for recreation.

Parts of two National Landscapes fall within Worcestershire: 3,760 ha (35.8%) of the Malvern Hills National Landscape and 4,891 ha (2.4%) of the Cotswolds National Landscape.

Landscapes important for biodiversity

The descriptions below highlight locations within Worcestershire where the character of the landscape is ecologically distinct and coherent. The areas identified do not correspond to any legal site designation. The differences between these landscapes is due to the underlying geology and soils and the geological processes that have shaped them, which in turn influences the habitat types present and the land management activities that have evolved in that location.

River floodplains

The vast majority of Worcestershire sits within the drainage catchment (or 'River Basin District') of the River Severn, with a tiny part of the north-east of the county falling within the Humber River Basin District, where land drainage takes water in a northerly or north-easterly direction into the River Blythe or River Tame.

There are seven main rivers that flow through Worcestershire – the Severn, Teme, Avon, Stour, Salwarpe, Arrow and Isbourne – along with hundreds of smaller streams and brooks. These support wetland habitats and wildlife, provide water for agriculture, and allow us leisure and recreational opportunities.

The extensive floodplains of the Rivers Severn and Avon contain much improved farmland, but also important areas of floodplain meadows, reedbed, wet woodland, ditches and old willow pollards. The Stour Valley is of considerable importance for its wetland, fen and mire habitats. The valley of the River Salwarpe also contains important wetlands, some saline, as well as historically important complexes of mill ponds. The River Teme is the county's only watercourse designated as a SSSI. The Teme becomes a lowland river with a wide floodplain close to its confluence with the Severn, but in the upper reaches has steeper valleys which contain important dingle woodlands.

The northern part of Worcestershire also contains significant groundwater aquifers within the Permo-Triassic Sandstone. These provide a water source for the public supply, for industry and for agriculture but are also relied upon by some important groundwater-fed wetland habitats, particularly around Kidderminster and Stourport. The aquifers are historically over-abstracted, resulting in falling groundwater levels, low flows or low water levels within groundwater-dependent watercourses and wetlands, and a decline in habitat quality.

Land important for breeding, over-wintering and passage wetland and wader birds

A large number of sites in Worcestershire, found largely within the River Severn and River Avon floodplains, including Longdon Marsh and the mineral workings along the river gravel terraces, are significant for the habitat that they provide for wetland and wader birds, and it is important to consider them in a landscape context rather than as a series of isolated sites. Important species supported by these sites include **Curlew, Redshank** and **Lapwing**.

There is evidence for some of these sites of direct functional linkage with the Severn Estuary, a nationally and internationally important site designated as a Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site and Site of Special Scientific Interest (SSSI). Functionally Linked Land (FLL) is land outside of a European designated site that is ecologically important for the species that site is protected for. If the FLL were to be damaged or destroyed, that may have a significant negative impact on the populations of those protected species and/or compromise the integrity of the European protected site.

Further information about FLL in Worcestershire has been published by Natural England[23].

Watercourses supporting migratory fish

Water from the catchments of Worcestershire's rivers drains into the Severn Estuary. The Severn River Basin and Severn Estuary are together one of the most diverse estuarine and river systems in Britain, with over 110 fish species recorded. Many of these are endangered migratory species that utilise freshwater habitats within Worcestershire for part of their life cycle, such as **Atlantic Salmon** and **Twaite Shad**. Worcestershire's rivers, in particular the Severn, Avon, Teme and Stour, are therefore vital in maintaining these species populations and as such are afforded the same level of protection under the Conservation of Habitats and Species Regulations 2017 as the Severn Estuary.

Any proposed activity on these functionally linked watercourses is subject to a Habitats Regulation Assessment that must be completed by a competent authority, prior to any works being authorised, ensuring an additional level of protection for internationally important species.

23 https://publications.naturalengland.org.uk/publication/5694125407207424

Forest of Feckenham

The Forest of Feckenham is a lowland pasture landscape supporting a large proportion of the species-rich lowland meadow remaining in Worcestershire (and England) along with traditional orchard, parkland, veteran trees and scattered blocks of ancient semi-natural woodland. It is bordered by Droitwich, Bromsgrove and Redditch to the north, and Pinvin and the Lenches within Wychavon to the south. Contained within this landscape are remnants of formally extensive Royal Forests and Chases. The Forest of Feckenham is the core of the West Midlands' only known population of **Brown Hairstreak** butterfly and is a very important area for arable flora. The area is one of the Biodiversity Delivery Areas identified as a priority for habitat creation and enhancement by the Worcestershire Biodiversity Partnership[24] in 2011.

Bow Brook

The catchment of the Bow Brook stretches from the outskirts of Redditch to its confluence with the River Avon at Defford near Pershore. It was once dominated by wet pasture meadows and extensive areas of marshland, supporting breeding **Snipe, Redshank** and **Marsh Warbler**. Habitat fragmentation, begun post-WWII by drainage, the conversion of land to arable use and the ongoing intensive management of grassland, led to an overall decline in biodiversity value of the brook corridor. However, there are wide-spread opportunities for restoration and recent projects have supported landowners to create and enhance in-channel, riparian and floodplain habitats. The area is one of the Biodiversity Delivery Areas identified as a priority for habitat creation and enhancement by the Worcestershire Biodiversity Partnership in 2011.

Malvern Chase and Commons

The Malvern Chase and Commons contain a rich mosaic of acid grassland and species-rich lowland meadows, traditional orchard, wooded hills and valleys, parkland and scrub. Hedgerows and veteran oak pollards are a characteristic feature and around the commons **Black Poplars** are frequent as roadside and streamside trees. The area extends from Newland near Malvern, across to Old Hills close to the River Severn, and down to Hollybed and Coombegreen in the southwest corner of the county.

Longdon Marsh

Longdon Marsh was once the largest wetland complex in Worcestershire, located in the southwest corner of the county between the villages of Longdon, Birtsmorton and Eldersfield, on low-lying land to the west of the Severn. The marshes were drained for agriculture in the late 1800s but until that point had been rich in wildlife including **Bittern**. The area is one of the Biodiversity Delivery Areas identified as a priority for habitat creation and enhancement by the Worcestershire Biodiversity Partnership in 2011.

24 The Worcestershire Biodiversity Partnership is an association of local government, statutory, voluntary and public bodies committed to working together to recover and enhance biodiversity within the county. Further information on the Partnership can be found on the Worcestershire Biodiversity Action Plan webpages: www.worcestershire.gov.uk/council-services/planning-and-developments/environmental-policy/biodiversity-action-plan

North Worcestershire sandstones

The acid grasslands and heathlands of north Worcestershire are linked ecologically with those in Staffordshire and Shropshire. A number of large sites surrounding Stourport, Bewdley and Kidderminster are in conservation ownership, such as Hartlebury Common, the Rifle Range and the Devil's Spittleful and Pound Green Common, and there is potential to expand and link these sites with habitat at Kinver and further northwards. The area is one of the Biodiversity Delivery Areas identified as a priority for habitat creation and enhancement by the Worcestershire Biodiversity Partnership in 2011.

Vale of Evesham

The flat, fertile land of the Vale of Evesham in southeast Worcestershire is dominated by market gardening and fruit growing, plus remnant wetlands and flood meadows within the corridor of the River Avon. The Vale is particularly important in Worcestershire for its surviving old orchards, which support nationally rare and threatened species such as **Noble Chafer** beetle and **Turtledove**.

Alfrick-Suckley hills

The wooded hills between the villages of Alfrick and Suckley form the northernmost part of the Malvern Hills National Landscape, different in character from the main ridge but a continuation of the rich geodiversity that marks the west of Worcestershire. There are large, interconnecting blocks of ancient woodland here as well as narrow wooded valleys, traditional orchards and small meadows.

Lenches Ridge

The villages of the Lenches sit on a low plateau above the Vale of Evesham and the River Avon, close to the Warwickshire border. This landscape has significant ancient woodland cover, traditional orchards and old, species-rich grasslands.

Wyre Forest fringe

The Wyre Forest itself is the largest area of semi-natural ancient woodland in Worcestershire, and England's largest woodland National Nature Reserve. Outside of the main wooded areas, the landscape surrounding the southern fringes of the Wyre Forest is described in landscape character terms as 'forest smallholdings and dwellings' and it is unique in Worcestershire. It is a densely settled, rural landscape with wayside cottages and smallholdings nestled amongst small pasture fields and narrow, winding lanes. Hedgerows are often overgrown and there is significant scattered tree cover including hedgerow trees and old orchards.

Pondscapes

In some areas of the county heavy clay soils and a complex network of watercourses have resulted in a localised high density of ponds, with many parts of Worcestershire having a higher-than-average density of small ponds compared to other parts of England. Inherited historic character also plays a large part in the presence of ponds in the landscape, with the survival of features such as mill ponds, cart-washing ponds and old brick marl pits. Worcestershire's 'pondscapes' are defined as places containing at least 2.4 ponds per square kilometre within a contiguous landscape of 500 hectares or more. They are incredibly valuable for supporting meta-populations of species that benefit from clusters of ponds in close proximity, or those that need to travel between breeding ponds and surrounding terrestrial habitat, such as **Great Crested Newt** and **Toad**.

Important pondscape locations in Worcestershire are:

- The landscape north of Bromsgrove and Redditch
- The landscape east of Droitwich across to Hanbury, Lower Bentley and the edge of Redditch
- The landscape from Grafton Flyford across to Feckenham and Astwood Bank
- The countryside between Droitwich, Stourport and Bromsgrove
- The greater Longdon basin including Upton and Clifton
- The landscape between Broadheath, Martley and Ombersley
- The landscape around Newlands and Madresfield
- The landscape around Norton and Littleworth

Cotswolds fringe

Worcestershire supports many small, scattered areas of calcareous grasslands with the most significant extent being found along the fringe of the Cotswolds on Bredon Hill and Fish Hill in southeast Worcestershire.

North Worcestershire hills

The landscape of northeast Worcestershire, between Hagley, Bromsgrove, Redditch and the southern edge of Birmingham, is important for its wooded hills, areas of historic parkland, ancient trees and hedgerows, old species-rich grasslands and ponds.

High hills and slopes

The summits and upper slopes of the Malvern Hills are Worcestershire's only true 'upland' landscape, forming a distinctive and geologically rich spine along the county's south-western border with Herefordshire. The unimproved acidic grassland here is the largest continuous expanse in Worcestershire, whilst thin soils and exposed rock support their own niche assemblages of plants and insects. One of Worcestershire's remaining **Adder** populations is found within this landscape.

Land managed for nature

Outside of protected areas and nature reserves, farmers manage a large amount of habitat for wildlife within Worcestershire's countryside. This includes woodlands, hedgerows, ponds and other features that are long-standing components of the landscape, as well as temporary habitats that may move around the farmed landscape such as nectar-rich arable field margins or bird seed plots on areas of set-aside.

Some of the habitat creation and management carried out by farmers is supported by agri-environment schemes, which offer funding to protect and enhance wildlife habitats as well as maintain and enhance landscape quality and character, protect the historic environment and natural resources, and promote public access and understanding of the countryside. 29% of Worcestershire's land area is currently managed within Environmental Stewardship and Countryside Stewardship schemes, or 50,514.96 hectares. Just 1,726.96 hectares of these schemes are on land designated as SSSI or NNR, meaning almost 49,000 hectares of wildlife habitat within Worcestershire is being managed on working farms alongside food production with the support of these schemes[25].

25 Figures provided by Natural England (March 2025) and exclude data relating to the Sustainable Farming Incentive (SFI).

2.4 Threats and pressures facing our natural environment

Why do we need a nature recovery strategy?

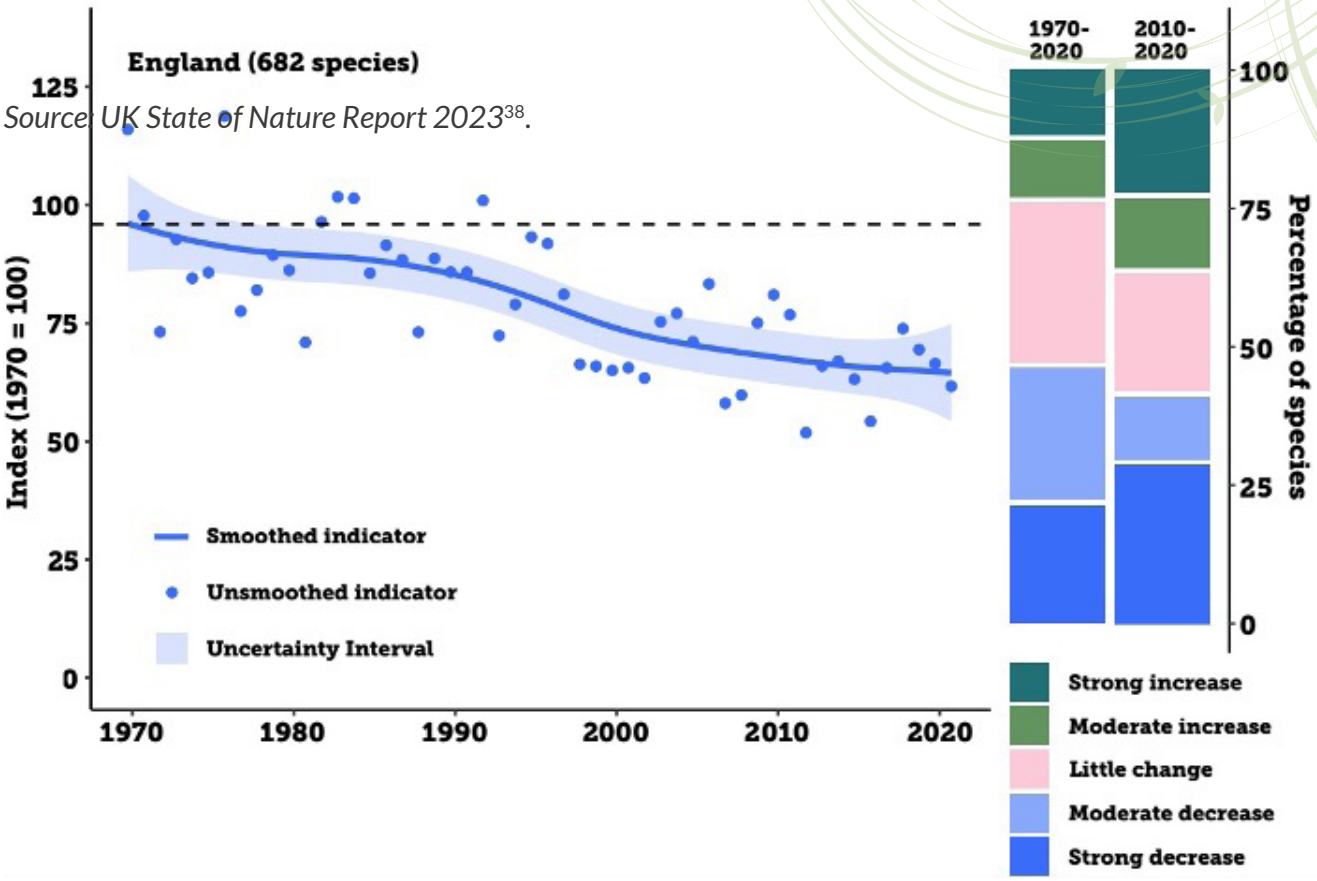
We live in one of the most nature-depleted countries in the world. In Great Britain, almost 1,500 species are currently threatened with extinction. The numbers of many of our birds, insects and flowering plants are in decline: since 1970 pollinating insects have decreased in distribution by an average of 18% and farmland birds have declined in number by an average of 59%[26].

Threatened species in Worcestershire include:

- **Hazel Dormouse:** classed as Vulnerable to extinction due to a 51% decline in numbers in Britain since 2000[27] and found in the woodlands of west and north Worcestershire.
- **Hedgehog:** Vulnerable to extinction[28] and continuing to decline in Worcestershire.
- **Water Vole:** Endangered due to a 47% decline in numbers in England since 1998[29], but on the verge of total extinction from Worcestershire.
- **Adder:** Vulnerable to extinction in England[30] and found in low numbers within parts of Worcestershire.
- **Swift:** on the Red List of UK Birds of Conservation concern having declined in numbers by 66%[31]; Worcester city is an important national stronghold.
- **Starling:** on the Red List of UK Birds of Conservation concern having declined in numbers by 54%[32] and threatened in Worcestershire, as elsewhere, by loss of nesting sites.
- **European Eel:** Critically Endangered globally due to declines of around 95%[33], Worcestershire's participation in the Unlocking the Severn project has re-opened historic spawning grounds to a number of fish species including the eel.
- **Grizzled Skipper:** Vulnerable to extinction[34], there are small populations of this butterfly in the Wyre Forest and the Vale of Evesham.
- **Wood White:** Endangered in Great Britain[35], several successful re-introductions of this butterfly have taken place in Worcestershire.
- **White-Clawed Crayfish:** Endangered globally[36] and reduced to a very small number of populations within Worcestershire.
- **Deptford Pink:** thought to be one of England's fastest declining plant species[37], this is found on several of Worcestershire's road verges.

26 State of Nature 2023 - report on the UK's current biodiversity
27 https://ptes.org/wp-content/uploads/2023/11/State-of-Britains-Dormice-2023.pdf
28 https://www.hedgehogstreet.org/state-of-britains-hedgehogs-2022/
29 https://www.wildlifetrusts.org/sites/default/files/2021-01/Part%201%20Project%20Report%202009-2018.pdf
30 Make the Adder Count: population trends from a citizen science survey of UK adders | British Herpetological Society
31 https://www.bto.org/understanding-birds/birdfacts/swift
32 https://www.bto.org/understanding-birds/birdfacts/starling
33 https://www.nature.com/articles/s41598-022-19248-8
34 https://butterfly-conservation.org/butterflies/grizzled-skipper
35 https://butterfly-conservation.org/StateofUKButterflies2022Report.pdf
36 https://publications.naturalengland.org.uk/publication/5579074343010304
37 The Species | The Species Recovery Trust | deptford pink

Explore the Local Habitat Map



Source: UK State of Nature Report 2023[38].

Left: Change in average species' abundance for terrestrial and freshwater species in England, based on England-specific trends of birds (159 species), butterflies (55 species), mammals (15 species) and moths (453 species). The bar chart shows the percentage of species within the indicator that have increased, decreased (moderately or strongly) or shown little change in abundance (1970–2020: 682 species, 2010–2020: 677 species).

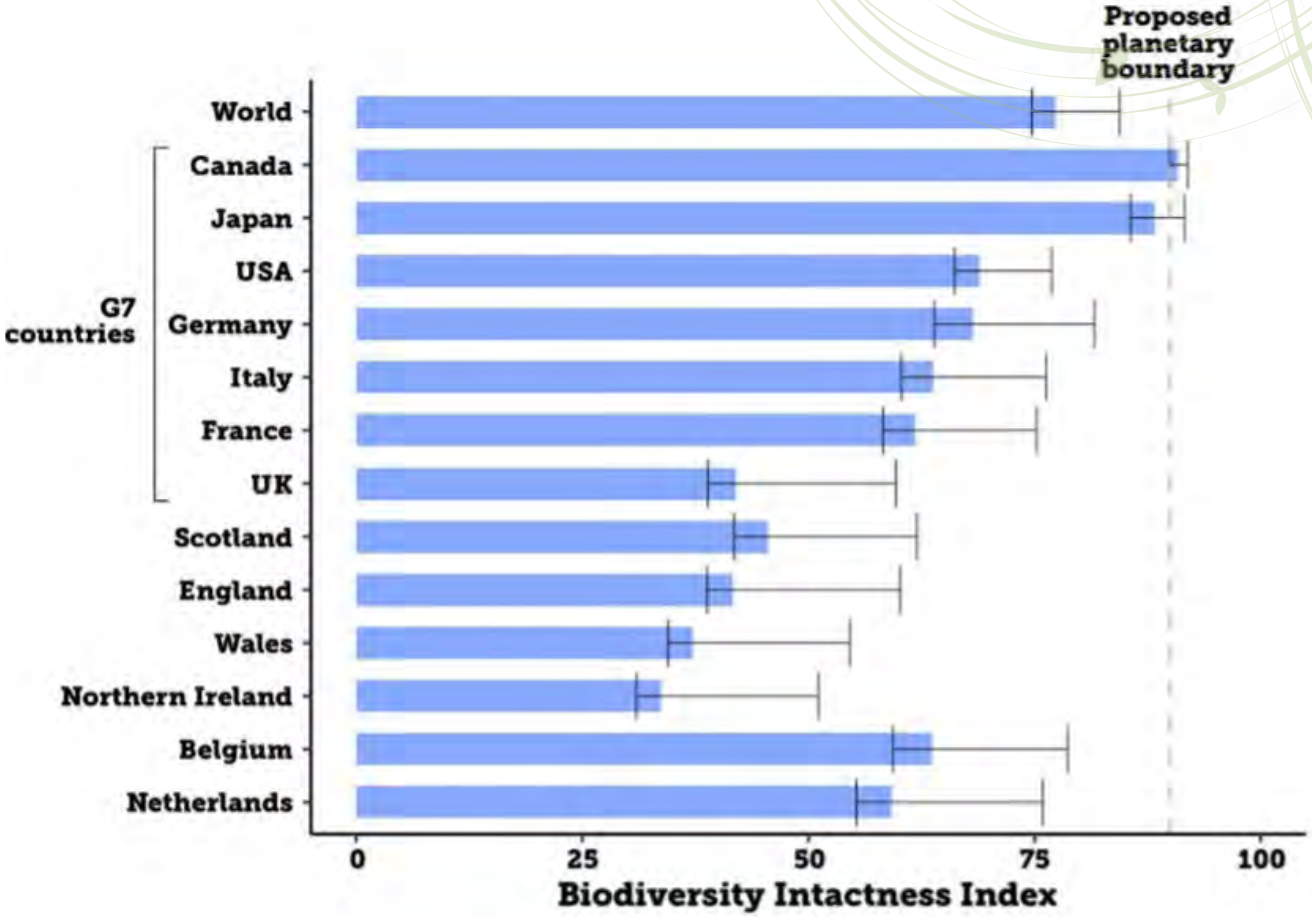
Species declines are driven in part by the loss, fragmentation and degradation of the habitats in which they feed and reproduce.

Data compiled by the Natural History Museum[39] on the extent of global biodiversity loss ranks the UK 12th from the bottom out of 240 global countries and territories for 'biodiversity intactness', a measure of how nature is faring under pressures exerted from human-driven land use change. England fares even worse: the country has a 41% Biodiversity Intactness Index score, ranking it 7th from the bottom globally.

38 State of Nature 2023 - report on the UK's current biodiversity

39 The Biodiversity Intactness Index - country, region and global-level summaries for the year 1970 to 2050 under various scenarios - Data - Data Portal

Explore the Local Habitat Map



Left: Estimates of the Biodiversity Intactness Index for 2010 for the world, the biggest global economies, the G7 countries, and other small, densely populated post-industrial countries in north-west Europe for a more direct comparison to the UK. The error bars around each estimate were generated by refitting the models leaving out each major biome in turn.

Source: UK State of Nature Report 2023[40].

40 State of Nature 2023 - report on the UK's current biodiversity

Explore the Local Habitat Map

In Worcestershire, some of the most significant losses of habitat involve those for which the county is of national importance, such as:

- The county is believed to contain at least 20% of England's remaining species-rich lowland meadow, yet 123 hectares of grassland that was recorded on the Worcestershire Grassland Inventory has been destroyed since 2011 through woodland planting, conversion to agriculture or urban development[41].
- Losses of traditional orchard in Worcestershire may be as high as 85% since 1950[42], despite the county being nationally recognised as a significant stronghold of this habitat and of species that rely on it, such as the Noble Chafer beetle.
- Between 1920 and 1982 up to 49% of the county's ponds had been lost to intensive agriculture, development or neglect, impacting on species that thrive in areas with a high density of ponds, such as the Great Crested Newt[43].
- 27.25% of the watercourses within Worcestershire are in bad or poor ecological condition, with just 1.5% in good condition[44].

41 State of Worcestershire's Grasslands Report 2023

42 Data from England Traditional Orchard Inventory compiled by People's Trust for Endangered Species

43 Ponds and Lakes Biodiversity Action Plan, Worcestershire Biodiversity Partnership

44 Data from https://environment.data.gov.uk/catchment-planning. Accessed June 2023.

Explore the Local Habitat Map

What is driving the loss of biodiversity?

Habitats and species are under huge pressure from a variety of factors which threaten the health and functionality of different ecosystems. Ecosystems are interconnected biological communities with complex relationships between natural resources (such as soil and water), habitats and the species that live within them. The drivers of biodiversity loss are things that place harmful pressures on and in some cases sever or destroy the connections within these ecosystems.

Development

- Built development replacing natural habitat
- Incremental loss of green spaces within existing built environments
- Severance of habitat corridors by road and rail infrastructure

Intensive use or management of natural resources, such as soil and water

- Over-abstraction of groundwater aquifers impacting groundwater-dependent habitats such as marsh and fen
- Over-use of pesticides, herbicides and fungicides
- Intensive land use in-between remaining natural habitat, isolating species into fragmented habitat patches
- Soil compaction and reduction in permeability to water
- Loss of soil organic matter through intensive cropping and use of agri-chemicals

Invasive non-native species, pests and pathogens

- Introduction and spread of species including, but not limited to, American Signal Crayfish, Mink, Himalayan Balsam, Japanese Knotweed, New Zealand Pygmy Weed, Giant Hogweed, Floating Pennywort, American Skunk Cabbage, *Hymenoscyphus fraxineus* (the cause of ash dieback disease), Oak Processionary Moth, *Phytophthora* (various species causing damage to trees).

Problematic mammal species which cause particular damage to young or regenerating woodland

- Deer browsing
- Grey squirrels stripping tree bark

Climate change

- Greater extremes in weather
- Increased rainfall intensity and frequency of flooding
- Heatwaves and droughts
- Low flows in rivers and streams

Pollution

- Diffuse pollution into watercourses, from agricultural run-off and roads
- Sewage discharge into watercourses
- Microplastics entering the soil, watercourses and the food chain
- Fly tipping
- Poorly designed or installed lighting resulting in unwanted or excessive artificial light at night
- Noise from built development, industry or transport infrastructure

Population pressure

- Increasing demand for land for built development and infrastructure
- Demand on farmland for higher yields to feed increasing population
- Disturbance to wildlife from humans and domestic animals
- Conflict between conserving nature and a public desire to access nature
- Increase in biosecurity risks and the spread of plant and animal diseases

Changes in perceptions of nature and shifting ecological baselines

Shifting baselines refers to the phenomenon where successive generations of people tend to perceive environmental conditions in their own timeline as normal, based on their own experiences, leading to a gradual acceptance of degraded ecosystems as the new standard[45].

Children in Worcestershire today are growing up in a completely different natural environment, in terms of nature richness, to the one that their grandparents and great-grandparents experienced. In ecological terms, this means that individuals and societies may fail to recognise the extent of nature's decline over time. As species populations diminish and habitats are altered, the benchmarks for what is considered healthy or sustainable become skewed. This can result in complacency and a lack of urgency in conservation efforts, as the reality of ecological change becomes obscured.

45 Shifting baseline syndrome: causes, consequences, and implications - Frontiers in Ecology and the Environment 2018

2.5 Other environmental plans and strategies

Preparation of the LNRS was informed by an existing evidence base that included other plans and strategies produced for Worcestershire, or parts of Worcestershire:

Biodiversity Action Plan[46]

The Worcestershire Biodiversity Action Plan (BAP) sets out the habitats and species of nature conservation importance within Worcestershire. The BAP was first produced by the Worcestershire Biodiversity Partnership in 1999, before being revised in 2007 and 2018.

The habitats and species within the BAP informed the production of the longlist of potential Biodiversity Priorities during preparation of the LNRS. The BAP was also a key part of the evidence base for the production of the Worcestershire State of Nature Report 2023.

Landscape Character Assessment[47]

The Worcestershire Landscape Character Assessment (LCA) was completed in 1999 by Worcestershire County Council. It identifies the patterns within the natural and man-made features of the landscape that make places distinct and special.

The LCA informed the development of the evidence base for preparation of the LNRS, including the State of Nature Report and the identification of opportunities for recovering and enhancing nature.

Worcestershire Pollinator Strategy[48]

The Worcestershire Pollinator Strategy was published in 2020 by Worcestershire County Council and affirms Worcestershire's commitment to being a pollinator-friendly county.

The objectives within the pollinator strategy informed the production of the longlist of potential Biodiversity Priorities during preparation of the LNRS and the development and mapping of Potential Measures.

Worcestershire Green Infrastructure Strategy[49]

The Worcestershire Green Infrastructure Strategy was published in 2023 by Worcestershire County Council.

The Potential Measures within the LNRS will reinforce the delivery of good Green Infrastructure under our priority theme of 'Green spaces in the built environment'.

Land Use Plans

Each of Worcestershire's six District Planning Authorities publishes planning policy documents within a Local Development Framework. Changes to planning law will make it a legal requirement for plan-makers to 'take account' of any published LNRS. This will ensure that land identified as strategically important for nature recovery is properly reflected and considered in both development management and site safeguarding decisions made within a planning context.

46 Biodiversity action plan | Worcestershire County Council
47 Landscape Character Assessment | Worcestershire County Council
48 Worcestershire Pollinator Strategy | Worcestershire County Council
49 Planning for Green Infrastructure | Worcestershire County Council

Explore the Local Habitat Map

Minerals Local Plan[50]

The Minerals Local Plan (MLP) was adopted in 2022 and sets out Worcestershire County Council's planning policies for minerals development. Upcoming changes to planning law will make it a legal requirement for plan-makers to 'take account' of any published LNRS.

The strategic mapping approach used for developing the MLP planning policies informed the LNRS approach to mapping Functionally Linked Land as Areas of Particular Importance for Biodiversity. The MLP also informed the mapping of Potential Measures.

Malvern Hills National Landscape Nature Recovery Plan[51]

The Nature Recovery Plan was published in 2022. It sets out a strategy for nature recovery within the National Landscape alongside key priorities for action and a delivery plan.

The local nature recovery network map produced for the Nature Recovery Plan is based on underlying data from the Worcestershire Habitat Inventory, which also underpins the LNRS mapping of habitat Potential Measures. The mapping of Potential Measures took place concurrently with work by the National Landscape team to develop habitat creation targets for a new Targets and Outcomes Framework[52].

Cotswolds National Landscape Nature Recovery Plan[53]

The Nature Recovery Plan was adopted in 2021. It sets out a vision for the key landscapes within the Cotswolds and desirable outcomes for the priority habitats and species found within those landscapes.

Worcestershire contains the largest outlier of the Cotswolds National Landscape: Bredon Hill. The vision and desired outcomes for the area are reflected in the LNRS Priorities and Potential Measures, namely the enhancement of a nature recovery corridor linking the main Cotswolds escarpment with its outliers, an increase in tree and hedgerow cover within the vales between scarp and outliers, support for the Carrant Catchment Area Restoration Project, and a focus on ancient woodlands and veteran trees as high priority habitats. Part of the Cotswolds scarp at Fish Hill also lies within Worcestershire, and here the LNRS maps suggested Potential Measures for the restoration of limestone grassland.

Catchment Plans

River catchment-based partnerships (CaBA partnerships) operate across England. They are voluntary, collaborative partnerships which bring together stakeholders in the delivery of integrated catchment management. The strategies and action plans published by these partnerships, and the priorities and projects identified by them, have informed the mapping of the LNRS Potential Measures. The four Catchment Plans most relevant to the Worcestershire LNRS are:

- Warwickshire Avon
- Worcestershire Middle Severn
- Teme
- Severn Vale

50 Minerals Planning Policy | Worcestershire County Council
51 MHAONB Nature Recovery Plan 23Mar22
52 Protected Landscapes Targets and Outcomes Framework - GOV.UK
53 Nature Recovery Plan - Cotswolds National Landscape

Explore the Local Habitat Map

Chapter 3. Opportunities for recovering and enhancing nature in Worcestershire

Further resources to support this section:

1. LNRS Evidence Base webpage for: 'Stakeholder Engagement Report' and 'Opportunities for recovering or enhancing nature – stakeholder input'

A Local Nature Recovery Strategy must include a description of the opportunities for recovering or enhancing nature within the strategy area. The first part of this chapter sets out nature recovery opportunities within the context of the legally mandated delivery mechanisms for LNRS and the national environmental objectives and targets that all LNRS should seek to contribute to. The second part of the chapter sets out opportunities which are more specific to Worcestershire. These have been identified using the knowledge of local experts, via consultation with neighbouring Responsible Authorities, and by collecting information from partners and stakeholders during preparation of the strategy.

The chapter considers opportunities for recovering or enhancing nature under the following headings:

- Nature recovery through mandatory **Biodiversity Net Gain**
- Contribution to England's **National Environmental Objectives**
- Delivery of **wider environmental benefits** associated with nature recovery
- Worcestershire's **30 by 30 baseline**
- **Habitats and species** for which Worcestershire is nationally important, there is urgency to conserve, or which we can make a significant national contribution to the recovery of
- **Existing landscape-scale and cross-border projects and initiatives** relevant to Worcestershire

3.1 Biodiversity Net Gain

Once published, a relevant LNRS must be the only document used to identify areas of High Strategic Significance for Biodiversity Net Gain. This provides an opportunity to incentivise the creation and enhancement of nature-rich habitats in areas that have been mapped in the LNRS as strategically significant for the delivery of nature recovery.

Biodiversity Net Gain is mandatory under the Environment Act 2021 for most development requiring planning permission. It seeks to ensure that wildlife habitats are left in a measurably better state than they were prior to the development commencing. Development that falls within scope of the legislation must deliver a minimum of 10% uplift in biodiversity value, measured against the habitats that were present before development commences. LNRS have a statutory role to spatially guide the delivery of BNG to places and habitats of high strategic significance for nature.

If the BNG habitat creation or enhancement is designed to deliver the Potential Measure(s) spatially targeted in that location by the LNRS, those habitats will benefit from a +15% 'Strategic Significance' uplift within the statutory Biodiversity Metric.

The following information is provided to ensure developers, their agents, habitat bank providers, or anyone else engaged in the delivery of statutory BNG can comply with the statutory guidance and local requirements:

- If the habitat creation or enhancement proposed for delivering statutory BNG is to receive the 15% strategic significance uplift, it must align with the Potential Measure(s) mapped at the location where the habitat creation or enhancement is to be delivered ('the BNG site'). Strategic significance cannot be applied to habitats at baseline.
- To aid users of the Biodiversity Metric, UKHab v2.0 codes have been assigned to each Potential Measure where applicable. When applying strategic significance, use the notes field in the metric calculator to record the target UKHab code. Where the proposed UKHab classification deviates from the list of UKHab codes for each Potential Measure, justification should be provided.
- Only the portion of the BNG site falling within the boundary of a mapped Potential Measure is eligible to receive the strategic significance uplift.
- Only mapped Potential Measures are to be used for determining if the habitat creation or enhancement being delivered should receive the uplift (not non-mapped Potential Measures).
- Developers should use the Local Habitat Map to ascertain if their proposal for delivering statutory BNG aligns with the mapped Potential Measures at that location. If it does, the uplift can be applied.
- Planning Ecologists and Planning Officers should consult the Local Habitat Map to validate that BNG proposals are eligible for the strategic significance uplift, via alignment with the mapped Potential Measures at that location.

Explore the Local Habitat Map

- Landowners who intend to sell or deliver off-site Biodiversity Units should consult the Local Habitat Map to determine how they can align their offer with mapped Potential Measures and therefore enable the strategic significance multiplier to be applied to the resulting Biodiversity Units.
- The strategic significance multiplier where Potential Measure 23 Create and enhance a habitat mosaic is mapped is more nuanced. We recognise that scrub is an important habitat in its own right as well as an important component of ecotones between woodland and grassland habitats. Scrub should be incorporated into the creation and enhancement of habitat mosaics but no more than 25% of the land area of the part of the BNG site (on-site or off-site/ habitat bank) that overlaps with the mapped Potential Measure will be eligible for strategic significance uplift. To ensure that a variety of habitats form the habitat mosaic, no one habitat type should be greater than 50% in total coverage of the BNG site.

Example: decision tree for strategic significance eligibility in relation to Potential Measure 23

Q1: Is any single habitat type (e.g., scrub, grassland, woodland) dominant (>50% cover of the total BNG site area)?

✗ Yes → Outcome: No Strategic Significance uplift (Reason: A single habitat type dominates the site, which violates the habitat mosaic principle)

✓ No → Continue

Q2: Is scrub coverage within the mapped area of the Potential Measure ≤ 25% of the total site area?

✗ No → Outcome: No Strategic Significance uplift (Reason: Scrub exceeding 25% cover within the mapped Potential Measure area is not considered a balanced habitat mosaic)

✓ Yes → Strategic significance can be applied for all habitats within the mapped Potential Measure area.

3.2 National Environmental Objectives

All Local Nature Recovery Strategies are expected to consider the opportunities which exist to contribute, in a local context, to the national nature recovery targets set by the Environment Act 2021 and the national environmental objectives published within England's Environmental Improvement Plan.

The targets and objectives below are those which it is considered the Worcestershire LNRS can make a contribution to.

National targets set under the Environment Act (2021):
Biodiversity on land - Restore or create in excess of 500,000 hectares of a range of wildlife-rich habitat outside protected sites by 2042, compared to 2022 levels
Biodiversity on land – Halt the decline of species abundance by 2030. Ensure that species abundance in 2042 is greater than in 2022, and at least 10% greater than 2030
Biodiversity on land - reduce the risk of species' extinction by 2042, when compared to the risk of species' extinction in 2022
Woodland cover - Increase total tree and woodland cover from 14.5% of land area now to 16.5% by 2050
Improve water quality and availability - Reduce nitrogen (N), phosphorus (P) and sediment pollution from agriculture into the water environment by at least 40% by 2038, compared to a 2018 baseline

Objectives from the Environmental Improvement Plan (2023):
Work to ensure that everyone in England lives within 15 minutes' walk of a green or blue space
Restore 75% of our water bodies to good ecological status
Protect 30% of land and of sea in the UK for nature's recovery by 2030
Support farmers to create or restore 30,000 miles of hedgerows by 2037 and 45,000 miles of hedgerows by 2050
Manage our woodlands for biodiversity, climate and sustainable forestry
Restore 75% of Sites of Special Scientific Interest to favourable condition by 2042. By 31 January 2028 50% of SSSIs will have actions on track to achieve favourable condition.
Ensure delivery & management of actions & policies that contribute towards our 25YEP goals are suitable & adaptive to a changing climate
Make sure LNRSs include proposals for Nature-based Solutions which improve flood risk management where appropriate
Reducing the rates of introduction and establishment of invasive non-native species by at least 50%, by 2030.

3.3 Other environmental benefits of nature recovery

All Local Nature Recovery Strategies are expected to take into account the contribution that recovering or enhancing nature can make to addressing wider environmental issues within the strategy area alongside nature recovery.

The use of nature-based solutions can make a significant contribution to addressing environmental issues affecting Worcestershire through the creation, restoration or management of wildlife-rich habitat. This section sets out some of the key opportunities in Worcestershire for delivering wider environmental benefits alongside nature recovery, using a framework aligned with Ecosystem Services[54] terminology. Ecosystem Services are the direct and indirect benefits to human wellbeing and quality of life provided by nature.

The wider environmental benefits identified by the LNRS are:

- Air quality
- Water quality
- Water availability
- Flood risk reduction
- Soil health and protection
- Carbon sequestration
- Pollination services
- Climate adaptation
- Health and wellbeing.

54 UK National Ecosystem Assessment

Air Quality

Air pollution is a major environmental issue affecting biodiversity and ecosystem services, human health, and contributing to climate change[55].

The five most damaging emissions[56] (pollutants released into the air) are particulate matter, ammonia, nitrogen oxide, sulphur dioxide and non-methane volatile organic compounds. Emissions mainly originate from industrial and domestic sources of combustion, energy generation, vehicle exhausts and agriculture. Controlling these emissions at source is the most effective way of improving air quality, but good Green Infrastructure can contribute to the effective dispersal of pollutants, encourage active travel such as walking and cycling rather than car journeys over short distances, and help to mitigate the negative effects of air pollution on human health[57].

Acidification[58] or eutrophication[59] of habitats are the two main impacts of the deposition of these pollutants within the natural environment. The latest report for the UK Biodiversity Indicator on air pollution shows that in 2019 67.7% of the area of sensitive habitats in the UK exceeded critical loads for nitrogen deposition[60], a pollutant from which habitats such as grassland are particularly sensitive to damage.

In the UK, between 28,000-36,000 deaths per year are estimated to be associated with exposure to air pollutants, which contribute to the risk of heart disease, stroke, asthma and lung cancers[61]. Worcestershire currently has 7 Air Quality Management Areas within the county [62](3 of which are due for review in 2025) where air pollution levels exceed, or are at high risk of exceeding, Government thresholds[63]. These areas have a population of c. 100,500 people.

The Worcestershire LNRS will contribute to mitigating the negative effects of poor air quality by:

- Focusing on the delivery of good Green Infrastructure as a contributor to nature recovery within the built environment.
- Proposing measures to increase urban tree canopy cover in appropriate locations.
- Proposing measures for woodland and tree planting in appropriate rural, urban and peri-urban locations .
- Promoting opportunities for a reduction in the use of agri-chemicals on farmland.

55 https://data.jncc.gov.uk/data/4514c266-d156-41ca-86ef-1efb58eb9ceb/jncc-air-pollution-bulletin-10-2021.pdf

56 https://www.gov.uk/government/publications/air-quality-explaining-air-pollution

57 FAQ 105 - Vegetation and Urban Air Pollution | LAQM; https://www.ceh.ac.uk/press/online-calculator-shows-how-trees-can-improve-air-quality-and-cut-health-costs

58 Where pH decreases over time (becomes more acid).

59 Where nitrogen levels increase over time.

60 https://jncc.gov.uk/our-work/ukbi-b5a-air-pollution/

61 EarthSense

62 Air Quality Management Area Declarations | Worcestershire Regulatory Services

63 Interactive Air Quality Maps & Current Status | Worcestershire Regulatory Services

Water Quality

Poor water quality is a key issue impacting Worcestershire's natural environment. Contamination from chemicals and sediments significantly impacts the ecological health of our freshwater habitats, and only 14% of English rivers are currently meeting good ecological status[64]. In Worcestershire the proportion of watercourses in good condition is just 1.5%, with 27.25% in 'poor' or 'bad' condition. Raised nitrogen and phosphorus levels within rivers and streams cause algal blooms that shade out sunlight and reduce available oxygen levels for plants, fish and freshwater insects. Pesticides can directly kill aquatic life or lead to physiological or behavioural disruption[65].

The three biggest sources of water pollution are:

- Agriculture and rural land management: the cause of 40% of water-borne pollution, largely as diffuse pollution arising via run-off from farmland.
- The water industry: wastewater discharges and sewer overflows contribute 35% of the pollution entering rivers and streams.
- Domestic sources and transport infrastructure: 18% of water-borne pollution comes from these sources, including fats and oils poured down sinks, wet wipes flushed down toilets, and brake and tyre particulates washed from the surfaces of roads[66] [67].

The Worcestershire LNRS will contribute to improving water quality by:

- Proposing measures for the creation of riparian buffer strips, in-field buffer strips, and grassland reversion in the floodplain.
- Proposing measures that promote the use of natural flood management as a nature-based solution to managing flood risk.
- Proposing measures for the creation and restoration of wetland habitats and the reconnection of watercourses with their floodplains.
- Promoting opportunities for better designed and installed Sustainable Drainage Systems (SuDS).

64 https://committees.parliament.uk/committee/62/environmental-audit-committee/news/160246/chemical-cocktail-of-sewage-slurry-and-plastic-polluting-english-rivers-puts-public-health-and-nature-at-risk/

65 https://cdn.buglife.org.uk/2022/08/Chemical-Pollution-The-Silent-Killer-of-UK-Rivers-2022.pdf

66 https://www.gov.uk/government/publications/water-and-sewerage-companies-in-england-environmental-performance-report-2020/water-and-sewerage-companies-in-england-environmental-performance-report-for-2020

67 https://committees.parliament.uk/publications/8460/documents/88412/default/

Water Availability

The optimum availability of water for habitats, wildlife, people and industry depends on the right amount of water being in the right location at the right time. For habitats and species, alterations in the amount, variability and timing of flows within our rivers and streams affects water depth, velocity, chemistry and temperature. Climate change is having an impact on how much water is available within our rivers and streams at different times, resulting from changing rainfall patterns across the year, periods of more intense rainfall leading to flash flooding, and more frequent summer heatwaves resulting in low flows. The hotter, drier summers and warmer, wetter winters already being experienced due to climate change will exacerbate the frequency and impacts of summer low flows and winter floods. Many communities and businesses and a significant amount of agricultural land within Worcestershire are impacted by flooding along both our main rivers and within smaller, 'flashy' catchments that react very quickly to heavy rainfall events.

The north of Worcestershire contains significant quantities of groundwater within a Permo-Triassic sandstone aquifer, but historic over-abstraction from the aquifer for the public drinking water supply, and from our rivers and streams for industry and agriculture, have impacted water availability for habitats and species. This legacy of over-abstraction has been particularly detrimental to groundwater-fed wetlands.

Worcestershire is located at the confluence of a number of rivers, and this has shaped our landscape and its superficial geology over many millennia.

The Severn River Basin District is vast, spanning 21,000km2 of England and Wales, and the water from the Teme, Salwarpe and Stour catchments all join the River Severn within the county's borders. The Severn enters Worcestershire with an average flow rate of around 60m3/second: by the time it leaves this has increased to an average of around 100m3/second[68]. With extensive areas of floodplain and a strong track record in the use of nature-based solutions to achieve natural flood management, Worcestershire is well-placed to make a significant national contribution to managing flood risk and reducing impacts.

The Worcestershire LNRS will contribute to improving water availability by:

- Proposing measures that promote the use of natural flood management as a nature-based solution to managing flood risk.
- Proposing measures for the creation and restoration of wetland habitats and the reconnection of watercourses with their floodplains.
- Promoting opportunities for the installation of on-farm reservoirs and rainwater harvesting infrastructure to reduce the need for abstraction.
- Promoting opportunities for improved water capture and re-use features within our built environments.

68 Search Data | National River Flow Archive

Flood Risk Reduction

The quantity of water making its way through the Severn River Basin at any one time has a huge influence on the wellbeing of Worcestershire's human population as well as the functioning of businesses and public services, food producing industries, and transport infrastructure. Fluvial flooding - when rivers and streams burst their banks - and pluvial flooding - where surface water runs off the land during periods of intense, heavy rainfall - both impact many people and businesses in Worcestershire. Where impermeable surfaces or compacted land promote rapid runoff, pluvial flooding can be accompanied by soil erosion from agricultural land. Communities located at the confluence between smaller rivers or streams and the Severn, and those within 'flashy' catchments that respond very quickly to heavy rainfall, are hit particularly hard by flood events. Severe flooding presents a danger to life, can be catastrophic to the individuals and businesses impacted, and is a significant economic cost to the county.

- The floods of 2007 affected over 4,700 properties in Worcestershire. Nationally these floods cost the country £4 Billion[69].
- Between January 2023 and January 2024, flood risk management authorities within Worcestershire completed the construction of or maintenance works on 85 hard engineering schemes at a cost of almost £1.2 Million[70]. There is potential for savings to be made through the increased use of nature-based solutions.

River levels are measured in real time at gauges throughout the county and rainfall at a network of weather stations. Historical data allows us to see how both rainfall and flooding severity and intensity has changed over time, and data modelling can help us plan our response to future flood risk with the increasing effects of climate change.

- Between 1986-1990 there were 33 floods of 4m or higher on the River Severn at Diglis (where the normal maximum is 2.8m). Between 2020-2024 there were 114[71].
- In a high emissions scenario, intensive rainfall events in the UK could be on average four times as frequent by 2080 compared to a 1980's baseline[72].

The Worcestershire LNRS will contribute to reducing flood risk by:

- Proposing measures that promote the use of natural flood management as a nature-based solution to managing local flood risk.
- Proposing measures for the creation and restoration of wetland habitats and the reconnection of watercourses with their floodplains.
- Proposing measures for grassland reversion within the floodplains of our major rivers to support greater water storage capacity within soils.

69 The costs of the summer 2007 floods in England: Environment Agency

70 Flood Risk Management in Worcestershire Annual Report January 2023 – January 2024. Worcestershire County Council.

71 Hydrology Data Explorer - Diglis

72 New research shows increasing frequency of extreme rain - Met Office

Soil Health and Protection

Healthy soils accumulate organic matter, capture and store carbon, allow water to infiltrate, and support biodiversity such as fungi and earthworms. Soil degradation occurs when soil loses the physical, chemical or biological qualities needed to support animal and plant life.

In England and Wales, an estimated 4 million hectares of agricultural land are at risk of compaction, and 2 million hectares are at risk of erosion due to long-term soil degradation[73]. Across the UK, around 2 million tonnes of topsoil are eroded annually by wind or water, leading to increased flood risk, threatening soil biodiversity, contributing to a decline in water quality and an increase in carbon emissions, and decreasing soil fertility.

The average rate of soil erosion by water from farmland in the UK is estimated to be between 0.1-0.3 tonnes per hectare per year[74]. Rates of loss can be significantly higher on steeper slopes if soils have a high sand content. When this sediment enters watercourses it can lead to a loss of fish spawning sites as silt is deposited and a reduction in sunlight, affecting plant growth.

The Worcestershire LNRS will contribute to protecting and improving the health of our soils by:

- Proposing measures for the creation of riparian buffer strips, in-field buffer strips, and grassland reversion in the floodplain.
- Promoting the uptake of no- or low-till arable cropping methods.
- Promoting opportunities for the removal of cropping from soils in locations modelled as being at high risk of water erosion.

73 Soil health - Environment, Food and Rural Affairs Committee

74 https://www.parliament.uk/globalassets/documents/post/postpn265.pdf

Carbon Sequestration

Healthy, functioning ecosystems take up and store carbon within accumulating soils, sediments and vegetation. Where habitats become degraded carbon is released and lost to the atmosphere. Peat, bog and fen are slow sequesters of carbon but can hold the largest carbon stores of all natural habitats globally, and degradation of these habitats through drying out (due to drainage) or disturbance of the soil (through tree planting or cultivation) over decades has resulted in the release of large quantities of greenhouse gasses. Woodlands sequester carbon more quickly as trees grow and mature before rates begin to decline, making ancient native broadleaved woodlands important carbon stores.

The Floodplain Meadows Partnership[75] examined the potential for carbon sequestration within Worcestershire's floodplains, if land was restored and managed as species-rich grassland. Unlike other potential carbon stores, floodplains accumulate soil through sediment deposition and may therefore continue to sequester carbon over an indefinite period, rather than slowing and plateauing over time. Data used in the study showed that carbon present in the top 50cm of soil ranged on average from 97-112 tonnes/hectare-1 on arable land, whereas in ancient floodplain meadows the range was 228-272 tonnes/hectare-1. If all of the arable land and intensively managed grassland in Worcestershire's floodplains was restored and managed as species-rich grassland, storage capacity for an additional 1.9 million tonnes of soil carbon might be provided.

The University of Leeds have investigated the ability of the soils beneath hedgerows to sequester and store carbon. The study found that the top 50 cm of soil beneath hedgerows stored, on average, 31% more carbon than the adjacent intensively managed grass fields, with old hedgerows storing almost double that amount[76] [77].

Worcestershire is well-placed nationally to contribute towards the capture and sequestration of carbon through several extensive tree planting initiatives already underway, the potential for the reversion of large quantities of arable land to grassland within the floodplain and the restoration and management of floodplain meadow habitat[78].

The Worcestershire LNRS will contribute to the capture and sequestration of carbon by:

- Proposing measures for grassland reversion and the restoration and management of floodplain meadow habitat.
- Proposing measures for woodland and tree planting in appropriate rural, urban and peri-urban locations.
- Proposing measures for the expansion and enhancement of Worcestershire's hedgerow network.
- Proposing measures to improve soil health on agricultural land, including increasing soil organic matter and the build-up of soil carbon.

75 About us | Floodplain Meadows Partnership

76 Sequestering soil carbon by planting hedgerows - Priestley Centre for Climate Futures

77 https://hedgelink.org.uk/wp-content/uploads/2023/10/Sequestering-carbon-by-planting-hedgerows-powerpoint.pdf

78 Assessment of floodplain meadows in Worcestershire and their potential to store soil carbon

Pollination Services

Pollinators are crucial components of a healthy ecosystem and a sustainable economy. Globally, many commercial crops are fully dependent on insect pollination or benefit from it through greater seed-set and higher yields. In the EU around 84% of crops depend, at least in part, on insect pollination with up to €15 billion of the EU's annual agricultural output directly attributed to insect pollination[79]. With a strong horticultural sector, pollination services are essential to Worcestershire's food producing economy. With nationally renowned concentrations of flower and nectar-rich habitats such as traditional orchards and lowland meadows, Worcestershire is well-placed to make a significant national contribution to supporting pollinating insect populations.

Globally, 40% of the world's insect species are threatened with extinction[80] from habitat loss, pesticide use, disease and climate change. Half of the UK's 27 bumblebee species are in decline with three of those species already extinct. A long-term and ongoing decline in butterfly populations has also been identified, with 70% of species declining in occurrence and 57% declining in abundance since monitoring began in 1976[81]. An estimated 80% of the UK's native wildflowers also depend on insect pollination. Worcestershire contains at least 20% of the lowland meadow remaining in England and around 8% of the traditional orchard: both habitats support and are in turn supported by pollinators.

The Worcestershire LNRS will contribute to enhancing pollination services by:

- Proposing measures to increase shrub and tree species diversity within woodland, scrub and hedgerow habitats.
- Proposing measures to create and enhance the wildlife value of traditional orchards.
- Proposing measures to create and enhance species-rich grassland.
- Proposing measures for the creation of features on arable farmland to support pollinators, such as conservation headlands and flower- or nectar-rich margins .
- Proposing measures to enhance the biodiversity value of road verges .
- Proposing measures to reduce light pollution and protect areas of darker skies.
- Promoting opportunities for a reduction in the use of agri-chemicals on farmland.

79 Communication from the European Commission on the EU Pollinators Initiative (2018) EUR-Lex - 52018DC0395 - EN - EUR-Lex

80 Sanchez-Bayo, F. & Wyckhuys, K.A.G. (2019) Worldwide decline of the entomofauna: A review of its drivers. Biological Conservation 232: 8-27.

81 Butterfly Conservation (2015) The State of Britain's Butterflies https://butterfly-conservation.org/butterflies/the-state-of-britains-butterflies

Climate Adaptation

The predicted long-term climatic trends in the UK are for hotter, drier summers and wetter winters[82]. Extreme weather events such as flooding, drought, heatwaves and storms are likely to increase and periods of rainfall to be more intense, making adaptation and improved resilience to climate change a necessity for both humans and wildlife.

- UK summer temperatures in 2022 were 0.9°C above the 1991-2020 seasonal average, and 1°C above the average for 1961-1990[83]. Average summer temperatures in Worcestershire between 2001-2020 were 1.1°C warmer than the average for 1981-2000.
- The decade from 2011 to 2020 was on average 9% wetter than the period 1961-1990 across the UK as a whole. In Worcestershire, average winter precipitation rates have increased from 1.9mm/day in 1982-2000 to 2.01mm/day in 2001-2020. Under a 4°C temperature rise scenario, winter precipitation may increase by up to 29%[84].

The impact of climate change on the UK's natural environment is set out in the UK Climate Risk Independent Assessment[85], which concludes that a more integrated ecosystem services-based or nature-based solutions approach can contribute to climate change adaptation. For people, urban areas are high-risk locations in a warming climate. Adaptation must include increasing the prevalence and accessibility of green spaces and tree canopy cover to reduce air temperature and provide shade.

The Worcestershire LNRS will contribute to climate change adaptation and mitigation by:

- Proposing measures that promote the use of natural flood management as a nature-based solution to managing flood risk.
- Proposing measures to improve shading, such as increasing urban tree canopy cover and the extent of riparian trees and woodland .
- Proposing measures to contribute to carbon sequestration, such as woodland planting and floodplain meadow restoration.
- Proposing measures to make core sites within the nature network more resilient to climate change .
- Focusing on the delivery of good Green Infrastructure as a contributor to nature recovery within the built environment.
- Considering the potential or need for species to move into new climatic ranges.

82 See https://assets.publishing.service.gov.uk/media/657043059462260721c569a6/HECC-report-2023-chapter-1-climate-projections.pdf

83 https://www.ons.gov.uk/economy/environmentalaccounts/articles/climatechangeinsightsuk/august2022#current-state-of-theclimate-in-the-uk

84 All climate statistics taken from Explore the Climate of your Local Authority

85 Berry, P. and Brown, I. (2021) Natural environment and assets. In: The Third UK Climate Change Risk Assessment Technical Report [Betts, R.A., Haward, A.B. and Pearson, K.V. (eds.)]. Prepared for the Climate Change Committee, London Technical Report - UK Climate Risk

Health and Wellbeing

Being in nature can support good physical and mental health and wellbeing. A study by the University of Exeter found that people who spend two hours a week in green spaces were substantially more likely to report good health and psychological well-being than those who don't[86]. Whilst the amount of time spent in nature is important, it is also about how connected people feel to nature. Growing levels of 'eco-anxiety'– a fear for the environment and its future – can have the opposite effect and negatively impact people's health and wellbeing. A recent Guardian article described the extinction of natural experiences in response to research on the positive impact of hearing birdsong on human health and wellbeing[87].

Access to nature-rich green spaces is not equitable across Worcestershire. Data shows that residents of Worcester city and Wychavon have on average less accessible green infrastructure per 1000 people than those in Wyre Forest or Malvern Hills. At a finer scale the disparity between even adjacent neighbourhoods becomes apparent: within Redditch, some communities have access to over 13.7 hectares of green space per 1000 population, whilst others have access to less than 0.02 hectares per 1000 population[88].

The Worcestershire LNRS will contribute to supporting health and wellbeing by:

- Focusing on the delivery of good Green Infrastructure as a contributor to nature recovery within the built environment.
- Proposing measures to increase urban tree canopy cover in appropriate locations where pollutant dispersal will not be compromised.
- Proposing measures to enhance the wildlife value of community green spaces and gardens.
- Proposing measures to reduce light pollution and protect areas of darker skies.
- Proposing measures to support the design and delivery of nature-rich built environments.

86 Spending at least 120 minutes a week in nature is associated with good health and wellbeing | Scientific Reports

87 Why birdsong matters more than you think | Natalia Zielonka and Simon Butler | The Guardian

88 Green Infrastructure Map

3.4 Worcestershire's 30 by 30 baseline

All Local Nature Recovery Strategies are expected to consider how the strategy area can contribute to England's Environmental Improvement Plan objective of protecting 30% of the UK's land and seas for nature by 2030. Measuring Worcestershire's contribution requires the establishment of a baseline '30 by 30' percentage for the county.

The United Nations Global Biodiversity Framework includes a target that at least 30% of land, inland water and seas should be effectively conserved and managed for nature by 2030: the '30 by 30' target. Research indicates that once 30% cover of well-managed, biodiversity-rich habitat is achieved most habitat patches are in close enough proximity to each other that species can disperse between them.

The International Union for Conservation of Nature (IUCN) defines 30 by 30 as "a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values".

Government has committed to meeting the 30 by 30 target in England (UK environmental policy is devolved) and it underpins many of the objectives within the country's Environmental Improvement Plan 2023. Areas contributing to 30 by 30 will include land both within and outside of Protected Areas and will form the core of England's Nature Recovery Network. Local Nature Recovery Strategies will contribute to this goal by identifying the best places to deliver nature recovery measures, as 30 by 30 can best be achieved through the management, restoration or creation of wildlife-rich habitat.

Protected Areas in England for the purposes of 30 by 30 are:

- Ramsar Sites
- Special Areas of Conservation
- Special Protection Areas
- National Nature Reserves
- National Landscapes
- National Parks
- The Broads
- Sites of Special Scientific Interest

Explore the Local Habitat Map

Government has published three criteria that must all be met for areas to count towards 30 by 30[89]:

- **Purpose:** Will the purposes or management objectives for this area ensure the delivery of in-situ conservation outcomes?
- **Protection:** Is the conservation of this area secured for at least 20 years, through legal or other effective means?
- **Management:** Does the area's governance or ownership have the ability to implement reasonable management actions to achieve in-situ conservation outcomes?

  Is there a management plan or similar which is designed to deliver in-situ conservation outcomes?

  Are management measures being implemented, with appropriate monitoring, evaluation and learning in place to assess progress and inform future management?

  Is the area achieving, or making progress towards, in-situ conservation outcomes, with reasonable confidence that these outcomes will be achieved?

As of October 2024, 7.1% of the land area of England counts towards 30 by 30. This includes National Nature Reserves, Sites of Special Scientific Interest in favourable or unfavourable recovering condition, and public woodland under favourable management for biodiversity.

Within Worcestershire there is land outside of Protected Areas that is owned and controlled by public bodies or conservation organisations, and which is effectively managed for the purpose of achieving the long-term conservation of nature. This land is considered to meet the 30 by 30 criteria set out above.

The 2025 baseline figure for 30 by 30 in Worcestershire is 3.4% of the county's land area.

Government intends that new, voluntary, contributions to 30 by 30 will be informed at a local level by Local Nature Recovery Strategies, and by closer integration of 30 by 30 into mechanisms such as Biodiversity Net Gain and the new Environmental Land Management schemes (ELMs). Supporting land within Protected Landscapes to deliver more for nature will also be key to ensuring that more areas contribute towards 30 by 30 in the future.

89 30by30 on land in England: confirmed criteria and next steps - GOV.UK

3.5 Habitats and species

All Local Nature Recovery Strategies should identity opportunities within the strategy area for recovering or enhancing specific habitats or species, with consideration to those that are locally or nationally important or for which the strategy area could make a particular contribution to recovering or enhancing. Opportunities in Worcestershire for particular habitats, species, or for the delivery of nature-based solutions are considered here.

Wetland Habitats

Water quality in England's rivers and streams is on average very poor. Watercourses and the quality of riparian habitat are impacted by the effects of historic over-abstraction, dredging and canalisation. Pollution from sewage, industry, road run-off and farming operations continues to compound the decline in water quality and addressing this would have significant benefits for species such as **Otter, White-clawed Crayfish** and **Comon Club-tail** dragonfly. In Worcestershire, as in England, there is an urgency to take action to **improve water quality** and also to **reduce or mitigate the impacts of frequent flooding** on the county's households, businesses and farmland. There is an opportunity to expand on existing, successful **Natural Flood Management** work in Worcestershire, and to undertake **arable reversion and wet grassland restoration** within the floodplain to hold back water and to improve water quality. There is also momentum to expand on the legacy of the Unlocking the Severn project to open up access to more of our rivers and streams and improve spawning habitat for **migratory fish**.

Wetlands in Worcestershire are severely diminished by historic drainage and conversion of land to agriculture. Once extensive areas of marshland in the Severn basin and elsewhere are now reduced to remnants of habitat which are affected by poor water quality and insufficient water availability. There is great potential for **reconnecting watercourses to their historic floodplains** and **rewetting, restoring and enhancing wetland habitats** in locations such as Longdon Marsh, the Avon Valley and the Stour Valley. This will benefit multiple species and deliver Natural Flood Management through the use of **nature-based solutions**. There are also opportunities to create or enhance wetland and open water habitat to benefit **wetland and wader birds**, including through activity associated with mineral extraction on the river gravel terraces. Better connected wetland and riparian habitat alongside **Invasive Non-Native Species (INNS) control** is also essential to support the recovery of **Water Vole** populations, which are threatened with extinction from Worcestershire due to habitat loss and predation by American Mink. The **control of plant INNS**, such as Floating Pennywort, Himalayan Balsam, Japanese Knotweed and American Skunk Cabbage, is also required to enhance the quality of our remaining wetland habitat.

Wooded Habitats

Tree planting projects and initiatives already underway in Worcestershire have the potential to achieve significant areas of **woodland creation** and deliver better **connectivity between existing ancient woodlands**. Opportunities exist in the landscape around the southern Forest of Feckenham and the Lenches, and the corridor through western Worcestershire encompassing the Malvern Hills National Landscape, the Laugherne Valley, the Teme Valley and the Wyre Forest. Collectively, these projects also have the potential to **create large stores of carbon**. Tree planting and increasing woodland connectivity at a landscape scale will benefit species such as **Dormouse** and support the **reintroduction of dormice** to new sites within the county. **Enhancing the condition of existing woodlands** will benefit important populations of rare bat species including **Bechstein's** and **Barbastelle**.

There is a high concentration of **species-rich hedgerows** across western, northern and central Worcestershire, with hedgerows in some locations containing a species mix and a ground flora reminiscent of the ancient woodland that previously existed in those locations. Opportunities exist to **reinstate ghost hedgerows** within the landscape, to **improve the condition of hedgerows**, and to **improve the management of hedgerows**. This will provide benefits for wildlife and has the potential to **capture and store carbon**. Better hedgerow management will benefit species such as the **Brown Hairstreak** butterfly.

Worcestershire has a s**ignificant concentration of England's traditional orchard resource**, and our fruit growing heritage is well known and celebrated. The county is nationally significant for its populations of **Noble Chafer** beetle and for its abundance of **Mistletoe**, which supports rare species including the **Mistletoe Marble** moth. Previous projects have demonstrated that there is appetite amongst landowners to **restore existing old orchards**. There is also an opportunity to achieve greater **connectivity between surviving orchards** with the planting or restoration of fruiting hedgerows and hedgerow fruit trees.

Worcestershire has a large concentration of **ancient and veteran trees**. These are often survivors from former parkland and wood pasture landscapes or boundary markers associated with woodland edges or former Royal Forests and Chases. Many old trees are growing within hedgerows where management by pollarding would have contributed to feeding livestock and the provision of timber for building. Many sites (and individual trees) in Worcestershire have been surveyed and found to be **nationally important for the saproxylic insect assemblages** that they support. Previous projectshave demonstrated a clear desire to **protect and record these trees**, and to identify or plant new trees that can become the **veterans of the future**.

Open Habitats

Worcestershire has a significant concentration of England's **lowland meadow resource**. Many of these sites are identified via the **well-established Local Wildlife Sites network**, but many more restorable habitat patches are unprotected and at risk. The majority of sites are small and many are in isolated locations, with associated longstanding difficulties in securing appropriate management. There is an **urgency to securing long-term, sustainable restoration and management** of lowland meadow habitat, and to **improving connectivity** between sites located within localised clusters. **Calcareous grasslands**, whilst fewer in number and more restricted in distribution than lowland meadow, also represent an important restorable resource.

There are opportunities across the county's farmed landscape to recover and enhance nature, in addition to those already highlighted such as increasing tree and hedgerow cover and restoring grasslands. This includes the **expansion of existing and creation of new arable wildflower sites**, as Worcestershire has important populations of a number of rare and threatened arable flora. The co-location of sensitively managed arable land close to grazing marsh and wet grassland within the floodplain will increase the feeding and nesting success of farmland birds such as **Lapwing**, whilst species including **Corn Bunting, Grey Partridge** and **Turtle Dove** will also require specific management interventions to recover their population numbers. Working with landowners and managers to **improve soil health** and **reduce soil erosion** from arable farmland will have multiple benefits for biodiversity, soil protection, carbon sequestration, water storage capacity and water quality improvements in rivers and streams.

The Severn and Avon Vales contains a very **large expanse of lowland floodplain**. Within this are remnants of ancient floodplain meadows, a considerable quantity of agriculturally improved wet grassland and land that has been converted to arable. There is a huge opportunity to **revert arable land** to grassland, **re-wet soils** and to restore more sites to **high quality floodplain meadow habitat**. This has the potential to **capture large amounts of soil carbon**, contribute to **soil protection** and to bring about an **improvement in water quality** due to a reduction in sediment entering the rivers. Grassland reversion and an expansion in the area of floodplain managed by traditional grazing and hay making will benefit species such as **Curlew**.

North Worcestershire's **lowland heathlands and acid grasslands** are part of a contiguous sandstone landscape stretching across the Worcestershire, Staffordshire and Shropshire borders. Large areas of habitat are in the ownership of public bodies or the nature conservation sector and are being sensitively managed or restored. There are opportunities to bring more restorable habitat into better management, and to continue to **join up heathland and acid grassland sites at a landscape scale**. The acid grasslands in the west of Worcestershire associated with the Malvern Hills and Commons also offer opportunities for habitat enhancement, which will benefit species such as **Adder**.

Urban Habitats

The management of Worcestershire's 8000km of **road verge** is due to be renegotiated within the lifetime of the LNRS. This provides an opportunity to secure changes to contractual arrangements that would **enhance the floristic and general wildlife value** of a huge expanse of primarily grassland habitat across the county. Consultation during preparation of the LNRS indicated a good level of interest from Town and Parish Councils in the management of verge cutting activity being devolved to a local level. There is also the opportunity for **expansion of the existing Roadside Verge Nature Reserve scheme**.

Urban greenspaces are vitally important for nature and for people. We need to make all semi-natural habitats within the built environment **bigger, more connected and of better quality** to allow wildlife to move through them and thrive within them. Rivers, streams and canals provide vital linear habitat corridors through the built environment, which can contribute to linking urban greenspaces to the local nature network within the surrounding countryside. There is considerable value to be gained for wildlife in promoting the installation of features such as **Hedgehog** highways, **Bat** bricks and **Swift** bricks and boxes, and the availability of increasingly sophisticated data on Artificial Light At Night presents an opportunity for action to enhance habitats for wildlife both in urban areas and the wider countryside by **reducing levels of light pollution**.

Explore the Local Habitat Map

3.6 Landscape-scale and cross-border projects and initiatives

In preparing Local Nature Recovery Strategies, neighbouring Responsible Authorities are encouraged to take a common approach to identifying opportunities, determining priorities and mapping suggested Potential Measures at strategy boundaries. Regular engagement with neighbouring authorities took place during LNRS preparation as well as consultation with key partners, local experts and stakeholders who are active in cross-border areas.

Worcestershire shares a border with six other Local Nature Recovery Strategies: Herefordshire, Gloucestershire, Warwickshire, West Midlands Combined Authority, Staffordshire and Shropshire.

Worcestershire

The Worcestershire Habitat Inventory[90] is a comprehensive habitat and land use inventory of the county. The inventory exists as a Geographical Information System (GIS) maintained by Worcestershire County Council, and incorporates data sources including habitat survey datasets, site-based datasets of statutory and non-statutory nature conservation designations, high-resolution aerial photo interpretation and remote sensing data gathered by satellite.

The county's Local Wildlife Sites Partnership[91] and system is well established and supported. The partnership is co-led by Worcestershire Wildlife Trust and Worcestershire County Council and has an up-to-date, costed action plan. Inclusion of Local Wildlife Sites as LNRS 'Areas of Particular Importance for Biodiversity' provides means and incentive for landowner/manager engagement with LNRS and, it is hoped, future opportunities for drawing funding into the Local Wildlife Sites system to survey and monitor the condition of sites and support landowners/managers with management. A corresponding partnership, led by the Herefordshire and Worcestershire Earth Heritage Trust, exists to identify and help to protect the county's Local Geological Sites, which are also recognised by the LNRS as Areas of Particular Importance for Biodiversity.

Worcestershire contains parts of two National Landscapes, the Malvern Hills and the Cotswolds. The Levelling Up and Regeneration Act requires relevant authorities to actively seek to further the purposes of such protected landscapes when plan-making, including when drafting a Local Nature Recovery Strategy. These purposes include conserving and enhancing natural beauty.

90 Worcestershire Habitat Inventory | Worcestershire County Council

91 Local Wildlife Sites | Worcestershire Wildlife Trust

Explore the Local Habitat Map

West Worcestershire including the Herefordshire border

Worcestershire and Herefordshire share a border of around 75km in length, of which the Malvern Hills National Landscape spans approx. 20km. The Malvern Hills National Character Area[92] covers the majority of the area of the shared protected landscape. Consultation with National Landscape staff ensured that the priorities for nature set out within the National Landscape's Nature Recovery Plan[93] were captured within the LNRS and reflected within the mapped Potential Measures. It also ensured that LNRS mapped Potential Measures were considered as part of the evidence base for the National Landscape's Targets and Outcomes Framework[94].

The Kyre Brook catchment is a priority for the Worcestershire LNRS. This flashy catchment poses a high flood risk to properties in Tenbury and is a target in Worcestershire for natural flood management interventions, which have high potential to deliver nature recovery through habitat creation and enhancement. The wider catchment also contains a protected site in unfavourable declining condition, and which has a groundwater dependent element to the habitats present on the site. Some of the headwaters of the Kyre Brook are in Herefordshire and therefore land use and management practices across the border will affect water quality within the whole catchment. The catchment is entirely within the Herefordshire Plateau National Character Area[95].

Severn Treescapes[96] is a Worcestershire, Gloucestershire and Herefordshire Wildlife Trust partnership project working across the three counties to create a 60-mile corridor of enhanced tree cover to connect two of England's largest areas of semi-natural woodland: the Lower Wye Valley and Forest of Dean in the south to the Wyre Forest in the north. The project incorporates a large part of the Worcestershire-Herefordshire border area and the project's core objective of enhancing tree cover is reflected in the suggested Potential Measures for the creation and enhancement of woodland, hedgerow and traditional orchard habitat.

South Worcestershire including the Gloucestershire border

Worcestershire and Gloucestershire are linked fundamentally by the River Severn and its floodplain and by the necessity (shared with other counties to the north and across the Welsh border) to protect and conserve the habitats and species within the Severn Estuary SPA/ Ramsar. The Unlocking the Severn project led by the Environment Agency, Severn Rivers Trust and Canal & River Trust made a significant contribution to removing the barriers to the passage of migratory fish species travelling from the north Atlantic into the Severn river basin, such as **Atlantic Salmon** and **Shad**.

92 Malvern Hills - National Character Area Profiles
93 Malvern Hills AONB Nature Recovery Plan
94 Protected Landscapes Targets and Outcomes Framework - GOV.UK
95 Herefordshire Plateau - National Character Area Profiles
96 Severn Treescapes | Worcestershire Wildlife Trust

Explore the Local Habitat Map

The Severn and Avon Vales National Character Area[97] covers a significant proportion of Worcestershire. Protection of non-fish species using the Severn estuary depends in large part on water quality and on the appropriate management of functionally linked wetland, grassland and arable habitats in the floodplain. Meetings with LNRS counterparts in Gloucestershire and local species experts were held to discuss methodologies for mapping suggested Potential Measures for the creation and enhancement of wet grassland and floodplain meadow habitat and the conservation of populations of wetland and wader birds such as **Curlew, Redshank** and **Lapwing**.

The landscape between Bredon Hill SAC (southeast Worcestershire) and Dixton Wood SAC (north Gloucestershire) is a high priority for both Worcestershire and Gloucestershire. The two sites are of European importance for insect species dependent on ancient and veteran tree habitats and represent two of only three English sites where **Violet Click** beetle has been recorded. Both LNRSs have suggested Potential Measures for creating and enhancing woodland, tree and deadwood habitat and are using a shared boundary for the mapping of these measures.

The Carrant Brook catchment is a priority for the Worcestershire LNRS. It is a target in Worcestershire for natural flood management interventions and a priority due to the number of extant and in-restoration lowland meadows and floodplain meadows along the brook, which have the potential to support breeding **Curlew**. The catchment also contains the landscape that connects Bredon Hill and Dixton Wood SACs, both designated for **Violet Click** beetle but nationally important for a range of deadwood-dependent insect species.

The catchment sits across the Worcestershire-Gloucestershire border and there is an active farmer facilitation group led by FWAG South West[98] with a wide-ranging remit to improve the habitats and the ecological functioning of the landscape either side of the brook corridor, including the habitat linkages between Bredon Hill and Dixton Wood.

East Worcestershire including the Warwickshire border

Around 25km of the Worcestershire-Warwickshire border is spanned by the Arden National Character Area[99]. This landscape is strongly associated with ancient woodlands, species-rich hedgerows, mature hedgerow oaks, and former wood pasture and parkland. North east Worcestershire and north west Warwickshire, as well as a small, rural, corner of the West Midlands Combined Authority (within Solihull Metropolitan Borough) also share a concept of 'pondscapes' – landscapes with a high density of small ponds and a higher-than-average proportion of intact, connecting terrestrial habitat around and between ponds that supports meta-populations of species that benefit from clusters of ponds in close proximity, such as **Great Crested Newt**.

The Heart Of England Forest [100] own and manage around 7,500 acres of land in Worcestershire and Warwickshire, including over 600 acres of existing mature and ancient woodland, with a vision to create a forest of 30,000 acres. This offers considerable opportunity for nature recovery in east and southeast Worcestershire, where new woodland is already being planted and existing habitats including ancient woodland, traditional orchard and lowland meadow are being enhanced.

97 Severn and Avon Vales - National Character Area Profiles

98 Carrant Catchment Restoration Project | Farming and Wildlife Advisory Group South West Limited

99 Arden - National Character Area Profiles

100 About us | Heart of England Forest

North Worcestershire including the West Midlands Combined Authority border

Worcestershire shares a boundary of approx. 45km with the West Midlands Combined Authority. Large parts of north Worcestershire fall within the Green Belt that surrounds the Birmingham conurbation. This part of Worcestershire is important for the opportunities it can provide for people to access the countryside and experience nature. However, visitor numbers are generally concentrated on a small number of sites such as Country Parks, which experience high recreational pressure and levels of disturbance. This creates challenges for delivering nature recovery in a way that is compatible with people wanting to spend time in nature. The National Trust are promoting the establishment of an 8-Hills Regional Park[101] of around 47 square miles in north Worcestershire focused on improving countryside access, enhancing the landscape and improving wildlife corridors.

The catchment of the River Stour falls across the Staffordshire-Worcestershire-West Midlands boundary. Most of the upper catchment falls within the Birmingham conurbation, with brooks and streams flowing through Wolverhampton, Sedgley, Kingswinford, Stourbridge and Halesowen before reaching a confluence a few miles north of Worcestershire's border. Five water bodies within the Stour catchment are wholly or partly within Worcestershire and all are a priority for the LNRS. Delivery of Potential Measures within the West Midlands Combined Authority strategy area, which will deliver wider environmental benefits for water quality and in-channel and riparian habitat quality in the Stour, have the potential to achieve significant positive downstream benefits for Worcestershire.

101 8 Hills Regional Park | Worcestershire | National Trust

North Worcestershire including the Staffordshire border

Worcestershire and Staffordshire share a short border of around 10km in length. The heathlands and acid grasslands of north Worcestershire are linked ecologically and in landscape terms with those in south Staffordshire, as part of the Mid Severn Sandstone Plateau National Character Area[102]. Important sites within the border area are Kinver Edge (Staffordshire) and Kingsford Forest Park (Worcestershire), both now cared for as a contiguous landscape by National Trust. Slightly further south around Stourport and Kidderminster is a significant area of acid grassland and heathland owned and managed by Worcestershire County Council, Wyre Forest District Council[103] and Worcestershire Wildlife Trust[104]. The largest contiguous block of land stretches over 300 acres and includes areas of existing high value designated as a Site of Special Scientific Interest or Local Wildlife Site, as well as areas that have recently begun the process of restoration.

The 'Sandscapes Project'[105] developed by National Trust aims to restore and reconnect heathland and acid grassland habitats across the three counties of Shropshire, Staffordshire and Worcestershire, beginning at National Trust properties at Dudmaston and Kinver. The sites mapped within this Sandscapes zone were considered in the context of the modelled Worcestershire Open Habitats Nature Network to ensure that all priority heathland and acid grassland habitats were captured by the modelling, and discussions were held with National Trust project staff over the wording and mapping of suggested Potential Measures for the creation and enhancement of these habitats.

102 Mid Severn Sandstone Plateau - National Character Area Profiles
103 Heathland restoration project | Wyre Forest District Council
104 Saving Worcestershire's heathlands | Worcestershire Wildlife Trust
105 Sandscapes at Dudmaston and Kinver Edge | National Trust

Northwest Worcestershire including the Shropshire border

Worcestershire and Shropshire share a border of around 45km. The Wyre Forest, as England's largest woodland National Nature Reserve, is a significant shared resource between the two counties. Habitat creation and enhancement in the wider landscape surrounding the forest will help to expand, buffer and connect to the woodland, grassland, heathland and traditional orchard habitats within the protected forest boundary.

The Dowles Brook catchment is a priority for the Worcestershire LNRS. This flashy catchment poses a high flood risk to properties in Bewdley and is a target in Worcestershire for natural flood management interventions. It is also an Environment Agency priority for the removal or modification of barriers to fish passage. Over half of the Worcestershire part of the catchment includes land within the Wyre Forest SSSI and/or NNR and there are parts of the SSSI in unfavourable declining condition and which are groundwater dependent. The Dowles Brook catchment is also the home of the first **Beavers** reintroduced to Worcestershire.

Worcestershire, Herefordshire and Shropshire share almost the entirety of the River Teme catchment, with the greatest extent falling within Shropshire. The upper headwaters of the Teme, a small proportion of the entire catchment by area, fall under the management of Natural Resources Wales. The River Teme itself is a SSSI, with all parts of the designated feature in unfavourable condition. Poor water quality, low flows and invasive non-native species are all contributing factors in this. All of the water bodies that make up the lower reaches of the Teme, up to its confluence with the Severn, are a priority within the Worcestershire LNRS to improve the quality and availability of water within the SSSI.

Chapter 4. Priorities for Nature's Recovery

Further resources to support this section:

1. LNRS Biodiversity Priorities and Potential Measures webpage
2. LNRS Evidence Base webpage
3. LNRS Local Habitat Map webpage

This chapter presents the agreed local priorities for nature recovery in Worcestershire and the suggested Potential Measures that could be delivered to benefit nature.

4.1 Our vision for Worcestershire

'Worcestershire's Local Nature Recovery Strategy will be the blueprint for achieving more, bigger, healthier, better connected natural habitats that are richer in all wildlife and able to support the recovery of the county's most threatened species. The LNRS will play a key role in improving the county's resilience to climate change, helping land managers achieve nature recovery alongside sustainable food production and regenerative farming practices, and supporting our communities to increase their understanding of and engagement with nature.'

4.2 Headline Principles for the Worcestershire LNRS

Create bigger, better, more joined-up areas for nature
The LNRS must drive the creation of bigger, better, more joined-up habitats, and increase the proportion of habitat in the county that falls within large, well-connected habitat networks.

Champion resilience to climate change
LNRS measures must promote and support ecological resilience to climate change and contribute to adaptation and mitigation efforts, in particular supporting net-zero ambitions within the farming industry and increasing climate resilience within the built environment.

Guide land management decision-making
The LNRS must be a useful tool to aid decision-making by farmers and other land managers when identifying how they can contribute to nature recovery and improve ecological resilience or meet the requirements of environmental grants and schemes.

Require development to bring nature into better condition
The LNRS has a statutory role to incentivise the creation and enhancement of nature-rich habitats for Biodiversity Net Gain in locations that have been mapped as strategically significant for the delivery of nature recovery.

Promote the use of Nature-Based Solutions
The LNRS must make nature-based solutions the first choice for delivering interventions to bring about nature recovery.

Set out longer-term aspirations
The LNRS must acknowledge longer-term aspirations for nature recovery. Some priorities and measures may be included within the strategy because there is a need to begin research, partnership-building, stakeholder engagement or other enabling work now, to make delivery over the medium-long term feasible.

Enable measuring and monitoring of outcomes
The LNRS must develop a robust data capture framework to monitor the delivery of mapped and non-mapped measures and the success of achieving nature recovery outcomes.

Bring nature into the built environment
The LNRS will support the delivery of good green infrastructure within our built environment with the purpose of enhancing local ecological networks, reducing the negative impacts of noise and light pollution on species, and contributing to the national standards for tree canopy cover and accessible greenspace.

Deliver nature recovery on protected sites and within protected landscapes
The LNRS will support the delivery of nature recovery within our Protected Landscapes and will propose measures that will contribute to improving the condition of our statutory protected sites.

Deliver nature recovery co-benefits
The LNRS should seek opportunities for the delivery of co-benefits to nature recovery, such as increasing access to nature, improving health and well-being, enhancing landscapes, protecting heritage and the historic environment, and protecting geodiversity.

4.3 Worcestershire's Biodiversity Priorities and Potential Measures

Biodiversity Priorities

The Biodiversity Priorities are the habitats, species and environmental issues which are of greatest importance to the county to secure nature's recovery.

There are 42 Biodiversity Priorities and a further 26 Species Priorities, which are grouped into seven themes:

- Water and Wetlands
- Trees, Scrub and Woodland
- Open Habitats
- Landscape-scale and Linear Habitat Connectivity
- Earth Heritage
- Green Infrastructure
- Species

The following documents are available to show how the priorities were selected:

- Creating the list of proposed Biodiversity Priorities (habitats and environmental issues) for the Worcestershire LNRS
- Creating the list of proposed Species Priorities for the Worcestershire LNRS
- Biodiversity Priorities Assessment Matrix
- Species Priorities Assessment Matrix

Appendix 1 presents a comprehensive data sheet for each of the Biodiversity Priorities. The data sheets list the Potential Measures contributing to each priority, the wider environmental benefits that could be delivered by undertaking those measures, and the UKHab codes that would be consistent with habitat creation and enhancement for Biodiversity Net Gain.

Water and Wetlands Theme	Priorities
Rivers and Streams	**Biodiversity Priority 1:** Improve the quality of the water within Worcestershire's rivers and streams **Biodiversity Priority 2:** Improve the availability of water within Worcestershire's rivers and streams to improve condition of habitats and increase species' resilience to flood and drought events **Biodiversity Priority 3:** Improve the quality and extent of in-channel and riparian habitat for key species, for example shad, brown trout, eel, white-clawed crayfish and water vole
Groundwater Dependent Habitats	**Biodiversity Priority 4:** Improve the hydrological functioning and condition of groundwater-fed wetland sites
Still Freshwater Habitats	**Biodiversity Priority 5:** Increase the number of ponds and the extent and connectivity of wetland and terrestrial habitat between ponds **Biodiversity Priority 6:** Improve the condition of ponds and the number of ponds that qualify for priority pond status
Fen, Marsh, Swamp and Reedbed	**Biodiversity Priority 7:** Increase the extent of wetland habitats under restoration and in good condition
Saline Habitats	**Biodiversity Priority 8:** Increase the extent of saline habitats under restoration and in good condition

Trees, Scrub and Woodland Theme	Priorities
Native Trees and Woodland	**Biodiversity Priority 9:** Increase tree cover in the form of woodland and trees outside woodland, including hedgerow trees, orchards, riparian/wet woodland and urban tree canopy cover **Biodiversity Priority 10:** Improve the condition of ancient semi-natural woodlands and bring more PAWs woodlands into restorative management **Biodiversity Priority 11:** Increase the functional connectivity between woodlands at a landscape scale, to allow for species movement
Hedgerows	**Biodiversity Priority 12:** Increase the extent of hedgerow habitat to enhance their ability to function as linear corridors for wildlife **Biodiversity Priority 13:** Increase the number of hedgerows in good condition for wildlife by managing them according to best practice guidelines **Biodiversity Priority 14:** Improve shrub and ground flora diversity within hedgerows to enhance their function as a food source for wildlife
Wood Pasture and Parkland	**Biodiversity Priority 15:** Increase the extent of wood pasture and parkland habitat, including to buffer and connect sites of existing importance for biodiversity
Existing and Future Ancient and Veteran Trees	**Biodiversity Priority 16:** Increase the number of ancient and veteran trees being sensitively managed to extend their lifespan **Biodiversity Priority 17:** Increase the amount of standing and fallen deadwood available for wildlife within the wider countryside
Scrub	**Biodiversity Priority 18:** Increase the amount of well-managed scrub habitat
Traditional Orchard	**Biodiversity Priority 19:** Create more traditional orchard habitat **Biodiversity Priority 20: Bring more existing traditional orchards into a programme of life-extending, restorative management**

Open Habitats Theme	Priorities
Floodplain Meadow and Wet Grassland	**Biodiversity Priority 21:** Increase the extent of floodplain meadow habitat under restoration and in good condition **Biodiversity Priority 22:** Reduce fragmentation and increase the functional connectivity between areas of floodplain meadow **Biodiversity Priority 23:** Increase the extent of wet grassland habitat under restoration and in good condition
Lowland Meadow	**Biodiversity Priority 24:** Increase the extent of lowland meadow habitat under restoration and in good condition **Biodiversity Priority 25:** Reduce fragmentation and increase the functional connectivity between areas of lowland meadow
Acid Grassland and Lowland Heathland	**Biodiversity Priority 26:** Increase the extent of acid grassland and heathland habitats under restoration and in good condition **Biodiversity Priority 27:** Reduce fragmentation and increase the functional connectivity between areas of acid grassland and heathland habitats
Calcareous Grassland	**Biodiversity Priority 28:** Increase the extent of calcareous grassland habitat under restoration and in good condition **Biodiversity Priority 29:** Reduce fragmentation and increase the functional connectivity between areas of calcareous grassland
Habitats associated with Arable Farmland including field margins, headlands and set aside	**Biodiversity Priority 30:** Increase the number of sites supporting diverse, well-managed populations of arable wildflowers **Biodiversity Priority 31:** Increase the abundance and diversity of pollinating insect species, birds and small mammals on farmland

Landscape-scale and Linear Habitat Connectivity Theme	Priorities
Local Sites Network	**Biodiversity Priority 32:** Increase the number of Local Sites that are in positive conservation management with habitats in good or recovering condition
Strategic Nature Corridors	**Biodiversity Priority 33:** Increase the number of core sites within the Worcestershire Nature Recovery Network which are being effectively conserved and managed for nature **Biodiversity Priority 34:** Reduce fragmentation and increase the functional connectivity between core sites within the Worcestershire Nature Recovery Network
Road Verge Management	**Biodiversity Priority 35:** Increase the biodiversity value of road verges across Worcestershire
Artificial Light at Night	**Biodiversity Priority 36:** Reduce the harm to wildlife caused by artificial light at night

Earth Heritage Theme	Priorities
Soils	**Biodiversity Priority 37:** Halt the loss of soils from agricultural land **Biodiversity Priority 38:** Improve organic matter, biodiversity, water retention capacity and carbon content within agricultural soils
Rock and Scree Habitats	**Biodiversity Priority 39:** Increase the number of well managed geological exposures to provide early successional habitats important for a range of plant and invertebrate assemblages and nesting birds, as well as research and educational opportunities

Green Infrastructure Theme	Priorities
Green Spaces in the Built Environment	**Biodiversity Priority 40:** Cities, towns and villages to be places richer in nature with a greater extent of connected, accessible greenspace within them **Biodiversity Priority 41:** All built development to maximise the provision of wildlife-friendly features and corridors within their design
Prioritisation of Nature Recovery	**Biodiversity Priority 42:** The delivery of nature recovery is integral to both the strategic planning and design of new development and the development management process

Species Theme	Priorities
Water Vole	Recovery of ***Water Vole*** population
Adder	Expand the range of the two core ***Adder*** populations
Dormouse	Habitat creation and enhancement for ***Dormouse*** Carry out ***Dormouse*** reintroductions
Pied Flycatcher	Increase nesting habitat and food sources for ***Pied Flycatcher***
Hedgehog	Increase ***Hedgehog*** population
Nightingale	Habitat creation and enhancement for ***Nightingale***
Brown Hairstreak	Habitat creation and management for ***Brown Hairstreak***
White-clawed Crayfish	Recovery of ***White-clawed Crayfish*** population
Toad	Increase the numbers and distribution of ***Toad***
Turtle Dove	Recovery of ***Turtle Dove*** population
Kentish Glory	Reintroduction of ***Kentish Glory*** moth to the Wyre Forest
True Service Tree	Increase the numbers and distribution of ***True Service Tree***
Black Poplar	Increase the numbers and distribution of ***Black Poplar***
Six-spotted Pot Beetle	Increase the numbers and distribution of ***Six-spotted Pot Beetle***
Longhorn Lime Beetle	Increase the numbers and distribution of ***Longhorn Lime Beetle***
Poplar Leaf-rolling Weevil	Increase the numbers and distribution of ***Poplar Leaf-rolling Weevil***
House Martin and Swift assemblage	Increase nesting habitat and food sources for ***House Martin*** and ***Swift***
Woodland bat assemblage	Habitat creation and enhancement for ***Barbastelle*** and ***Bechstein's Bats***
Cave and building bat assemblage	Habitat creation and enhancement for ***Greater Horseshoe, Lesser Horseshoe, Brandt's*** and ***Serotine Bats***

Species Theme	Priorities
Migratory fish assemblage	Remove barriers to migratory fish passage for ***European Eel, Sea Lamprey, River Lamprey, Brown Trout, Atlantic Salmon, Allis Shad, Twaite Shad*** and ***Barbel***
Wetland and wader bird assemblage	Create and enhance habitat for wetland and wading birds, focusing on ***Lapwing, Curlew*** and ***Redshank***
Farmland bird assemblage	Recovery of Farmland bird populations, focusing on ***Corn Bunting, Grey Partridge*** and ***Yellow Wagtail***
Fritillary butterfly assemblage	Recovery of ***Pearl-bordered Fritillary*** and ***Small Pearl-bordered Fritillary*** butterfly populations on the Malvern Hills
Rare plants assemblage	Increase the numbers and distribution of rare plants, focusing on ***Tower Mustard, Deptford Pink, Sand Catchfly, Round-leaved Wintergreen*** and ***Round-leaved Sundew***
Helleborine assemblage	Increase the numbers and distribution of ***Narrow-leaved Helleborine*** and ***White Helleborine***
Wet woodland assemblage	Increase the numbers and distribution of rare wet woodland species, focusing on ***Elongated Sedge, Alder Bolete, Pholiota lucifera*** (Scalycap fungus) and ***Laccaria purpureobadia*** (fungus)

Potential Measures

Making a measurable difference for the LNRS priority habitats, species and environmental issues will require a step-change in the delivery of effective action on the ground. The Potential Measures for the Worcestershire LNRS are suggested practical actions that can be taken to achieve the biggest gains for nature.

The Local Nature Recovery Strategy (LNRS) is not a delivery plan. Landowners of the areas mapped are not obliged to deliver the opportunities identified. It does not prevent land use change. The habitat map is not definitive; it is based on the best available data at the time and may therefore not always accurately reflect what is on the ground. Before undertaking a Potential Measure, permission from the landowner must be granted, the necessary surveys/assessments must be undertaken, and appropriate consents and approvals obtained from relevant authorities.

There are two types of Potential Measures within the Worcestershire LNRS:

- **Mapped Potential Measures** are suggested for a specific location. This may be a site where important habitats or species may already exist or where the landowner has told us they are committed to delivering nature recovery activity, or activities suggested for delivery across a wider defined area, where delivery is likely to require cooperation from multiple landowners.
- **Non-mapped Potential Measures** do not appear on the Local Habitat Map. These are activities that would be beneficial for nature anywhere within Worcestershire or are proposed for especially rare or threatened species where the geographical location is withheld. They may also be supporting activities that don't involve 'on the ground' nature conservation work. Non-mapped measures have equal value to mapped measures and ensure that anyone within the strategy area is able to take action to recover or enhance nature.

Mapped Potential Measures can be viewed on the Local Habitat Map. The LNRS evidence base contains a collection of Storymaps showing how the best available data and information was used to create the list of suggested Mapped and Non-Mapped Potential Measures. Within the tables below, the title of each Potential Measure is hyperlinked to the corresponding Storymap.

Appendix 1 presents a comprehensive data sheet for each of the Biodiversity Priorities. The data sheets list the Potential Measures contributing to each priority, the wider environmental benefits that could be delivered by undertaking those measures, and the UKHab codes that would be consistent with habitat creation and enhancement for Biodiversity Net Gain.

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Habitat Potential Measures

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 1	De-culvert and re-naturalise watercourses	De-culvert watercourses to enable improved wildlife passage through or around man-made barriers. Re-naturalise channels and create or enhance associated wetland habitat to provide feeding, refuge and spawning/breeding habitat for freshwater fish and invertebrate species and mammals such as water vole and otter.	Mapped
Potential Measure 2	Create riparian buffer zones	Create or enhance riparian buffer zones comprising of a woodland/grassland mosaic with no cultivation or input of agri-chemicals. Within this zone look for opportunities to create or enhance 1) riparian woodland habitat, including wet woodland, 2) the bankside tree resource through new planting, pollarding and coppicing, 3) areas of wet and dry reedbed, 4) areas of wet grassland or marsh.	Mapped
Potential Measure 3	Revert land to wet grassland and floodplain meadow	Revert arable and horticultural land and intensive pasture to permanent wet grassland, stop agri-chemical inputs and manage by grazing and hay cutting. Where possible create or enhance wet grassland habitat quality to MG4 species-rich floodplain meadow.	Mapped
Potential Measure 4	Protect and improve water resources	Protect and enhance surface waters and wetlands, at-risk groundwater aquifers and groundwater-fed wetland systems by implementing changes to land management that will improve water quality and availability. Changes could include: reducing soil erosion by creating grassland buffer strips or reverting arable fields to grassland; adopting sustainable soil management practices such as minimum tillage and use of cover crops; adopting integrated pest management in place of pesticide and herbicide use; re-naturalising hydrological flows by blocking drains, reconnecting watercourses to their floodplain and creating wetland features such as ditches, ponds or scrapes to slow the flow; taking steps to eradicate invasive non-native plant species and following biosecurity protocols to prevent their spread; installing SuDS to capture soil and pollutants and aid infiltration; installing on-farm reservoirs and rainwater harvesting features to reduce the need for abstraction.	Non-Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 5	Natural flood management	Use ecological engineering and nature-based solutions to re-naturalise local hydrological flows, reduce flood risk, promote infiltration, support groundwater recharge, provide feeding, refuge and spawning/breeding habitat for species, reconnect watercourses to their floodplains and improve water quality and availability by creating and enhancing wetland habitats that will hold back water, such as: tree planting to encourage infiltration, creation of attenuation areas, ponds, swales, ditches or wetland habitat such as fen, wet woodland or wet grassland, installing leaky woody dams, reinstating meanders, use of keystone species to contribute to the restoration of ecosystem function.	Non-Mapped
Potential Measure 6	Create wildlife ponds in low-density pond areas	Create new wildlife ponds including provision of connected terrestrial habitat around pond sites, in particular grassland, scrub and hibernacula.	Non-Mapped
Potential Measure 7	Create and enhance wildlife ponds and surrounding habitat in high-density and high-value pond areas	Enhance existing pondscapes by improving the quality and quantity of water entering ponds (see Potential Measure 4), creating additional ponds and wetland habitat, and creating or enhancing connected terrestrial habitat around and between ponds, in particular grassland, scrub and hibernacula/refugia suitable for use by amphibians.	Mapped
Potential Measure 8	Create and enhance wetland habitat	Use nature-based solutions to raise and maintain water tables and re-wet land to enable the creation or enhancement of a wetland habitat mosaic and the reconnection of watercourses with their floodplain. As appropriate to the soil type, geology and hydrology seek to create and enhance a mosaic of: fen, marsh, swamp, bog, peat, wet grassland, wet woodland and reedbed habitat.	Mapped
Potential Measure 9	Create and restore saline habitats	Incorporate restoration of saline conditions when creating or enhancing wetland habitat within the Salwarpe Valley, where this is supported by the geology and hydrology, and work with stakeholders to better understand and promote the value of the unique hydrological conditions in this location.	Mapped
Potential Measure 10	Restore PAWS woodlands	Restore habitat by gradually removing non-native tree species using recognised forestry techniques such as thinning and clearfell, retaining veteran trees to act as a seed source, allowing natural regeneration where possible, creating structural and species diversity.	Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 11	Enhance condition of ancient semi-natural woodlands	Enhance condition of ancient woodlands by improving structural and species diversity using techniques such as thinning, coppicing and pollarding, and by taking a habitat mosaic approach to incorporate open space, rides and ponds.	Mapped
Potential Measure 12	Plant new woodlands and trees outside woodland	Create new woodland taking a habitat mosaic approach to incorporate open space, rides and ponds; buffer and extend priority woodland sites; and increase tree-cover connectivity across the landscape.	Mapped
Potential Measure 13	Enhance condition of existing woodlands for wildlife	Increase the diversity of shrub and tree species within woodland, woodland edge and scrub habitats to provide a year-round supply of pollen, nectar, fruit and seeds for wildlife. Increase the volume of deadwood within woodland, both standing and fallen, for invertebrates, fungi, mosses, bryophytes, bat and bird spp. Increase the availability of food plants used by invertebrates found within woodland, for example Wood White, White Admiral, Grizzled Skipper and Dingy Skipper butterflies. Inoculate woodland with material from adjacent established woodlands, where appropriate, to introduce fungi and ground flora communities.	Mapped
Potential Measure 14	Increase tree cover in the farmed landscape	Increase tree cover in the farmed landscape (outside existing woodland) using new agroforestry schemes such as silvo-pasture or silvo-arable, as well as planting up shelterbelts, field corners, copses and hedgerow trees.	Non-Mapped
Potential Measure 15	Manage deer and squirrel numbers to protect woodland	Manage deer and squirrel populations through a landscape scale approach, to allow woodlands to naturally regenerate and to protect newly planted trees, woodland shrub and ground flora layers.	Non-Mapped
Potential Measure 16	Create new hedgerows	Create new native species hedgerows, including reinstatement of 'ghost' hedgerows, to enhance habitat connectivity across the landscape between areas of priority woodland, scrub or orchard habitat. Seek to include the creation of associated linear features such as banks and ditches with the hedgerow, to widen the range of habitat niches available for species.	Non-Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 17	Enhance condition of hedgerows	Enhance condition of existing hedgerows informed by regular hedgerow condition assessments using available guidance and tools. Best practice includes planting up gaps, diversifying the native species mix, allowing flowering and fruiting, leaving wide grassy margins at the base, creating or restoring associated linear features such as banks and ditches, and rotational cutting.	Non-Mapped
Potential Measure 18	Increase numbers of hedgerow trees	Plant new native species trees in hedgerow gaps or identify existing trees to become part of the future mature and veteran hedgerow tree stock, particularly disease-resistant English elm, black poplar (in appropriate landscapes) and English oak.	Non-Mapped
Potential Measure 19	Enhance wood pasture and parkland habitat	Enhance existing wood pasture and parkland habitat by planting / replacing trees, ensuring sensitive management of mature, veteran and ancient trees, increasing the supply of deadwood, and carrying out extensive / conservation grazing or haymaking to create or enhance species-rich grassland understorey.	Mapped
Potential Measure 20	Create new wood pasture and parkland habitat	Create new wood pasture and parkland habitat and manage using a conservation grazing system to buffer and link up species-rich grassland, scrub and veteran tree habitat.	Mapped
Potential Measure 21	Enhance condition of pre-veteran, veteran and ancient trees	Enhance condition of existing veteran and ancient trees by carrying out appropriate management to prolong life and maintain habitat value for wildlife, including halo thinning within woodland or scrub, crown rebalancing or reduction, protecting root zones, and restoring soil health with a focus on fungi (mycorrhizal) communities.	Mapped
Potential Measure 22	Enhance landscape connectivity for species using veteran and ancient trees	Enhance connectivity and availability of habitat for dead-wood dependent invertebrates, and other species that use veteran and ancient trees including birds and bats, by retaining dead wood, carrying out veteranisation of mature trees and planting new trees, hedgerows and hedgerow trees. Add sources of nectar and pollen into the landscape surrounding veteran and ancient trees.	Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 23	Create and enhance a habitat mosaic	Create and enhance a mosaic of locally appropriate habitats, including scrub, woodland, hedgerows, grassland, orchard, ponds and other wetland features. The composition of the mosaic and location of the habitats should be informed by the best ecological fit modelled by the Worcestershire Habitat Mosaic Nature Recovery Network. New and enhanced habitats should be located so as to a) maximise habitat diversity within the mosaic, b) maximise the expansion, buffering and connectivity that can be delivered for (or between) existing on-site or adjacent priority habitats or core sites (APIBs), and c) to create ecotones between habitats. If this Potential Measure is relevant to a BNG site or BNG Habitat Bank: see Section 3.1 Biodiversity Net Gain in LNRS Statement of Biodiversity Priorities.	Mapped
Potential Measure 24	Create and enhance scrub habitat	Create and enhance scrub habitat as an ecotone, in particular at woodland edges, woodland-grassland transitions, and as a component of wood pasture and traditional orchard habitats.	Non-Mapped
Potential Measure 25	Enhance wildlife value of newly created and younger orchards	Enhance wildlife value of newly created and younger orchards by carrying out formative pruning, managing without the use of chemicals, protecting trees from pest damage, and controlling grass and scrub at the base of trees.	Mapped
Potential Measure 26	Enhance wildlife value of older traditional orchards	Enhance wildlife value of older traditional orchards through retention of dead wood, sensitive pruning and new planting, and through the creation, restoration and management of associated habitats such as hedgerows, species-rich grassland, scrub and ponds. Promote connectivity between orchards through fruit tree planting in hedgerows.	Mapped
Potential Measure 27	Create new orchards	Create new orchards as part of increasing tree-cover connectivity across the landscape, where possible incorporating a mosaic of associated habitats such as species-rich grassland, hedgerows, scrub and ponds.	Mapped
Potential Measure 28	Plant hedgerow fruit trees	Plant new hedgerow fruit trees using local provenance varieties to create connecting corridors between existing orchards, which provide pollen, nectar and fruit for wildlife.	Non-Mapped

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Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 29	Create or enhance species-rich neutral grassland	Create new and/or enhance existing areas of neutral grassland. Seek to buffer, extend and connect the areas of priority habitat which are under restoration and appropriate management and aim to increase botanical species-richness as appropriate to the habitat type. Take a habitat mosaic approach to incorporate scrub, orchard and ponds where appropriate. Allow for periodic disturbance to make areas of bare ground suitable for use by invertebrate species or by plant species that are intolerant of competition.	Mapped
Potential Measure 30	Create or enhance species-rich acid grassland and lowland heathland	Create new and/or enhance existing areas of acid grassland and heathland. Seek to buffer, extend and connect the areas of priority habitat which are under restoration and appropriate management and aim to increase botanical species-richness as appropriate to the habitat type. Take a habitat mosaic approach to incorporate scrub, fen and ponds where appropriate. Allow for periodic disturbance to make areas of bare ground suitable for use by invertebrate species or by plant species that are intolerant of competition.	Mapped
Potential Measure 31	Create or enhance species-rich calcareous grassland	Create new and/or enhance existing areas of calcareous grassland. Seek to buffer, extend and connect the areas of priority habitat which are under restoration and appropriate management and aim to increase botanical species-richness as appropriate to the habitat type. Take a habitat mosaic approach to incorporate scrub, orchard and ponds where appropriate. Allow for periodic disturbance to make areas of bare ground suitable for use by invertebrate species or by plant species that are intolerant of competition.	Mapped
Potential Measure 32	Expand existing populations of arable wildflowers	Enhance existing arable margins and headlands to support the expansion of populations of rare arable wildflower species.	Mapped
Potential Measure 33	Create new arable wildflower sites	Create new arable margins and headlands and manage these to provide conditions for rare arable wildflowers to flourish. Locate margins and headlands where these can provide buffering, stepping stones or connectivity between existing arable wildflower sites.	Mapped
Potential Measure 34	Create new wildlife habitats on cropped farmland	Create new conservation headlands, margins, over-winter bird food plots, and areas of permanent or temporary set-aside across farmland, using a diverse grassland species mix to provide year-round foraging, commuting and shelter opportunities for a variety of wildlife, including insects, small mammals and birds. Adopt integrated pest management in place of pesticide and herbicide use. If possible, locate new habitat where it can buffer or connect to existing similar habitats, roadside verge nature reserves, or lowland meadow priority habitat.	Non-Mapped

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Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 35	Improve soil health	Improve the health and resilience of agricultural soils by adopting land management techniques that will support a reduction in soil erosion and an increase in soil organic matter, biodiversity, carbon content and water retention. Share knowledge through research or demonstration.	Non-Mapped
Potential Measure 36	Protect soils from erosion	Protect soils from erosion by removing cultivation in steeper areas, implementing no- or low-till arable management, planting and restoring hedgerows, and creating in-field and field edge grass buffer strips.	Non-Mapped
Potential Measure 37	Create and enhance niche biological habitats within geological exposures	Create new or enhance existing permanent geological exposures and maintain these to provide niches for unique biological habitats to thrive and to provide research and educational opportunities.	Non-Mapped
Potential Measure 38	Increase the extent, connectedness and quality of wildlife habitats within the built environment	All built environments should allow wildlife to safely move through them and thrive within them. Decisions on the layout and design of built-up areas, at all scales, should seek to make a positive contribution to providing more, bigger and better-connected areas of natural habitats. As a minimum, decision-makers should seek to: ✿ Increase urban tree canopy cover, aiming for a minimum of 20%, through, for example, planting street trees, trees in green spaces, hedgerows, community orchards, or small woodland blocks, strips or corridors. ✿ Make individual homes, gardens and boundary features more wildlife-friendly through, for example, the installation of hedgehog highways, universal swift nest bricks and bat bricks. ✿ Create more wildlife ponds within public greenspaces and gardens. ✿ Provide green active travel corridors that function as linear wildlife habitats as well as cycleways and footways. ✿ Design the layout of new gardens and greenspaces so that they contribute to a cohesive network of green corridors within the built environment. ✿ Link urban green spaces to the local nature network in the surrounding countryside via green, wildlife-friendly corridors.	Mapped

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Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 39	Enhance existing community green spaces for wildlife	Enhance existing community green spaces for wildlife by creating and managing areas of natural habitat appropriate to the location, for example mini-meadows, tussocky grassland, ponds, fruit trees and hedgerows and providing features such as nest boxes and hibernacula for birds, bats, hedgehogs and insects. Encourage the adoption of wildlife-friendly food production methods within growing spaces e.g. the use of natural pest control.	Mapped
Potential Measure 40	Install gully-pot escape ladders	Include gully-pot escape ladders within the design of drainage systems for all new roads and retrofit ladders to existing gully pots within landscapes mapped by Potential Measure 7.	Non-Mapped
Potential Measure 41	Enhance the biodiversity value of non-statutory nature conservation sites	Enhance the habitats and other features for which the Local Wildlife Site, Local Geological Site, Roadside Verge Nature Reserve or Grassland Inventory Site has been designated (including new sites designated since LNRS publication), by implementing or continuing appropriate conservation management.	Mapped
Potential Measure 42	Buffer and enhance habitat connectivity around and between non-statutory nature conservation sites	Within a 50m buffer zone surrounding all Local Wildlife Sites and Grassland Inventory Sites (including new sites designated since LNRS publication), seek to create and enhance corridors or stepping stones of habitat to extend, buffer and connect the priority habitats within the nature conservation site with other adjacent or nearby priority habitat.	Mapped
Potential Measure 43	Create wildlife crossings over roads or rail lines	Incorporate a wildlife crossing/green bridge element into active travel or all-modes bridges.	Non-Mapped
Potential Measure 44	Create arboreal links between woodland blocks	Create new arboreal (hedgerow and tree) links/crossovers/hop-overs for dormice, birds, butterflies and bats through targeted tree retention and identification of future veteran trees at identified crossing points.	Non-Mapped
Potential Measure 45	Reduce levels of artificial light at night in the countryside	Artificial lighting at night should be used only where and when needed. Existing dark corridors should be maintained and protected. This can be achieved by: ✿ Removing harmful and excess light by replacing cold-blue and white light sources (>3000K CCT) with dimmer, more controlled and warmer-coloured LED lighting (<2700K CCT). ✿ Controlling light spill to avoid illuminating trees, hedgerows, waterbodies and watercourses. ✿ Strengthening lines of linear vegetation such as street trees and hedgerows.	Mapped

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Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 46	Reduce the impacts of artificial light at night on wildlife within the built environment	Nature-sensitive lighting and lighting schemes should be used within the built environment. Where new lighting is required or upgrades, modernisation or retrofits to lighting are planned: ✿ Use dimmer, more controlled and warmer-coloured LED lighting (<2700K CCT) in place of cold-blue and white light sources (>3000K CCT). ✿ Control light spill to avoid illuminating trees, hedgerows, waterbodies and watercourses.	Mapped
Potential Measure 47	Enhance the biodiversity value of all road verges	Enhance the biodiversity value of all road verges for pollinators, small mammals and other wildlife by managing in line with best practice guidance, including altering the timing and frequency of cutting and removing arisings. Place signage where appropriate on verges to inform and educate the public. New highway verges and works to existing verges that require turf stripping should ensure no topsoil is reintroduced, so that broadcast wildflower seeds can establish on low nutrient soils. Native, perennial species-rich seed mixes should be used within all road verge planting schemes.	Non-Mapped
Potential Measure 48	Maximise the biodiversity value of energy infrastructure development sites	Energy infrastructure developments should contribute to restoring and enhancing local ecological networks. Actions could include: ✿ Creation/retention of hedgerows, ditches, stone walls, rough grassland and scrub within boundary margins. ✿ Creation of pollen and nectar strips and the use of climbing plants on security fencing. ✿ Leaving a 20-30mm gap between the base of fences and the ground. ✿ Creating areas of wildflower meadow and tussocky grassland. ✿ Using a wildflower-friendly grazing regime to manage grassland beneath/between PV panels. ✿ Installing artificial structures such as nest boxes, hibernacula and log piles.	Non-Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Species Potential Measures

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 49	Recovery of Water Vole population	✿ Mink control/eradication. Supporting Habitat Potential Measures: PM1, PM2, PM4	Mapped
Potential Measure 50	Expand the range of the two core Adder populations	✿ Maintain and expand range via natural colonisation and habitat creation/connectivity/ restoration that includes a mosaic of scrub cover, heathland, hibernation areas (including artificial hibernacula) and wildlife corridors (hedges, raised banks, set aside, buffer strips) ✿ Ensure open areas maintained within broadleaved woodland (ideally away from footpaths) ✿ Restore damper areas, e.g. wet flushes and ephemeral ponds, and maintain humid environments as alternative habitat areas to increasingly drier habitats (due to climate change) ✿ Restore areas of PAWS back to broadleaved woodland ✿ Sympathetic grazing regimes (stocking density and timings) ✿ Manage predator threats (pheasants, dogs and cats) and recreational disturbance, including machinery and vehicles, where adders are present (with buffer) ✿ Reducing risk of fires ✿ Genetic rescue of populations if appropriate Supporting Habitat Potential Measures: PM10, PM11, PM23, PM30	Mapped
Potential Measure 51	Habitat creation and enhancement for Dormouse	✿ Landscape scale habitat restoration/enhancement and connectivity ✿ Retain (veteran) trees with cracks/crevices and deadwood ✿ Rotational coppicing/removal of woodland to maintain a well-lit understorey ✿ Ensure arboreal connections across woodland rides every 50-100m and erect dormouse boxes and/or tubes ✿ Do not clear understory in winter and do not clear fell in dormouse locations Supporting Habitat Potential Measures: PM11, PM12, PM13, PM14	Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 52	Carry out Dormouse reintroductions	Reintroduction to suitable release sites in northeast Worcestershire. Supporting Habitat Potential Measures: PM11, PM12, PM13, PM14	Non-Mapped
Potential Measure 53	Increase nesting habitat and food sources for Pied Flycatcher	✿ Landscape scale woodland (especially oak) habitat regeneration, expansion and restoration ✿ Provision of nestboxes in suitable woodland (install in sets of 3 within a 10m radius to mitigate against nestbox competition from Tit species) ✿ Manage habitat to increase chick food supply (predominantly caterpillars) ✿ Manage understorey to keep below 1.5m (to improve visibility of displaying males) Supporting Habitat Potential Measures: PM11, PM12, PM13, PM14	Mapped
Potential Measure 54	Increase Hedgehog population	✿ In urban areas install hedgehog highways (in fences and walls) and hedgehog houses ✿ Increased planting of diverse native plant species (structure and diversity) in public greenspaces and in private gardens ✿ Create permanent leave stores and a mosaic of grass heights and bare soil ✿ Working with land managers to create wide, grassy field margins (increase prey availability) and other hedgehog friendly habitat ✿ Increasing habitat complexity - more and denser hedgerows - also increases connectivity between wildlife friendly farms ✿ Reduction in use of rodenticides, pesticides, molluscicides and insecticides, i.e. increased uptake of Integrated Pest Management Supporting Habitat Potential Measures: PM34, PM38, PM39, PM40, PM46	Non-Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 55	Habitat creation and enhancement for Nightingale	✿ Coppicing and deer management to promote heterogeneous vegetation structure. Plans should maximise the area of shrub at vigorous thicket stage, typically a 10–15-year rotational cutting, using reasonable sized blocks to create a coarse mosaic of larger patches. Focus efforts on creating new habitats adjacent to existing sites (as males migrating individuals attracted to signing males). ✿ Monitor grazing pressure and take preventative measures (i.e. rabbit/deer fencing) if it becomes too high ✿ Re-wet woodlands with thicket to improve invertebrate food supply Supporting Habitat Potential Measures: PM13, PM23, PM24	Mapped
Potential Measure 56	Habitat creation and management for Brown Hairstreak	✿ Retain and cut all hedges on a rotation so that each stretch of hedge is cut every other year, or preferably every 3-4 years. ✿ Create new habitat by planting hedges using a good proportion of Blackthorn. Where possible, allow small suckers to grow into field margins ✿ Increase the connectivity of suitable habitats by creating and extending stands, trees, and hedgerows containing blackthorn which connect existing areas. Create wide rides, glades, and scrub edges in and around woodlands. Supporting Habitat Potential Measures: PM16, PM17, PM18	Non-Mapped
Potential Measure 57	Recovery of White-clawed Crayfish population	✿ Increased biosecurity If successful methodology created, removal of signal crayfish Supporting Habitat Potential Measures: PM1, PM4, PM5 Potential conflict with PM61 Remove barriers to migratory fish passage	Mapped
Potential Measure 58	Increase the numbers and distribution of Toad	✿ Deliver specific habitat interventions to support safe crossing of roads by migrating toads such as adjustments to timing of verge cutting and installation of natural barriers to direct toads to safer crossing points ✿ Support the operation of amphibian road-crossing patrols where these are required including signage Supporting Habitat Potential Measures: PM6, PM7, PM8	Non-Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 59	Increase nesting habitat and food sources for House Martin and Swift	✿ Do not disturb nests or limit/block nest sites ✿ Install universal swift nest bricks and play swift calls during breeding season ✿ Implement sustainable farming practices to increase invertebrate (prey) populations ✿ Enhance/create more green spaces in urban areas to increase invertebrate populations Supporting Habitat Potential Measures: PM38	Mapped
Potential Measure 60	Habitat creation and enhancement for Barbastelle and Bechstein's bats	These bat species require multiple different habitat-based and environmental interventions to be delivered within the same location to support feeding and breeding success: ✿ Restoration, planting and gap-planting of hedgerows (i.e. tall and bushy), particularly those linking broadleaved and ancient woodlands ✿ Creation and maintenance of standing deadwood within broadleaved woodlands (and potential veteranisation of trees) ✿ Improved management of broadleaved woodland and establish dense understorey in woodland (especially around woodland ponds etc.) used by these species ✿ Restoration and improved management of riparian habitat ✿ Maintain and improve quality and quantity of wetland habitats ✿ Dark skies initiative/create and maintain ecologically functioning dark corridors ✿ Arable: promote organic/regenerative farming, field margin habitat for moths and beetles, reduction in/cessation of anti-parasitic treatments in grazing animals, and reduction in pesticide use, promote organic/regen farming particularly within 3km of maternity roosts Supporting Habitat Potential Measures: PM8, PM10, PM11, PM12, PM13, PM14, PM45, PM46	Non-Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 61	Habitat creation and enhancement for Greater Horseshoe, Lesser Horseshoe, Brandt's and Serotine Bats	These bat species require multiple different habitat-based and environmental interventions to be delivered within the same location to support feeding and breeding success: ✿ Restoration, planting and gap-planting of hedgerows (i.e. tall and bushy), particularly those linking broadleaved woodland used by these species ✿ Improved management of broadleaved woodland and establish dense understorey in woodland (especially around woodland ponds etc.) used by these species ✿ Dark skies initiative/create and maintain ecologically functioning dark corridors ✿ Arable: reduction in/cessation of anti-parasitic treatments in grazing animals, and reduction in pesticide use particularly within 3km of maternity roosts, promote organic/ regenerative farming Supporting Habitat Potential Measures: PM10, PM11, PM16, PM17, PM18, PM38, PM45, PM46	Non-Mapped
Potential Measure 62	Remove barriers to migratory fish passage [Eel, Sea Lamprey, River Lamprey, Brown Trout, Atlantic Salmon, Allis Shad, Twaite Shad, Barbel]	✿ Remove or modify in-channel barriers to allow passage Supporting Habitat Potential Measures: PM1, PM4 Potential conflict with PM56 Recovery of White-clawed Crayfish population	Mapped
Potential Measure 63	Create and enhance habitat for wetland and wader birds [Curlew, Redshank, Lapwing]	✿ Create and enhance habitat (including adjacent fields) to support breeding, over-wintering and passage birds. Pasture and wetland features should include areas of floodplain meadow, scrapes and ditches, open water, and rushy damp pasture. Field margins, bare ground and stubbles should be available within arable fields or rotations. ✿ Locations away from Public Rights of Way or permissive access should be prioritised for habitat provision and/or minimise recreational disturbance at sites (including dogs) ✿ Legal control/reduction of predator disturbance where possible and appropriate ✿ Sensitive management of grassland and pasture must include late hay cuts or strip-cutting over an extended period of several months to minimise accidental nest destruction. Supporting Habitat Potential Measures: PM3, PM8, PM9, PM34	Non-Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 64	Recovery of Turtle Dove population	✿ Provide uncropped margins/plots, rotational set-aside, conservation headlands and buffer strips ✿ Reduce use of pesticides and herbicides, i.e. increased uptake of Integrated Pest Management. ✿ Provide suitable feeding habitat, e.g. plant a bespoke seed mix, adjacent to nesting habitat and water body ✿ Provide scrub or dense hedgerow at a minimum, 3m tall and 4m wide. Cut on a long-term (15+ year) rotation. ✿ Encourage and keep native thorny species and climbing plants ✿ Restore/create semi-natural grassland with bare ground ✿ Provide good quality, buffered freshwater sources, e.g. ponds and streams. ✿ Supply supplementary food (see Agri-environment Species Supplement) ✿ Implement the national Turtle Dove action plan ✿ Re-establish foraging and nesting habitat on historic Turtle Dove sites Supporting Habitat Potential Measures: PM6, PM7, PM16, PM17, PM23, PM24, PM26, PM34	Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 65	Recovery of Farmland bird populations [Corn Bunting, Grey Partridge, Yellow Wagtail]	✿ Provide uncropped margins/plots, rotational set-aside, conservation headlands, buffer strips and beetle banks ✿ Reduce use of pesticides and herbicides, i.e. increased uptake of Integrated Pest Management. Avoid use of broad-spectrum insecticides after 15th March and avoid spraying outer 6m of cereal fields. ✿ Restore/create semi-natural grassland ✿ Provide suitable foraging and nesting habitats, i.e. manage hedgerows on a 3-year rotation ✿ Plant wild bird seed mixes/cereal-rich wild bird cover crops ✿ Provide spring sown crops in nesting arable fields to help improve productivity by extending the breeding season, or a mosaic of autumn sown crops for later broods (Corn Bunting) ✿ Supply supplementary food ✿ Provide good quality, buffered freshwater sources, e.g. ponds, streams, wet ditches. ✿ Skylark plots within winter cereals. ✿ Delay cutting of silage and hay crops Supporting Habitat Potential Measures: PM16, PM17, PM34	Non-Mapped
Potential Measure 66	Recovery of Fritillary butterfly populations [Pearl-bordered Fritillary, Small Pearl-bordered Fritillary]	Open habitat measures: ✿ Specific bracken management to establish optimum density of bracken and dog violet. Use of machinery e.g. robo-cutter and/or livestock at suitable stocking density ✿ Breeding programme and reintroduction to suitable release sites ✿ Woodland measures: ✿ Rotational coppicing ✿ PAWS restoration ✿ Rotational management of open areas (glades, rides, etc.) which are not grazed to ensure a succession of habitats ✿ Create/maintain woodland flushes in a mix of shaded and unshaded areas Supporting Habitat Potential Measures: PM13, PM29, PM30, PM31	Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 67	Reintroduction of Kentish Glory moth to the Wyre Forest	✿ Rotational coppicing and strategic thinning/clear-felling of birch coupes (maintain tree height below 3m) ✿ Captive breeding and reintroduction to suitable release sites Supporting Habitat Potential Measures: PM10, PM11, PM13	Mapped
Potential Measure 68	Increase the numbers and distribution of True Service Tree	✿ Propagate trees from local seeds ✿ Reintroduce to targeted locations Supporting Habitat Potential Measures: PM12	Mapped
Potential Measure 69	Increase the numbers and distribution of Black Poplar	✿ Reintroduce male and female trees in pairs in targeted locations (floodplain, ditches etc.) ✿ Protect existing Black Poplars, particularly ancient/veteran specimens ✿ Protect planted Black Poplars from deer, livestock, garden machinery and herbicides ✿ Maintain some male and female trees as maiden trees (i.e. do not coppice) ✿ Establish a clone bank of local trees Supporting Habitat Potential Measures: PM2, PM5, PM8	Non-Mapped
Potential Measure 70	Increase the numbers and distribution of Six-spotted Pot Beetle	✿ Regular rotational coppicing of hazel, aspen, birch and crack willow ✿ Connect stands of hazel, aspen, birch and crack willow where appropriate Supporting Habitat Potential Measures: PM10, PM11, PM13	Mapped
Potential Measure 71	Increase the numbers and distribution of Longhorn Lime Beetle	✿ Regular rotational coppicing of small-leaved lime ✿ Connecting stands of small-leaved lime Supporting Habitat Potential Measures: PM10, PM11, PM12, PM13	Mapped

Complete a short survey to comment on the wording of an individual Potential Measure. Submit a separate form for each Potential Measure you wish to comment on.

Potential Measure Unique ID	Potential Measure Title	Potential Measure Description	Mapped Status
Potential Measure 72	Increase the numbers and distribution of Poplar Leaf-rolling Weevil	✿ Successional planting of aspen (Populus tremula) in woodland at known population sites and expansion areas ✿ Protect emerging aspen against predation (deer) and trampling ✿ Cut regenerating aspen on a 4-year rotation ✿ Increase/appropriately manage woodland glades ✿ Captive breeding and reintroduction if appropriate Supporting Habitat Potential Measures: PM10, PM11, PM12, PM13	Mapped
Potential Measure 73	Increase the numbers and distribution of rare plants [Tower Mustard, Deptford Pink, Sand Catchfly, Round-leaved Wintergreen, Round-leaved Sundew]	✿ Collect seed, propagate and reintroduce to targeted locations ✿ Appropriate habitat management where present/reintroduced (e.g. scrub clearance, periodic disturbance) Supporting Habitat Potential Measures: PM8, PM11, PM30, PM41, PM47	Non-Mapped
Potential Measure 74	Increase the numbers and distribution of helleborine species [Narrow-leaved Helleborine, White Helleborine]	✿ Habitat management to maintain correct light levels (dappled shade). This includes managing understorey vegetation to prevent overshading ✿ Create adjacent areas of exposed soil for seeds to settle on and germinate in ✿ Protect populations from deer browsing ✿ Do not plant trees (conifers) that would shade out Helleborines Supporting Habitat Potential Measures: PM10, PM11, PM13	Non-Mapped
Potential Measure 75	Increase the numbers and distribution of rare wet woodland species [Elongated Sedge, Alder Bolete, Pholiota lucifera (Scalycap fungus), Laccaria purpureobadia (fungus)]	✿ Replant alder to reconnect habitat ✿ Long-term rotational coppicing of alder and willow ✿ Retain dead wood (especially alder) Supporting Habitat Potential Measures: PM2, PM8, PM10, PM11, PM13	Mapped

Supporting Activities

A set of Supporting Activities are suggested by the LNRS. These are actions that it is considered would facilitate or support the delivery of LNRS priorities, but they do not involve on-the-ground conservation action. They are all non-mapped and have no statutory role in the delivery of Biodiversity Net Gain.

Supporting Activity Number	Supporting Activity Title	Supporting Activity Description
Supporting Activity 1	Support for reducing abstraction for agriculture	Provide policy support and funding incentives for the construction of on-farm reservoirs/water storage to reduce abstraction.
Supporting Activity 2	Improve water capture and re-use within the built environment	Local planning policy to require new development to use design and technology mechanisms to minimise water use and maximise capture, treatment and re-use within the built environment.
Supporting Activity 3	Better designed and implemented SuDS	Local planning policy mechanisms should be strengthened to ensure delivery of better designed and implemented SuDS with improved connectivity to surrounding habitats and improved biodiversity outcomes.
Supporting Activity 4	Strengthen local policy protection for hedgerows	Local planning policy on hedgerow protection to be strengthened, and enhancement of the local hedgerow network to be demonstrated within development applications.
Supporting Activity 5	Extend TPO scope to include wood pasture, parkland and future veteran trees	Extend scope of local TPO validation lists and processes and related planning procedures to fully reflect the value of mature and pre-veteran trees (future veterans) and trees within both newly created or historic wood pasture and parkland habitat.
Supporting Activity 6	Create and enhance natural habitats through Green Infrastructure delivery	Habitat creation and enhancement as part of Green Infrastructure plans for new development/ new settlement to be informed by the primary biodiversity objectives for the Worcestershire Green Infrastructure Strategy Environmental Character Areas.
Supporting Activity 7	Coordinated county-level approach to orchard protection	Establish county working group to achieve a more coordinated policy approach by Local Planning Authorities to orchard protection.
Supporting Activity 8	Conservation Area reviews to better consider orchard significance	Conservation Area reviews by Local Planning Authorities to consider the significance of extant or historic traditional orchards to local landscape character and the local nature recovery network.

Supporting Activity Number	Supporting Activity Title	Supporting Activity Description
Supporting Activity 9	Planning policy in Wyre Forest to strengthen protection for acid grassland and heathland	Local planning policy mechanisms in Wyre Forest district to be strengthened to increase protection for acid grassland and lowland heathland habitat.
Supporting Activity 10	Wildlife-friendly linear corridors delivered through Green Infrastructure planning	Green Infrastructure masterplans, for new and retrofitted GI, should synchronise green, blue and dark corridors so that their value for wildlife is additive rather than fragmented. The design of linear GI features such as active travel corridors should seek to incorporate wildlife-friendly habitat that establishes green corridors through the built environment and creates connections between existing urban greenspaces and the adjacent local nature network.
Supporting Activity 11	Use of Building with Nature standards in development	The Building with Nature standards should be used as a benchmark for good nature-friendly development design.
Supporting Activity 12	Support for development of community-led biodiversity action plans	Local planning authorities to develop or support the development of local biodiversity strategies/action plans for the creation, enhancement, extension and connecting up of wildlife-rich greenspaces at a community level.
Supporting Activity 13	Expand Worcestershire Roadside Verge Nature Reserve scheme	Expand Worcestershire Roadside Verge Nature Reserve scheme with the identification of additional sites and bring those new sites into good management to improve their condition.
Supporting Activity 14	Development of digital resources to support road verge management for biodiversity	Consolidate online resources and create digital platform for reporting roadside verge biodiversity alerts e.g. invasive non-native species issues or potential future RVNR sites for survey.
Supporting Activity 15	Strategic planning for nature	Local Plan policy wording to require development location, layout, mitigation plans and BNG proposals to be informed by the published Worcestershire Nature Recovery Network and the LNRS Local Habitat Map.

Supporting Activity Number	Supporting Activity Title	Supporting Activity Description
Supporting Activity 16	Maintain artificial light at night within existing low light pollution levels	New and replacement artificial lighting should aim to reduce existing light levels where safe and practical to do so by: ✿ Directing light only where it is needed, when it is needed, especially between dusk and dawn. ✿ Removing harmful and excess light by replacing cold-blue and white light sources (>3000K CCT) with dimmer, more controlled and warmer-coloured LED lighting (<2700K CCT). ✿ Controlling light spill to avoid illuminating trees, hedgerows, waterbodies and watercourses.
Supporting Activity 17	Invasive Non-Native Species Strategy	✿ Support the production of a landscape-scale strategy to enable a strategic approach to tackling INNS across Worcestershire
Supporting Activity 18	Mitigate impacts of visitor pressure on sensitive sites	Reduce visitor pressure on statutory and non-statutory protected sites (SSSIs, NNRs, LWSs) which are considered to have unsustainable levels of public access, or where future allocated development could lead to unsustainable levels of public access on those sites, by creating suitable alternative natural green space destinations for public outdoor informal recreation and activity.

Chapter 5. Implementation, monitoring and review of the LNRS

5.1 Implementation of Local Nature Recovery Strategies

There are several mechanisms for the implementation of Local Nature Recovery Strategies that are defined in law. These are:

- Targeting the strategic delivery of Biodiversity Net Gain within the planning and development process, by incentivising the creation and enhancement of habitats in locations identified as being of high strategic significance for nature recovery.
- Informing all public authorities in England of how they can meet their legal duty to conserve and enhance biodiversity (the 'Biodiversity Duty'[106]).
- Providing spatial guidance for the delivery of nature recovery which local planning authorities must 'take account' of when plan-making.

Defra also intends Local Nature Recovery Strategies to be used in the following ways:

- To provide information to farmers and land managers to help them choose which agri-environmental options are appropriate for their land
- To help groups of farmers and land managers shape nature recovery priorities for their area, and to encourage collaboration across holdings and landscapes
- To identify opportunities for Landscape Recovery project proposals, and to provide evidence to support their application and project development
- To help Government when considering applications for funding for specific nature recovery activities, by acting as criteria in applications
- To help responsible authorities and/or local partnerships leverage and target funding for environmental projects to areas where they could have the most impact for nature and the wider environment
- To inform how Defra arms-length bodies carry out existing functions to better support nature recovery – for example, by drawing on LNRS priorities and proposals when providing land management advice to farmers, or when selecting locations for nature-based solutions such as natural flood management and tree planting
- To inform the development and implementation of Protected Landscape management plans, by identifying locations and measures that will drive delivery of the agreed targets and outcomes set out in these plans

Source: Local Nature Recovery Strategies (LNRS) delivery – Defra policy update December 2024

106 https://www.gov.uk/guidance/complying-with-the-biodiversity-duty

The role of Responsible Authorities in LNRS implementation

Government intends that Strategic Authorities (proposed in the December 2024 English Devolution White Paper[107]) will play a key role in environmental and climate leadership and this includes being given responsibility (as the 'Responsible Authority') for coordinating delivery and monitoring of Local Nature Recovery Strategies. Government have indicated that the LNRS delivery role for Strategic Authorities will comprise convening local partnerships, helping to coordinate practical action, seeking and securing funding, coordinating investment in nature recovery and wider environmental delivery, and monitoring and reporting on delivery of the LNRS.

Worcestershire as a county has an established and successful record of partnership working within the environmental and nature recovery sector. This has been instrumental in enabling Worcestershire County Council, as the Responsible Authority for preparation of the LNRS, to produce a strategy that has wide-spectrum support from a range of organisations and individuals. However, delivery of the strategy will require a step-change in how resources are secured and deployed strategically within the county.

107 English Devolution White Paper - GOV.UK

5.2 Monitoring delivery of Local Nature Recovery Strategies

Responsible Authorities await confirmation from Government regarding the resources that will be made available to enable effective monitoring of LNRS delivery. Monitoring and reporting on delivery will rely on the capture of accurate data on habitats, land use and species' occurrence. Partners and stakeholders with an interest and active involvement in nature recovery within Worcestershire will be key to the collection and availability of quality data.

The LNRS Statutory Guidance states that Responsible Authorities should use both published information and information provided by local partners to review LNRS delivery and map where nature recovery activity has taken place. Responsible authorities are advised to engage with a broad range of local partners to identify areas where action has been taken to increase their importance for biodiversity. This is likely to include individuals and organisations who hold information on how areas of land are managed.

Suggested useful sources of published information include:

- Reports published by public authorities as part of their duty to conserve and enhance biodiversity.
- The biodiversity gain sites register[108].
- Other government data such as England's Priority Habitats Inventory and agri-environment scheme agreements.

In Worcestershire, key additional sources of information will include the Worcestershire Habitat Inventory and data collated and managed by Worcestershire Biological Records Centre.

Worcestershire residents can support the process of monitoring delivery of the LNRS, and the future review of the strategy by:

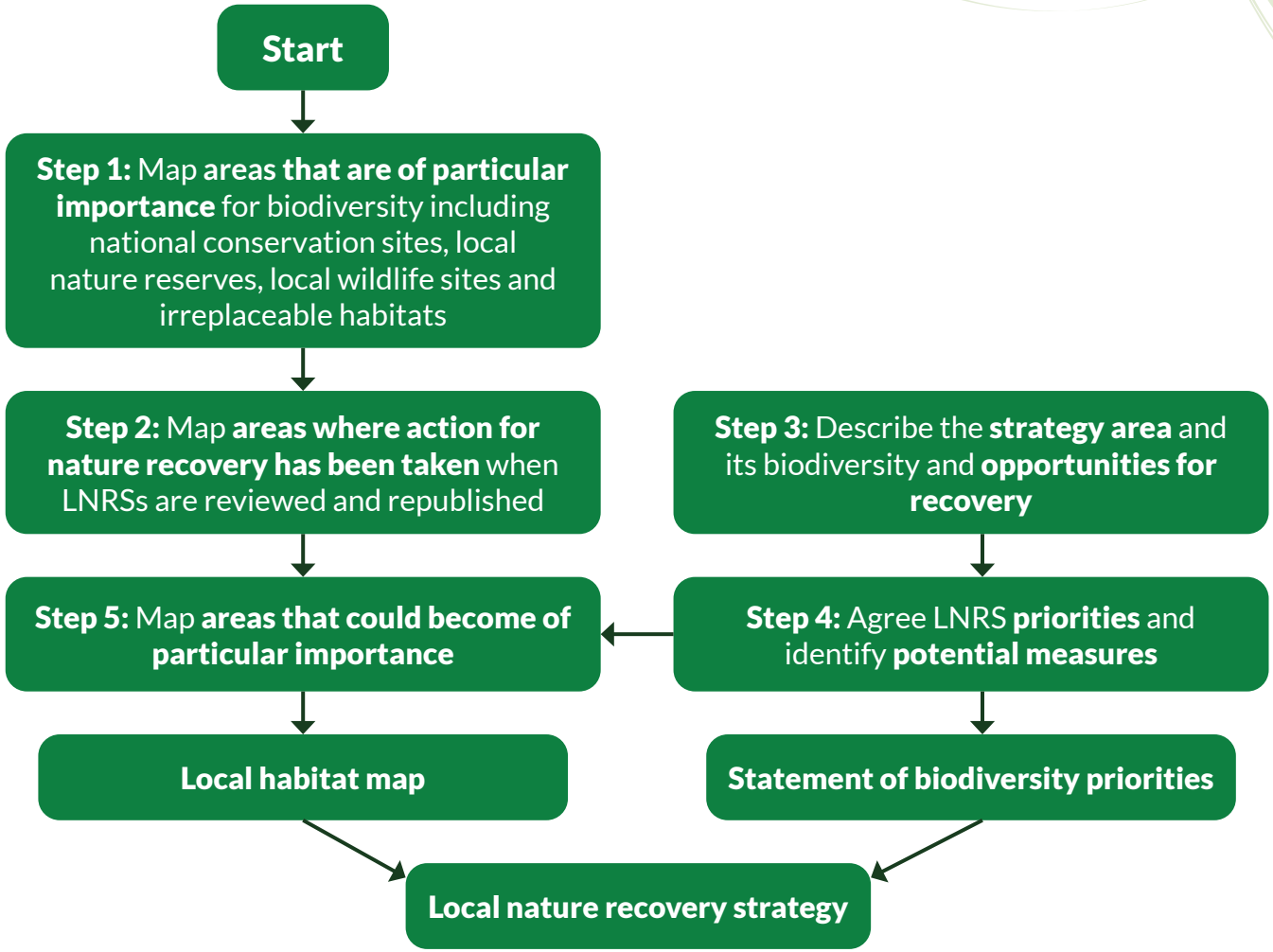
- Submitting records of species to Worcestershire Biological Records Centre or the iRecord scheme.
- Taking part in wildlife recording events run by conservation groups such as, for example, Big Garden Birdwatch, the Big Butterfly Count or surveys run by People's Trust for Endangered Species.
- Supporting the maintenance of the Worcestershire Habitat Inventory by using the map to report changes in land use, particularly in locations where natural habitats have been created or restored for wildlife.

108 Search the biodiversity gain sites register - GOV.UK

5.3 Reviewing Local Nature Recovery Strategies

The Secretary of State for the Environment will tell Responsible Authorities when to begin the process of reviewing and republishing Local Nature Recovery Strategies. This will be every 3 to 10 years. The review should show what actions for nature have been undertaken since the LNRS was last published and map which Potential Measures from the previous LNRS have been taken forward.

The LNRS Statutory Guidance sets out the process for preparing and reviewing Local Nature Recovery Strategies:



Future Local Nature Recovery Strategy consultations

For notifications about future reviews and public consultations regarding the Worcestershire Local Nature Recovery Strategy, interested parties can opt to receive information on 'Environmental Policy' matters via Worcestershire County Council's planning consultation database.

To do this visit www.worcestershire.gov.uk/council-services/planning-and-developments/get-involved-planning. Follow the link to register on the database and select to receive notifications relating to the 'Environmental Policy' topic.

Glossary

Term	Description
Abstraction	The process of taking or extracting water from a natural source (rivers, lakes, groundwater etc.) for various uses such as providing drinking water, irrigation, and industrial use.
Acidification	A process by which the content of soil or chemical quality of water becomes more acidic over time due to natural processes or through the accumulation of pollutants.
Adaption and mitigation (in the context of climate change)	Adaptation is the process of adjusting to the current and future effects of climate change, whereas mitigation describes the effort to prevent or reduce carbon emissions to make the impacts of climate change less severe.
Agi-environment schemes	Government-funded programmes that support environmentally-friendly farming practices, such as habitat restoration, species conservation and sustainable land management.
Aquifer (and abstraction from)	Porous rock or sediment which is saturated with groundwater and from which such water is abstracted for use for drinking, irrigation or industry.
Biodiversity	Biodiversity, or 'biological diversity', is the variety of life on earth and is used to describe the diversity of life that exists within habitats at all scales.
Biome	A distinct geographical region of the world with specific climate and vegetation characteristics and a particular collection of animal species.
Biosecurity	Measures taken to prevent disease organisms entering or leaving a place.
Buffer zone (ecological)	An area surrounding a habitat or site of ecological importance that is managed to reduce external pressures and enhance ecological value.
Catchment / flashy catchment	The area of land from which water drains into a specified body of water e.g. the catchment of the River Avon. A flashy catchment is one that responds very quickly to periods of intense rainfall, with water levels rising and falling very rapidly, often causing serious localised flooding and disruption.
Citizen science	The involvement of local volunteers in science, often in the collection of data on habitats and species, to support work being carried out by scientific organisations.

Term	Description
Compaction (of soil)	Occurs when soil particles are pressed together, with the main effects being to reduce available oxygen and reduce rates of water infiltration and drainage.
Confluence	The place where one watercourse joins with another to form a larger stream / river.
Connectivity (ecological)	The degree to which different habitats and linked, allowing species to move, migrate and disperse across the landscape.
Degradation (of habitats)	A lowering of the quality and condition of a habitat over time due to factors such as pollution, invasive species or over-harvesting of natural resources.
Dingle woodlands	A small, wooded valley, often with a watercourse at the bottom. In the UK, such woodlands are often considered to be temperate rainforests.
Ecosystem services	The benefits that people obtain from a healthy natural environment, including food and water, climate regulation and flood mitigation, recreation, and nutrient cycling.
Ecotone	A transitional area where two habitats meet and graduate into one another e.g. where grassland and woodland meet and the ecotone area supports tussocky grassland and scrub before the habitat grades into woodland.
Eutrophication	Occurs when a habitat becomes enriched with nutrients, speeding up the growth of vegetation. In water environments this can lead to algal blooms and oxygen depletion. In terrestrial environments this can lead to a reduction in species diversity and decline in soil quality.
Floodplain	The area of low-lying ground next to a watercourse which becomes flooded when the stream or river bursts its banks. These areas should remain wet enough to support habitats such as marsh and reedbed, but many rivers today are hydrologically disconnected from their historic floodplains.
Fragmentation / fragmented habitats	Occurs when an area of habitat becomes broken into smaller and smaller pieces, reducing or removing the ability of species to move between them.

Term	Description
Geodiversity	The variety of rocks, minerals, natural landforms and soils that underlie and determine the character of our landscape and environment.
GIS (Geographical Information System)	Computer software that brings together maps and data for spatial analysis.
Green Belt	Identified within the town planning system as a buffer between built up areas and the countryside as a policy for controlling urban growth.
Habitat bank	An area of land identified for the creation and enhancement of habitat to satisfy requirements for the delivery of statutory Biodiversity Net Gain.
Habitat mosaic	A landscape composed of different habitat types in close proximity, supporting a wider range of species and ecological functions.
Headwaters	The geographical location where a watercourse begins, when surface run-off begins to form a recognisable channel.
INNS (Invasive Non-Native Species)	A species which has been introduced to a region of the world in which it does not occur naturally, and where it is able to expand its range and population to the detriment of naturally occurring species e.g. through the spread of disease organisms or by out-competing native species for food or habitat niches.
Integrated Pest Management (IPM)	An environmentally sensitive approach to pest control that combines biological, cultural, physical and chemical tools to minimise risks to people and nature.
Meta-population	A group of spatially separated populations of the same species which interact at some level, e.g. individuals migrating between populations for breeding.
Microplastics	Small particles of plastic with a diameter of 5mm or less, which are a significant source of environmental pollution. Most are the result of the breakdown of larger items such as plastic bags and packaging.
Migratory / migration	The movement of populations of species between one location and another, e.g. birds migrating from winter feeding areas to summer breeding areas.

Term	Description
Mitigation and adaption (in the context of climate change)	Mitigation describes the effort to prevent or reduce carbon emissions to make the impacts of climate change less severe, whereas adaptation is the process of adjusting to the current and future effects of climate change.
NFM (Natural Flood Management)	Working with nature to reduce the risk and the impact of flooding, using techniques to restore the natural functioning of rivers, streams and their associated wetland and floodplain habitats.
Nature-based solutions	The use of nature and natural processes to address environmental issues such as climate change mitigation and adaptation, water security or disaster risk reduction.
Non-native	A species that is not indigenous or native (found naturally) in a location.
Particulates (particulate matter)	Something composed of very small particles. Most frequently used in reference to air pollution, e.g. sooty particulates from vehicle exhausts.
Permeability	The ability of a substance to allow gases or liquids to pass through it, e.g. the permeability of different soil types to water.
Pollinator	An animal that moves pollen from one plant or flower to another. Most often insects, but birds and mammals can also act as pollinators.
Pollution (diffuse and point-source)	Diffuse pollution describes the release of potential pollutants from a range of activities and sources that cannot be pinpointed to specific locations, but where the cumulative impact is damaging to the habitat. Point-source pollution, in contrast, occurs at a specific, identifiable location.
Ramsar site	Sites designated under criteria for identifying wetlands of international importance. Named after the city of Ramsar, in Iran, where the Convention was signed in 1971.
Regenerative farming / regenerative agriculture	A holistic approach to farming / food production which seeks to balance productivity with the protection and restoration of the land and soils being farmed.
Reintroduction	The act of moving or releasing a species back to an area from which it has previously been lost.

Term	Description
Saline	Containing salt. Saline habitats have a higher natural salt content than others, e.g. saline pools or lagoons.
Soil organic matter	The part of the soil that consists of plant or animal material in varying stages of breakdown. Healthy soils have a higher organic matter content.
SPA (Special Protection Area)	An area designated under the EU Directive on the Conservation of Wild Birds.
Statutory guidance	Sets out the requirements or processes imposed by law for the carrying out or delivery of a particular activity.
Terrestrial habitat	Habitats found on land, such as woodland or grassland.
Veteran tree	A tree that is of exception age, size or condition, often with features such as hollow trunks, deadwood, or cavitied that provide important habitat for wildlife.

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