Shropshire and Telford & Wrekin Local Nature Recovery Strategy

Draft for public consultation, July 2025

Contents

You can find a fully designed version of this strategy document, along with the interactive map, case studies and appendices, online at: https://next.shropshire.gov.uk/environment/shropshire-and-telford-wrekin-local-nature-recovery-strategy

Please think before you print this document.

Acknowledgements

The Local Nature Recovery Strategy (LNRS) for Shropshire and Telford & Wrekin is the result of huge collaborative effort, reflecting contributions from people and partners across the county and beyond.

Thanks to everyone who generously shared their time, knowledge and expertise, in particular:

The Shropshire and Telford & Wrekin LNRS Steering Group, who guided the development of the LNRS and worked together to make it as good as it can be.

Staff and Councillors from across Shropshire Council and Telford & Wrekin Council who helped shape the strategy.

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Local biological recorders and taxonomy and species experts, many of whom spent hours reviewing the species lists and provided invaluable knowledge into identifying those species that needed special attention, in line with the Defra guidance.

Town and parish councils and the Shropshire Association of Local Councils, who are looking at how they can work together to increase nature in their area.

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Oxford University, who contributed expertise and an established methodology to help develop the Nature Recovery Network maps.

Other people and partner organisations who commented on draft documents, contributed photographs and case studies, and shared their priorities for nature recovery in Shropshire and Telford & Wrekin.

The LNRS Steering Group is formed of representatives from Shropshire Council (the Responsible Authority), Telford and Wrekin Council (Supporting Authority), Natural England (Supporting Authority), Country Land and Business Association, Environment Agency, Forestry Commission, National Farmers Union, Shropshire Hills National Landscape, and Shropshire Wildlife Trust.

Introduction

Shropshire's nature is really special. Very few counties can boast being home to rare and important species like Pine Marten, Curlew, Pearl Mussel, Nobel Chafer and Twaite Shad.

With its rich and varied landscape, Shropshire has so many special areas – much of which is protected under various national and international designations. But the county's natural environment is under pressure. Habitats are increasingly fragmented and depleted, species are in decline and under threat, and the ecosystems on which we rely are becoming less biodiverse (and less resilient as a result).

Designations in Shropshire

1 Area of Outstanding Natural Beauty – the Shropshire Hills National Landscape

6 Special Areas of Conservation

34 Ramsar sites (wetlands of international importance)

111 Sites of Special Scientific Interest

Appendix 3 provides an overview of SSSI condition.

To help drive better coordinated, more practical and focused action and investment in nature recovery, the Environment Act 2021 requires all counties in England to have their own local nature recovery strategy (LNRS). This document forms one of two parts of the LNRS for Shropshire and Telford & Wrekin. The second part is a map showing where actions would have the most impact for nature recovery.

Shropshire and Telford & Wrekin is one of 48 strategy areas assigned by the UK Department for Environment, Food & Rural Affairs. Together, these 48 strategy areas cover the whole of England, with no gaps or overlaps. Throughout this LNRS 'Shropshire' is used to refer to the historic county of Salop – the administrative areas of Shropshire Council and Telford & Wrekin Council as a whole.

Using the interactive map

The interactive Shropshire and Telford & Wrekin LNRS Map allows you to zoom in to your local area and explore mapped actions there.

Explore the map online >

People protect what they feel connected to.

The LNRS for Shropshire is the culmination of an extensive and collaborative effort that has involved a wide range of stakeholders through partnerships, surveys and workshops. From local authorities, environmental organisations and community groups to landowners, farmers and technical experts, each has contributed valuable data, insights and practical knowledge.

This collective input has shaped a strategy that reflects both the ecological priorities and the lived realities of the county, helping to make sure the LNRS is grounded in local context, inclusive in its approach and ambitious in its vision for nature recovery. It may not be perfect, but it provides an informed basis for action now.

See page 11 for some of the guiding principles that have helped shape the strategy, and which we hope will shape its delivery, too.

What is a local nature recovery strategy?

Local nature recovery strategies seek to restore and enhance the areas that surround these pockets to create more, bigger, better and better connected habitats that are more resilient and diverse.[1]

An LNRS isn't a protection for the pockets of good quality nature we have – these already exist in planning laws and designations (like SAC and SSSI). Rather, it establishes and maps priorities for nature recovery by identifying where action will have the greatest impact. This will help to better focus and coordinate efforts and to guide resources and funding (such as developer contributions and green finance) to nature recovery activities in the places that will make the most difference. It is expected that future funding schemes will align with LNRS priorities.

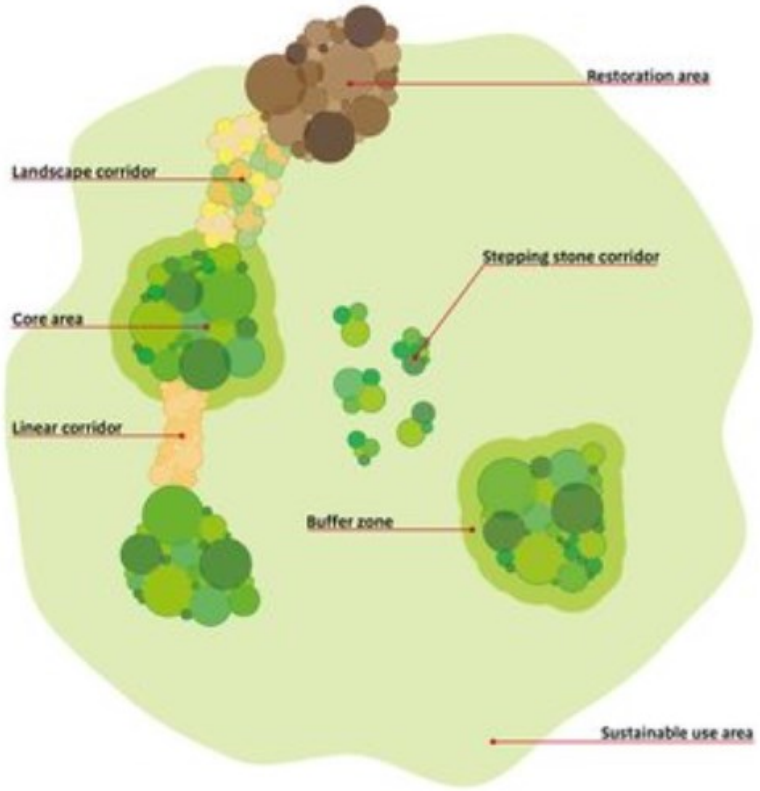
Local nature recovery strategies take a spatial approach that looks at the whole ecological network to make sure recovery is coherent and landscape wide.

Local nature recovery strategies must reflect local priorities while also contributing to national environmental targets, such as the legally binding goals in the UK Government's 25-year Environmental Improvement Plan and the 30 by 30 biodiversity commitment.

More, bigger, better, better connected

The 'more, bigger, better, better connected' approach comes from recommendations made by the 2010 'Making Space for Nature' expert review. The idea is to expand, or 'buffer', core areas of good nature and to join these and other 'islands' of habitat together. We can connect habitat islands in different ways – by creating corridors that link them directly or 'stepping-stone' habitats that shorten the distances between them. This leads to habitats that are better able to support strong populations of species and more resilient to climate change and other pressures. See Figure 1.

Figure 1 shows the different components of an ecological network, which informs the 'more, bigger, better, better connected' approach. Source: Adapted from Making Space for Nature: A review of England's wildlife sites and ecological network (2010).



Why is nature recovery important?

Nature has intrinsic worth that goes far beyond its usefulness to humans. But it also provides us with the things we need to survive – clean air, water and food – as well as a whole host of other benefits.

The direct and indirect benefits we get from nature are known as ecosystem services (Figure 2). Ecosystems are the complex communities of living things (plants, animals and other organisms) and their interaction with the environment (climate, weather, landscapes). By maintaining and enhancing nature, ecosystems become more stable and resilient, helping to ensure the services they provide.

78% of people are concerned about the current and/or future state of nature in the county.

Nature recovery delivers wide-ranging ecological, economic and health and wellbeing benefits, which interconnect and overlap. For example, providing green space in urban areas helps to lower temperatures in towns and cities, delivers cleaner air and other human health

benefits, has a positive impact on people's mental health, and provides wildlife with an important stepping stone between habitats.

Ecological benefits include:

- Slowing and halting species decline.
- Reducing habitat fragmentation and loss.
- Improving habitat quality and reconnecting habitat islands.
- Facilitating species movement across landscapes.
- Delivering ecosystem services including natural flood management, pollination and urban cooling.
- Balancing natural systems over time.

Economic benefits include:

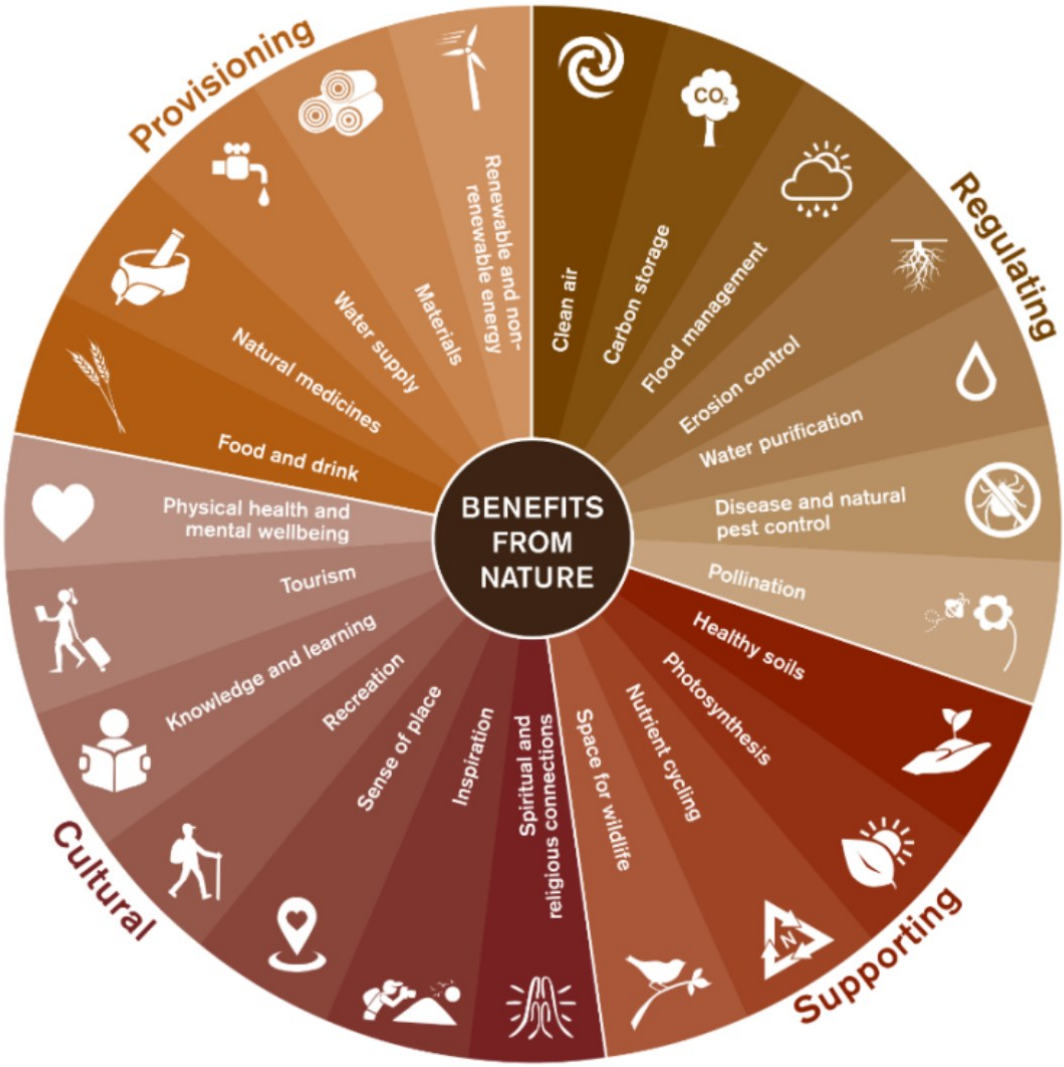
- Providing products (e.g. timber) and services (e.g. flood alleviation).
- Increasing financial value of houses near to natural or semi-natural habitats. Houses and flats within 100 metres of public green spaces are £2,500 more expensive on average.[2]
- Allowing access to nature which has proven health benefits and can directly reduce costs to the NHS.

Health and wellbeing benefits include:

- Providing communities with access to high-quality green space results in improved mental and physical health.
- Creating views out over natural vegetation from both residential and commercial development has well-evidenced health benefits. Hospital patients with tree views recovered 10% faster than those looking at walls.[3]
- People connected with nature usually feel happier in life and report feeling that their lives are worthwhile.[4]

Many people find solace, inspiration and a sense of connection to something greater when they engage with the natural world.

Figure 2 – the 'Ecosystem Land Wheel' – shows the many types of different benefits we get from nature. These benefits are collectively known as ecosystem services. Source: NatureScot.



Who is the LNRS for?

We need to take urgent action to help nature recover, and everyone can do something.

The LNRS doesn't tell you what to do and cannot alone change land management. Instead, it offers options and guidance to make sure that nature recovery efforts are as effective as they can be. By using evidence to identify the best options for nature recovery in particular locations, the LNRS aims to be a tool for people, organisations and communities taking action for nature.

Local people and communities are at the heart of successful nature recovery. They know the land best, they are long-term stewards, and they care.

Farmers, landowners and land managers are especially important stakeholders in the LNRS for Shropshire, where 84% of the total land area is farmed land.[5] Over the past century, farmers have had to adapt to shifting government policies, as well as changing climates and seasonal patterns. They have a track record of innovation and are already working with nature in mind. This strategy aims to support and build on these efforts, and the efforts of other key delivery partners. See pages 48–54 for more on this.

The LNRS also has direct implications for:

- **Public bodies including local authorities,** town and parish councils, government departments and agencies and organisations managing public infrastructure, who have a legal duty to not only protect but also to enhance nature and must "have regard to any relevant local nature recovery strategy."[6]
- **Local planning authorities,** who are required to "have regard to any relevant local nature recovery strategy" when making decisions. While current local planning policy for Shropshire and Telford & Wrekin do not refer directly to LNRS, future iterations will be required to do so. It is expected that this would include particular consideration for the areas identified as having the highest potential for nature recovery.
- **Developers,** who must comply with existing planning policy that requires them to build with nature in mind and have a legal duty to contribute a 'biodiversity net gain' (BNG) when developing land (see page 47). The planning system is increasingly focused on ensuring that development contributes actively to nature recovery, and not just on offsetting harm. Key proposals can be found in the UK Government's 2025 Planning Reform Working Papers.

Using this strategy

The LNRS is a statutory document, as determined by the Environment Act 2021.

Shropshire Council is the Responsible Authority for developing the LNRS for Shopshire and Telford & Wrekin. Telford & Wrekin Council and Natural England act as Supporting Authorities.

As set out in 2023 guidance from the UK Department for Environment, Food & Agricultural Affairs (Defra), the LNRS must include:

- "**Priorities**, in terms of habitats and species, for recovering or enhancing biodiversity"; and
- "proposals as to the potential measures relating to those priorities" – referred to in this strategy as **Actions**.[7] The LNRS for Shropshire identifies 16 priorities and 51 actions (see pages 56–108).
- **Species** of particular importance. The methodology for identifying these species followed a process of longlisting and shortlisting, as set out in the relevant guidance.[8] The LNRS for Shropshire identifies 25 individually named species and 9 species assemblages.

A summary of legislation, policy and government guidance relating to LNRS can be found in Appendix 1. See Appendix 9 for species shortlisting methodology.

The LNRS must also map the following:

- "areas of particular importance for biodiversity" – referred to in this strategy as the **Existing Nature Network** (page 35)
- "areas that could become of particular importance" – referred to collectively in this strategy as the **Opportunity Network** (page 37)

Some actions are mapped, meaning they correspond to specific locations within the Opportunity Network (and in Existing Nature Network areas where permitted). Other actions are less place-specific – for example restoring hedgerows or enabling access to nature-rich sites.

Each action within the LNRS for Shropshire includes suggested activities. Different activities will contribute in different ways, shown by the following icons:


Supports change, rather than delivering it directly


Delivers better quality habitat


Delivers more habitat


Delivered better connected habitats


Delivers ecosystem services – the benefits we get from nature


Contributes to water management


Targets species recovery directly – all activities should help species recovery


Provides health and wellbeing or access-to-nature benefits

Throughout the strategy are links to **case studies**, which showcase ongoing action for nature taking place around the county. By sharing what's worked well or less well, these case studies aim to help and inspire others.

You can find further information about the LNRS in the strategy appendices:

Our guiding principles

Action is broad, inclusive and long lasting. Nature recovery takes time, sustained action and long-term funding. The vision is for nature recovery action which makes a noticeable positive difference for all local communities for generations to come.

Build with nature in mind. All development incorporates nature recovery elements including water efficiency measures, well planned and biodiverse green spaces, connecting habitat features, species features, minimal lighting in darker areas and sustainable urban drainage.

Guidance, education and knowledge sharing strengthen the action we take together. Taking strategic, coordinated action is complex and can only succeed on the back of strong stakeholder networks, local knowledge sharing, education and skilled facilitation. These supporting actions are included under each theme and their importance is widely recognised.

Habitats are diverse. Nature exists in mosaics and action seeks to mimic those natural systems. Habitat areas are diverse in terms of species, structure, age and habitat type. Maintaining and enhancing habitat diversity uses a range of available tools including extensive grazing and is sustainable in the long term.

Land managers are empowered to choose solutions which work for them. Nature recovery options that work for land managers and their businesses are clearly set out, can be easily integrated into business plans, and are clearly linked to available funding.

Multiple benefits are delivered. Through nature recovery action, landscapes serve more than one use, delivering multiple benefits – for example food and nature, timber and flood reduction, public green space and water attenuation, nature and urban cooling. Action for nature benefits all.

Nature-based solutions lead the way. Nature recovery relies primarily on nature-based solutions. Approaches including slow the flow, natural flood management, naturalisation of water courses and blocking of artificial drainage features to re-wet land are taken first. Engineered solutions are utilised sparingly and appropriately.

Nature recovery works for everyone. The ecosystems on which we all rely for essential services – including clean air, safe water and food – are more resilient and serving wider health and wellbeing outcomes. Access to high-quality green space, views over trees and walking routes through nature improves our physical and mental health.

Production and nature work together. Nature recovery sits comfortably with food and timber production. Actions focus on integrating connective features, buffering hedgerows and watercourses, using nature-based solutions and taking advantage of less productive land to allow wildlife to move through productive landscapes.

Right habitat in the right place. Habitat creation occurs in appropriate locations, guided by the LNRS map but determined by people who know the land well. Habitat creation is carefully planned to avoid losing one valuable habitat to create another.

Special species thrive. Shropshire supports a range of iconic species, many of which are rare or threatened. Habitat themes include clear actions to conserve species. Individual species and species assemblages are recognised in the strategy to ensure that appropriate species recovery actions are taken.

Water is key. Shropshire suffers from significant and regular flooding, summer droughts and declining water quality. Slowing the flow, buffering water courses and reducing sediment and nutrient runoff are vital actions and form a cornerstone of nature recovery in the county.

Summary of LNRS priorities and actions, by theme

Theme	Priority	Code	Action	Map
Farmed land	Enhance nature alongside food production	A1.1	Establish farmer groups	N
		A1.2	Enhance soil health and nature on arable land	N
		A1.3	Enhance soil health and nature on pastures	N
		A1.4	Create, restore and manage nature-rich farmland mosaics	N
Hedgerows	Restore, enhance, expand and appropriately manage the hedgerow network	A2.1	Restore and manage the existing hedgerow network	N
		A2.2	Create more connectivity in the landscape by establishing new hedgerows	N
Water and wetlands	Re-naturalise rivers and stabilise flows	A3.1	Improve water quality	N
		A3.2	Reduce both flood risk and low flows	N
		A3.3	Remove physical barriers	Y
		A3.4	Restore streams and rivers to a more natural state	Y
		A3.5	Create, enhance and appropriately manage riparian buffers	Y
	Restore peatland and wetland mosaics	A4.1	Restore existing areas of high-quality peat, fen and bog habitat	Y
		A4.2	Restore, connect and expand areas of wetland mosaic habitat	Y
		A4.3	Restore ability of catchment headwaters to 'act as a sponge'.	Y
		A4.4	Target regularly flooded land for wetland creation and grazing marsh	Y
	Create, restore and manage ponds, glacial pools and meres	A5.1	Enhance existing ponds, pools and meres	Y
		A5.2	Create new ponds	Y
	Enhance canals for wildlife and people	A6.1	Enhance canals for wildlife and people	Y
Trees, woodlands and woody habitats	Safeguard and enhance veteran trees	A7.1	Identify, appropriately manage and safeguard the future of veteran trees	N
		A7.2	Secure continuity of veteran trees in the landscape	N
	Restore and expand nature-rich woodlands	A8.1	Restore and expand nature rich ancient semi-natural woodland and long-established broadleaf woodland	Y
		A8.2	Improve condition of deciduous, mixed and wet woodlands	Y
		A8.3	Restore plantation on ancient woodland sites	Y
		A8.4	Create new woodlands	Y
		A9.1	Restore and expand wood pasture	Y

Theme	Priority	Code	Action	Map
	Restore and expand nature-rich woody habitats	A9.2	Restore parkland	Y
		A9.3	Plant and manage mosaics of scrub	Y
		A9.4	Establish new, and safeguard traditional, orchards	Y
		A9.5	Plant more trees in the farmed landscape	N
Grasslands	Restore, connect and expand species-rich grasslands across the county	A10.1	Set up infrastructure to support grassland restoration and creation	N
		A10.2	Safeguard and enhance traditional hay meadows and other existing species-rich grasslands	Y
		A10.3	Create and restore species-rich grassland	Y
		A10.4	Restore grassland on roadside verges and alongside paths and tracks	Y
Open habitats	Restore, connect and expand heathland sites	A11.1	Establish effective management regimes for heathland sites	Y
		A11.2	Restore heathland where geology allows to increase habitat connectivity	Y
	Increase the area of ffridd habitat	A12.1	Enhance areas of ffridd habitat	Y
		A12.2	Create new areas of ffridd habitat to benefit a wide range of species	Y
	Enhance the wildlife value of open mosaic habitats	A13.1	Create, enhance and appropriately manage close mosaics of open habitats on former coal, mining and post-industrial sites	Y
		A13.2	Enhance open mosaic habitats on brownfield sites	N
		A13.3	Retain the wildlife value of scree	Y
Built environment and amenity spaces	Bring nature into towns, villages and amenity spaces	A14.1	Integrate nature recovery within new developments	N
		A14.2	Create wildlife-friendly gardens at homes and businesses	N
		A14.3	Enhance wildlife value of multifunctional green space	Y
		A14.4	Effective water management in the built environment	N
		A14.5	Reduce the adverse impact of light pollution on wildlife	N
		A14.6	Increase canopy cover in the built environment	N
Invasive non-native species	Reduce invasive non-native species across whole catchments	A15.1	Prevent the spread of invasive non-native species	N
		A15.2	Implement a targeted programme to reduce invasive non-native species	N
Public access, health and wellbeing	Enable more access to and connection with nature for health and wellbeing	A16.1	Enable access to nature-rich sites	N
		A16.2	Create a more comprehensive network to enable active travel	N
		A16.3	Enhance peoples' connection with nature	N

The state of nature

Nature in Shropshire – as across the rest of the UK and around the world – is under pressure.

The strategy area has seen declines in the abundance and distribution of key animal species. For example, analysis of local records by Shropshire Ornithological Society confirms drastic, county-wide declines in Kestrel, Snipe, Starling and the Tawny Owl, among others.[9] The 2023 Breeding Bird Survey[10] found significant regional declines for nine species on the Shropshire Red List for birds.[11]

These declines largely reflect national and international trends. The State of Nature 2023. report, which looked at data for all species across the UK, reports significant declines in species abundance, declines in species range, and ongoing extinctions.[12] According to the report, the percentage of species in long-term decline in the UK is about 40%, and almost one in six species are now threatened with extinction from Great Britain.

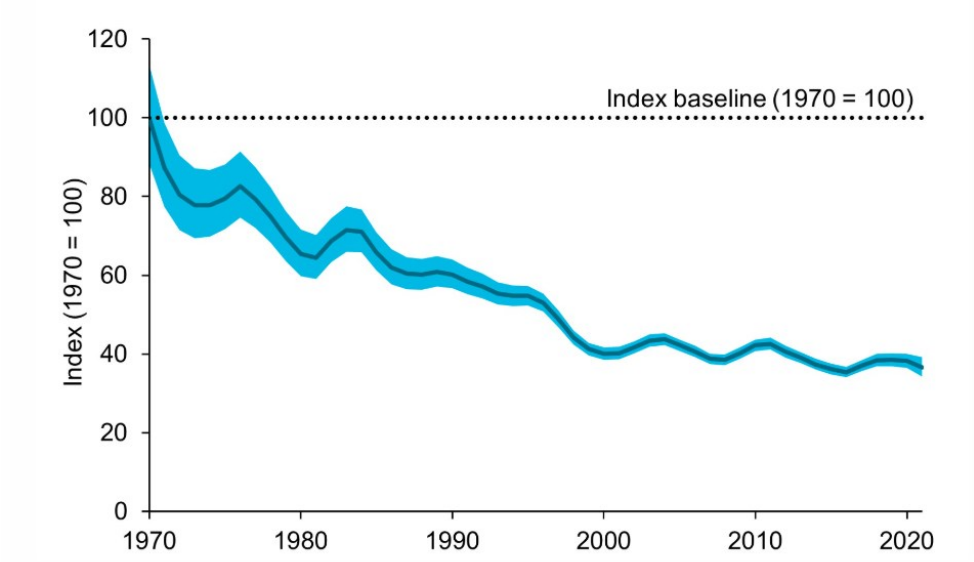


Figure 3 shows the downward trend in the relative abundance of priority species in the UK (UK Biodiversity Indicator C4a) between 1970 and 2021. Source: Defra (2023) UK Biodiversity Indicators, Joint Nature Conservation Committee.

Stewards of Shropshire's local species

Local recording groups and volunteers are key to maintaining evidence on the distribution of key species across Shropshire. Despite possible local extinctions during the previous half-century, records continue to evidence the presence of rare species, such as Curlew, Water Vole and Pine Marten, providing an impetus for habitat restoration and nature recovery across the strategy area. Local conservation groups, farmers and environmental professionals continue efforts to conserve key species by maintaining and expanding nature-rich sites.

A major cause in species decline is habitat loss and degradation, but climate change and other pressures also influence shifts in local biodiversity. Changing weather patterns and temperatures may have a negative impact on certain species while creating favourable conditions for others – including non-native species which may be invasive. Additional species recorded in the strategy area in the last ten years, such as 18 additional species of butterfly and moth,[13] may indicate reactions to wider land use and climate changes patterns across Shropshire in recent decades.

Nature under pressure

Pressures on the natural environment are compounding and often interlinked.

For example, pesticides are widely used to control pests and weeds. However, their impact extends far beyond target species; they lead to the decline of invertebrates, which in turn means there is less food for insect-eating birds and mammals, and it disrupts pollination services, essential for both wild plant reproduction and food crop yields. This is exacerbated by climate change, as warmer temperatures mean land is more often drought-stressed and less resilient to chemical exposure. Loss of pollinators and soil organisms reduces the system's ability to recover, creating a negative feedback loop.

Habitat loss, degradation and fragmentation

A major threat to species and a significant cause of decline is the loss and degradation of natural habitat – particularly due to land use changes over time (e.g. urbanisation, the shift to increasingly intensive agricultural systems and, to some degree, afforestation). Between 1990 and 2015, there were several urban extensions to both Shrewsbury and Telford, and it is likely that trends in urbanisation and development have continued and may even have intensified.

Large habitat areas are also increasingly fragmented – broken up into smaller pockets. This reduces connectivity and species movement, increases local extinctions and isolates populations. Some species have a minimum patch size and habitat quality in which they can

maintain a viable population. Fragmentation increases the challenges associated with habitat restoration and species recovery.

Climate change

Like all parts of the world, Shropshire is increasingly experiencing the effects of climate change. The rise in global temperature is predicted to continue, bringing with it increasingly frequent and more extreme weather events and disrupting the seasonal climate patterns that humans and ecosystems have relied on for millennia.

Warmer temperatures change species' geographical range and alter the timing of natural events – such as making hibernators like dormice wake earlier, depleting their energy reserves before food is available, and causing shrubs to bud early – which exposes them to late frosts and disrupts nectar availability for pollinators.

Changes in rainfall are resulting in warmer, wetter winters and hotter, drier summers, and increasing the risk and severity of flooding and drought. The physical impacts of these changes have wide ranging indirect effects, including the divergence of egg laying and migration cycles, decreased resilience to pests and pathogens, and disruption to carbon sequestration by trees, plants, wetlands and soils.

Flood, drought, water quality and soil erosion

Climate change is, undoubtedly, a significant driver of both flood and drought events in the strategy area, and both these conditions result in potential water quality issues. Significant rainfall events impact water quality and increase runoff of nutrients, pesticides and sediments and cause increased incidence of raw sewage entering rivers as combined sewer overflows activate more frequently. Periods of low flow are already increasing in frequency. Licenced water extractions and decreased rainfall combine to cause a significant threat to both aquatic habitats and species. Beyond river drying, with decreased water entering watercourses, ongoing inputs such as outflows from small scale packaged treatment plants serving nearby residences, highways drainage and permitted outflows from waste-water treatment works can have a larger negative impact upon water quality than would be expected under normal conditions.

Carbon release and reduced sequestration

Maintaining land and associated ecosystems as a net sink of carbon and other greenhouse gases is vital to reducing global emissions. But there is evidence that sequestration rates are falling and that some habitats are beginning or continuing to release carbon. Shocks to the climate system, such as prolonged heat spells and associated drought, can negatively impact natural vegetation cycles and reduce sequestration by plants and soils. Raising the water

table within peatlands can provide significant gains in sequestration, but this may become increasingly difficult if prolonged warm spells and drought conditions intensify.

Air quality

Aerial emissions of ammonia and the resulting deposition of nutrient nitrogen and acid onto land, along with nitrogen oxides and particulate matter from vehicle exhausts and industrial processes, can significantly alter vegetation communities and impact both habitat type and condition. Land in the UK – including on designated sites – is exposed to high levels of ammonia and nitrogen deposition. This favours nutrient-tolerant plant species and, over time, results in the loss of more sensitive species like lichens and bryophytes and less biodiverse ecosystems, which are more susceptible to other stresses such as heat, drought and disease.

Afforestation

Woodland creation is a priority action for achieving carbon net-zero targets – but the 'right tree, right place' principle should be applied. Woodland planting – particularly the drive to restore broadleaf woodland – must be balanced with ever-increasing demands on land for food production, timber and housing. Mixed woodlands, which integrate timber production from conifer on shorter rotations with the biodiversity value provided by native species, could be a significant tool.

Invasive non-native species

Invasive species can displace or out-compete native species for food and resources. Invasive species are one of the biggest drivers of biodiversity loss in the UK and cost the British economy nearly £1.9bn per year.[14] In total there are 3248 non-native species on the UK species register, 303 of which have a negative ecological or human impact.[15] While the list of invasive non-native aquatic plants is long, many have the same effects: they spread rapidly, out-compete native species and block sunlight from our ponds and rivers. In Shropshire, negative impacts of deer and Grey Squirrel on woodland health are widespread, and American Mink – a particular predator of the Water Vole – continue to proliferate across the strategy area.

Pathogens

Climate change and global trade and travel are promoting the spread of pathogens. Increasingly large numbers of new woodland pathogens have been detected in the UK in recent years, including ash dieback, acute oak decline, phytophthora and red band needle blight. Avian flu affects poultry and wild birds, and the most recent Highly Pathogenic Avian Influenza (HPAI) is the most serious the UK has ever recorded. Latest strains have severely impacted UK wild bird populations, especially seabirds, since summer 2021.

Light pollution

There is no part of the strategy area that does not receive significant levels of light pollution. Even the relatively dark and rural areas of the county are relatively well-lit at night compared to neighbouring darker-skied areas, particularly into Wales. Light pollution has significant impacts upon nocturnal wildlife. Artificial light can act as a barrier to some species of bats moving through lit landscapes and can change the behaviour of night flying invertebrates on which they feed. Nocturnal bird species and their small mammal prey are also adversely impacted. Nocturnal mammals in urban environments may adapt, to some extent, but are none the less affected.

Development

Both Shropshire and Telford & Wrekin Councils have a duty to provide new homes and associated infrastructure. In December 2024, under the updated National Planning Policy Framework, the assessment of local housing need in Shropshire increased by 924 dwellings per year – the largest numerical increase across the West Midlands and an 86% increase on the county's previous assessment.[16] Requirements for new areas of employment land and infrastructure and changes in agricultural land uses – including diversification and intensive livestock rearing – also drive development.

You can find more detail on key pressures in the areas covered by the strategy in Appendix 7.

- 97% of lowland hay meadows in England lost since the 1930s*
- Half of ancient woodland in England cut down in three decades in the middle of the 20th century†

In England since 1970:

- We have lost half of all farmland birds‡
- **13%** of species in England are threatened with extinction from Great Britain according to ICUN Regional Red List criteria§
- **32%** average decline in species' abundance§
- **23%** decline in vascular plant distributions§
- **3/4** of crop types grown by humans depend on pollination by insects**
- **x2** – Pesticide applications have doubled over the past 25 years**
- **23** bee and flower-visiting wasp species have become extinct since 1850**
- **75%** of honey from around the world contains neonicotinoid insecticides**

Across the UK, between 1967 and 2016:

- **93%** decline in Spotted Flycatcher populations**
- **92%** decline in Grey Partridge populations**
- **77%** decline in Cuckoo populations**

Across the UK, between 1976 and 2017:

- **46%** decline in 'wider UK' butterflies**
- **77%** decline in habitat-specialist butterflies**

* Joint Nature Conservation Committee (2008) UK Biodiversity Action Plan: Priority Habitat Descriptions – Lowland Meadows; Hayley Kinsey (2023) A brief history of British Woodland.

‡ UK Department for Environment, Food & Rural Affairs (2016) DE5 Trends in populations of farmland birds. Agri-environment indicators – statistical dataset.

§ State of Nature Partnership (2023) State of Nature 2023.

** Dave Goulson (2019) Insect declines and why they matter (PDF).

Shropshire's landscape

Shropshire, including Telford & Wrekin, is a varied and diverse, largely rural county in the West Midlands, with historic market towns and key settlements scattered throughout. The New Town of Telford sits in the east of the county, and the county town of Shrewsbury, roughly central. In the north-west are the Oswestry Hills, a distinctive landscape of calcareous grasslands. To the south lies the Shropshire Hills National Landscape, with the iconic Wrekin at its northern boundary. Land to the north of the county is lower and flatter, with a large plain punctuated by glacial wetland features. Remnant heathlands, wet moorland and sandstone hills are also present in the north and east.

Landscape, land use and habitats vary depending on elevation, geology and underlying soil type. This section provides a detailed description of the area covered by the LNRS, including characterisations of different landscape areas within Shropshire, which inform the strategy's priorities and actions.

Geology and soils

Shropshire is one of the most geologically diverse areas in the England, with exceptional variety in rock age and type. Occupying a frontier position, at former tectonic plate boundaries, its geological history spans almost 700 million years. And, during the past 2.5 million years of geological time, ice, water and wind have further shaped the county's hills, valleys and plains.

Visible examples of Shropshire's rich geological tapestry include volcanic hills (the Wrekin), rugged Pre-Cambrian sediments (the Long Mynd), carboniferous deposits (Coalbrookdale coalfield) and 'kettle-hole' lakes (Shropshire meres).

Coalfields around the New Town of Telford have now largely been exploited and restored, though evidence of former industrial activity – such as pit mounds, spoil heaps and limekilns – remains within the landscape. Quarrying for superficial sands, gravels and building stone is ongoing, and there are also a large number of former quarry sites across Shropshire. Many of these former quarry sites have been restored for their biodiversity – and in some cases, their associated heritage value, such as the World Heritage Site of Ironbridge Gorge.

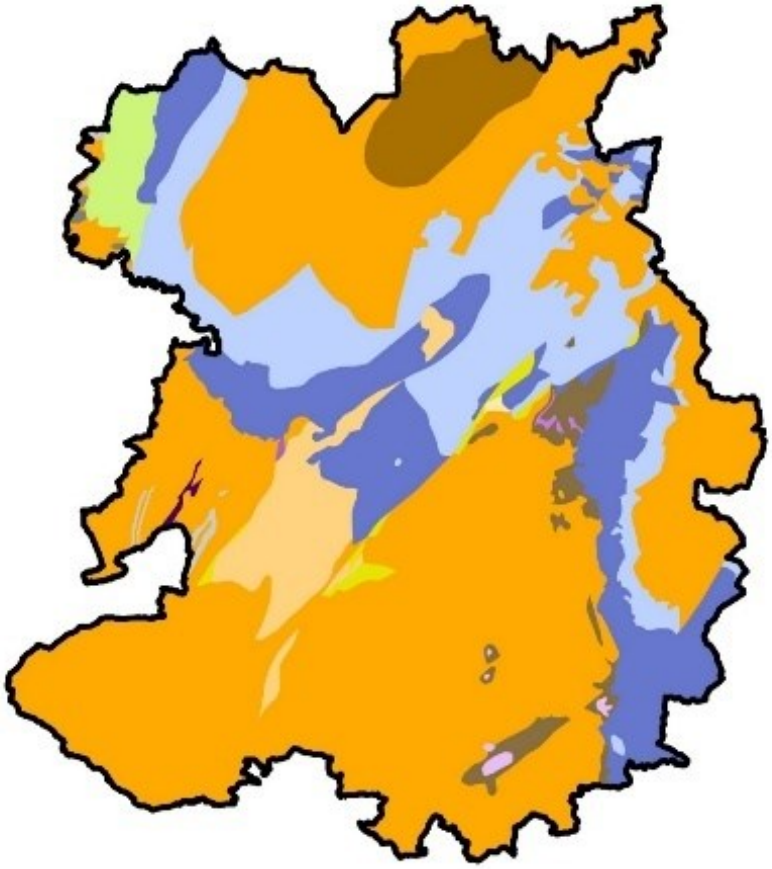


Figure 4 shows the composition of bedrock geology (‘lithology’) in Shropshire.

- Felsic tuff
- Felsic rock
- Lava and tuff
- Limestone with subordinate sandstone and argillaceous rocks
- Mafic igneous rock
- Mafic lava
- Mafic lava and mafic tuff
- Mafic tuff
- Metalimestone
- Mudstone, sandstone and conglomerate
- Mudstone, siltstone and conglomerate
- Mudstone, siltstone, limestone and sandstone
- Mudstone, siltstone, sandstone, coal, ironstone and ferricrete
- Sandstone and conglomerate (interbedded)
- Siltstone and sandstone with subordinate mudstone

Shropshire's diverse geology, weather, climate and early human activity have formed a range of different soil types, resulting in the development of ecological niches that support important and diverse habitats. In turn, these habitats govern the longer-term development of agriculture and landscape patterns across the county.

For example, mixed and arable farming in Shropshire is largely restricted to the lowland, where there are areas of 'Grade 2' soil (using the Agricultural Land Classification – see box), with livestock farming in the uplands and more intensive rearing (e.g. of dairy cattle and poultry) in lower lying upland areas. Forestry and timber production often uses land such as gentle slopes and edges.

The Agricultural Land Classification grades land from 1 to 5, with Grade 1 being 'Excellent' for farming purposes and Grade 5 being 'Very Poor'. Grade 3 is further divided into 3a (good) and 3b (moderate). The 'Best and Most Versatile' agricultural land includes grades 1, 2 and 3a. Food security needs must be considered for land use interventions on these grades of land.

Landscape areas

To describe Shropshire's wide and varied environment as accurately and briefly as possible, the LNRS characterises landscape areas in the following ways:

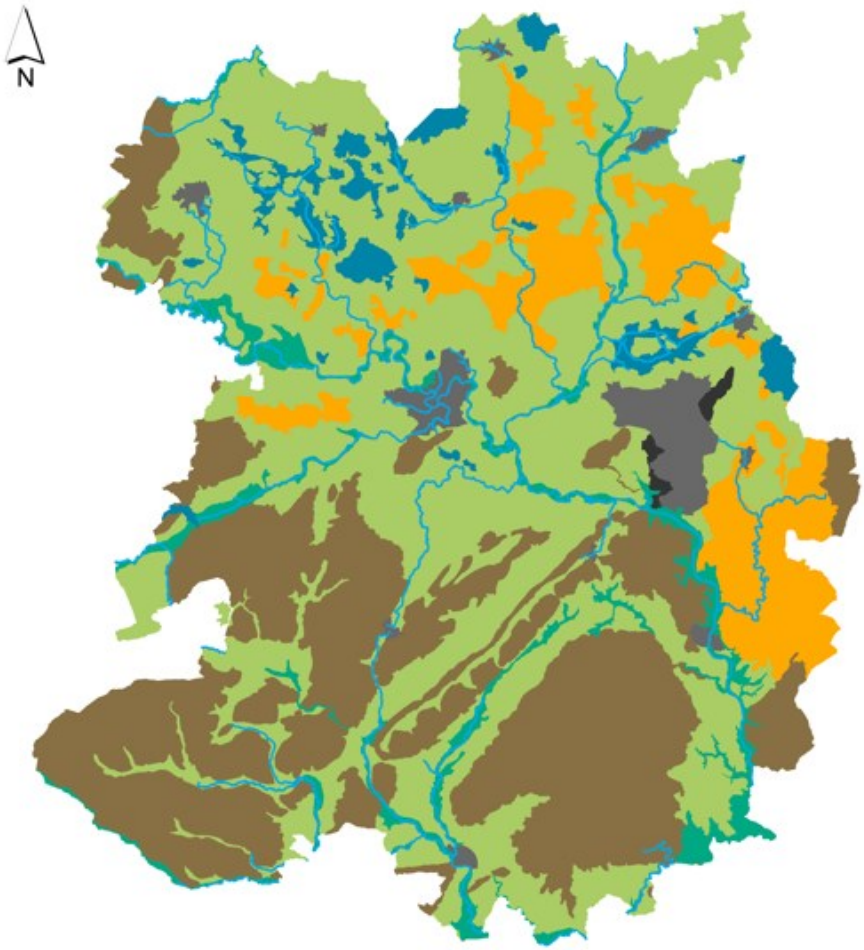


Figure 5 is a map of the LNRS landscape areas in Shropshire, along with main rivers and watercourses.

LNRS landscape character areas:

- Coalfields
- Hills
- Lowland meres, mosses and moors
- Lowlands
- River meadows and wooded river gorge
- Sandstone hills and heaths
- Urban and settlements
- LNRS main rivers

River meadows and wooded river gorge

Land next to rivers and areas close to freshwater bodies are frequently subject to flooding. This regular inundation contributes to the development of highly fertile soils, which are often used for arable farming due to their productivity. However, this has led to the reduction of priority habitats within floodplains, making such habitats increasingly rare and fragmented. Where arable land floods, runoff (both of sediments and nutrients) can pollute watercourses during and after rainfall.

Woodland situated alongside rivers, streams or other watercourses – known as riparian woodland – lies amongst arable fields. Intensification has often reduced riparian woodland to a single row of trees along the bankside, but in some places – like the Wyre Forest – more extensive tracts remain. Riparian trees provide shade, regulate water temperature, stabilise riverbanks, provide food for river species and create a buffer to diffuse pollution. Regeneration of these wooded river areas can provide vital ecosystem services, enhance the extensive river network and improve interaction between freshwater and land-based habitats.

Once ubiquitous, traditional riverside meadows provided important sources of hay to feed livestock in winter, with mowing in summer and subsequent grazing of re-growth providing a diverse flower rich sward. Riverside meadows can support a variety of invertebrates and bird life and, with suitable incentives and management programmes, can be restored effectively while being managed for agriculture.

Integrating natural solutions with agricultural uses allows soils to better absorb flood waters, improving water retention, and enables the development of wetland mosaics, which provide a refuge for important species. Effective restoration of meadows, riparian woodlands and other natural riverside habitats can contribute to landscape resilience and enable agriculture to continue along the river network for decades to come.

Hills and uplands

The hills and uplands landscape area covers almost a third of Shropshire, mainly in the south of the county with significant overlap with the Shropshire Hills National Landscape. This area supports diverse upland regions, which contain many important habitats, geological features and key wildlife populations.

The Long Mynd & Stiperstones is a series of high hills and ridges, rising to 516 metres on the broad plateau of the Long Mynd and 536 metres on the quartzite ridge of the Stiperstones. The area is ecologically important, having the greatest concentration of upland priority habitat in Shropshire, characterised by extensive tracts of heathland, grass moorland and upland flushes. The Clee Hills of Brown Clee and Titterstone Clee are the two highest points in Shropshire. Their tops are a mosaic of fragmented heath, upland heathland, grass moorland, meadows, wet flushes and deciduous woodlands. Breeding birds, including Wheatear and Whinchat, are found here.

Many upland regions are associated with areas of often ancient and biodiverse broadleaved woodland, including the Stretton hills, Wrekin Forest, Wenlock Edge and the Clun uplands. Heathland and other habitats – like moorland, wet flushes and pasture – often predominate on ridges and hill tops. The uplands are typically associated with low-quality land for farming, meaning that important pockets of habitat (including scrub and ffridd) have been somewhat protected from highly intensive agricultural practices. Important locally and nationally endangered terrestrial species, such as Pine Marten, Cuckoo and Curlew, find refuge in the good quality habitats within this landscape. Upland waterways, including the Clun, Unk and Redlake rivers, exhibit some degree of naturalness and support rare species including White-clawed Crayfish, Atlantic Salmon and Freshwater Pearl Mussel.

Principal habitats provide important core areas from which nature could expand and recover. There is potential for interventions to reduce fragmentation between previously connected and contiguous tracts of upland habitat. Improvements in field drainage technology in the second half of the 20th century led to large-scale land conversion – from extensively managed habitats to highly modified pasture grassland. Enhancing natural features and processes on the tops of hills and ridgelines will therefore not only benefit wildlife but can also aid attenuation of surface water runoff, reducing peak waterflows and down valley flooding during heavy rainfall events. Conifer plantations in the landscape area, which are generally considered to be of low biodiversity value, could transition into more diverse habitats, such as mixed woodlands.

Common land is found across Shropshire, in patches of varying size, but the majority of large commons are associated with the hills and upland landscape area and include the commons of the Long Mynd, Stiperstones, Clee Liberty and Catherton. In total, there are 108 registered commons covering 4720 hectares in Shropshire. Commoners' rights associated with the uplands are generally dedicated to grazing. In the Clun Forest there are a number of turbary commons, where peat used to be cut, suggesting the extent of peatland was more extensive than it is now.

Lowland meres, mosses and moors

The meres and mosses are a geographically discrete series of nationally and internationally important sites with open water, peatland and reedbed. Peat – partially decomposed organic matter – plays a vital role in supporting biodiversity, enhancing water quality, managing water resources and storing carbon.

Across Shropshire and Telford & Wrekin, 34 sites are recognised by a Ramsar designation. These include nutrient-rich open water bodies (meres) with fringing habitats of reed swamp, fen, peatlands (mosses) and carr (early successional wet woodland) and damp pasture, which collectively support a range of nationally important plants and animals. Most are also separately recognised through Site of Special Scientific Interest (SSSI) and/or National Nature Reserve (NNR) designations.

Surrounded by low-lying, slightly sloping agricultural land, the meres have, over time, experienced siltation from the runoff of soil, agricultural nutrients, herbicides and pesticides. The mosses have historically been managed to varying extents. This has caused peatlands to dry out and water tables to fall, affecting vegetation communities and causes the release of stored or sequestered carbon.

The lowland moors, notably the Baggy Moor and the Weald Moors north of Telford, are peatlands that have been managed, and dewatered, over time. Baggy Moor was drained and enclosed following an Act of Parliament in 1777. The expense was considerable, but the result was 519 hectares of peat-rich, productive farmland. The Weald Moors landscape is characterised by rush-filled drainage dykes, wet pasture and slow-flowing rivers and streams known as 'strines'.

The man-made features, including many of the dykes, are part of the way the land was drained, but the land remained damp – mostly suitable only for sheep. On some holdings the drainage features have been, or are currently being, removed or blocked to re-wet the land. The Weald Moors continue to support important populations of wet grassland breeding wading birds.

Sandstone hills and heaths

The sandstone hills in the North Shropshire Plain are remnants of the Triassic period. Formed by a series of discrete ridges, these hills are prominent in contrast to the flat landscape both below and between them. The hills form steep-sided features with infertile soils that support broadleaved and mixed woodlands and areas of dry heathland and unimproved grassland. Historically, the hills have provided strong defensive positions and have been exploited as hill forts through the Iron Age, Saxon Age and the Roman period.

Gentle slopes are used for arable crops. Some former heathlands have been planted with coniferous woodland, and the result over time has been the reduction and fragmentation of heathland habitats. Some sites – including land at Prees Heath Common Reserve – have been restored to heathland from plantation or agricultural uses, and there are further opportunities to restore, expand and connect heathland fragments. Prees Heath is the only remaining West Midlands site that supports Silver-studded Blue Butterfly. Other remnant heathlands provide similar refuges for specialist heathland species including breeding Nightjar, Slow Worm, Grass Snake and Adder.

Lowlands

The lowlands of the North Shropshire Plain provide fertile clay soils that support lush pastures for grazing dairy cattle and other livestock. Networks of hedgerows, ponds and agricultural field margins provide connectivity through the landscape. The floodplains of major rivers cross the plain, supporting a range of wetland and wet grassland habitats and providing a

significant resource for flood water storage and biodiversity. Peatlands are also present, providing water storage capacity and potential for significant carbon sequestration.

In the Shropshire Hills, the lowlands comprise dales and valleys between upland expanses. The rivers – which run through a tranquil, small-scale lowland landscape of agricultural grasslands, arable fields and remnant traditional hay meadows – still support populations of Freshwater Pearl Mussel and White-clawed Crayfish. There is a strong link between lines of trees, including Alder, and rivers and streams.

In the east, the Mid-Severn Plateau is a national watershed between the north-easterly flowing River Trent and the south-westerly flowing River Severn. The plateau is predominantly rural and important regionally for food production. Arable fields are larger particularly in the central and eastern areas. The plateau provides important water storage capacity underpinned by a significant aquifer. Lowlands extend to, and around, large woodlands associated with the Wrekin, Wenlock Edge and the Wyre Forest. Historic parklands at Attingham and Dudmaston contribute to the open estate farmland landscape. The plateau has an undulating typography, with large, open arable fields punctuated by areas of lowland heathland, acid grassland and small wooded streamside dells, known as dingles.

Former industrial landscapes, coalfields and quarries

Shropshire was central to the Industrial Revolution in the late 1700s, and extensive industrial and extraction activities were widespread here until the mid-20th century. This industrial heritage has left a rich legacy of industrial evidence – including mines, factories and works, spoil heaps and quarries – which continue to influence the local environment today.

Coalfields

Telford New Town was designated in the 1960s to regenerate the declining mining economy and associated settlements. Subsequent redevelopment has transformed the local area, but extensive remnants of coalfield activity remain on the fringes of the town, forming a landscape unique within the county.

Typical to this area are former pit mounds consisting of spoil from mining works. Many of these mounds, and the former working areas, have provided suitable material for natural and planned regeneration, and they have evolved into rich and varied environments featuring mosaics of woodland, scrub, grassland, marsh, pools and streams.

Local nature reserves including Lightmoor, Granville, and Dawley Hamlets are prime examples of this transformative process and continue to provide local hotspots of biodiversity amid ongoing urban expansion on the edge of the town. The mounds also provide valuable recreational opportunities for visitors and local people to engage with nature. Away from more recent urban developments the pit mounds are interspersed among small farms and wayside cottages, resulting in a landscape that's characteristic of an upstanding rolling plateau.

In the Minsterley area, old lead mines are a notable feature. While these can be a pollution source, they provide opportunities for some species (the spoil is a habitat for invertebrates and mineshafts offer a roost site for bat species).

Photograph of Lightmoor Local Nature Reserve near Telford. Credit: Shropshire Wildlife Trust. Published with permission.

Quarries

Alongside coal, Shropshire has rich deposits of sands, gravels and rock, which have been exploited for building materials in both local and national developments. Quarrying activity transforms the local topography, usually creating deep depressions and artificially exposed rock faces that are difficult to develop into alternative productive land uses post-extraction. Numerous disused quarries remain, providing unique opportunities for nature to thrive.

Like the pit mounds, some of these areas have been left to naturally re-vegetate. Others have undergone deliberate intervention works to develop rich vestiges of plants and wildlife. Llanymynech Rocks, Pam's Pools and Dolgoch Quarry are examples of former quarry sites managed explicitly for nature. Former sites, including small former quarries along Wenlock Edge and non-operational areas of active quarries, provide potential sites for nature recovery.

Canals

Originally built to support industrial development and the movement of goods across the county, Shropshire's canals wind through the landscape, bringing the countryside into towns and villages. Longer stretches of canal provide important open water habitats and associated canal banks support a habitat mosaic of marginal freshwaters, adjacent hedgerows, grassland and scrub. Two canals in Shropshire are designated Sites of Special Scientific Interest: the unnavigable Newport Canal and the Montgomery Canal, both of which are excellent sites for aquatic plants. The Montgomery Canal now provides a refuge for species once present in the meres.

Shropshire has 75 kilometres of canals.

Urban areas

The majority of Shropshire's population live in urban landscapes, and nature recovery in these areas is vital to improving resident wellbeing and access to ecosystem services.

Urban landscapes are highly developed clusters of buildings and artificial infrastructure that support human settlement and economic activity. Urban development in general has a negative effect on the environment, as rural and natural ecosystems are damaged or replaced by artificial surfaces, affecting the habitats that support local wildlife and ecosystem services. It's worth noting that development, when carried out with nature in mind and depending on the land being built on, can present opportunities to increase the overall benefit for nature.

Urban areas in Shropshire, however, are not nature deserts. Green and blue spaces such as private gardens, golf courses, roadside and railway verges, cemeteries and religious grounds, brownfield and protected sites, parks, playing fields, rivers and woods provide much needed refuges for nature and important opportunities for nature recovery. Outside of industrial estates and immediate town centres, urban development in Shropshire is generally low density, characterised by residential housing with gardens and other private outdoor space that form irregular networks of open space through built-up neighbourhoods.

Telford, the largest settlement in the strategy area with around 150,000 residents,[17] has significant areas of planned green and blue infrastructure including large zones of urban forest, created through tree planting on remnant coalfields. Local people have good access to parks and other types of accessible natural space, including large local nature reserves. Along with other designated nature sites, these reserves cover approximately 7% of the urban landscape – a uniquely high figure for built-up areas in Shropshire and four times the area recommended by Natural England. These local nature reserves comprise a variety of habitats, including broadleaf woodland, lowland heathland, wildflower meadow and wet woodland, and are right on peoples' doorsteps.

Shrewsbury, the next largest settlement with 76,000 residents, is more characteristic of other urban landscapes in Shropshire. The town served as a market centre in the pre-industrial era, and its green and grey infrastructure reflects patterns of development in the centuries since. Despite less formal planning of open space, Shrewsbury incorporates many areas of nature. The floodplains of the River Severn and the Bagley and Rea Brook tributaries, which cross through the town, constrict urban development, resulting in extensive blue-green corridors of riparian, park and agricultural habitats.

Cross-cutting features

Rivers, streams, lakes and ponds

Shropshire supports a wide variety of water body habitats, including more than 6300 km of rivers and streams, and around 740 hectares of lakes and ponds.

Rivers

Main rivers in the strategy area include the Severn, Dee, Ceiriog and Teme fed by numerous tributaries. Despite extensive modification (e.g. channel straightening, deepening) over centuries, around 4% remain in priority condition, exhibiting a high degree of naturalness. The River Clun is a Special Area of Conservation (SAC) and supports critically endangered species including Freshwater Pearl Mussel and European Eel. Other parts of the network support the endangered White-clawed Crayfish. The Eurasian Otter is also recovering from the brink of local extinction, showing that appropriate protection and management can allow wildlife to flourish once more across the river network.

Residents across Shropshire are familiar with flooding, and the LNRS presents an opportunity to help manage this risk through the use of nature-based solutions to enable the land to hold more water during times of high rainfall. What may be less well-known is that many of Shropshire's rivers also have low flow issues. Low flows in watercourses not only affect the supply of drinking water and water for irrigation but also biodiversity both within the river and out through habitat loss, which impacts species and subsequent food chains. The Shropshire Groundwater Scheme is used to augment the river at times of low flow, alongside large reservoir releases.

Lakes

Ten of Shropshire's lakes are designated Sites of Special Scientific Interest (SSSI), some of which are also designated Ramsar sites, and one of which forms part of the Brown Moss SAC. These lakes have potential to be important sites for nature recovery but are currently fragmented within intensively managed landscapes and are generally in unfavourable condition. Other lakes make up the remaining 98% of lake water area in Shropshire.

Ponds

Despite their small size, ponds can be exceptionally rich in wildlife, supporting two-thirds of all freshwater species found in Britain.[18] While the number of ponds in Shropshire has fallen during the past century, recent surveys identify 283 priority ponds across the strategy area, with potentially more ponds still unrecorded. Priority ponds are those of high ecological and conservation value for habitats and species. Degraded ponds, which provide established seed banks that can be regenerated to support important local freshwater species, are an

ideal feature for habitat restoration and important stepping stones for wider nature connectivity and recovery.

Many freshwater plants and animals need unpolluted water, so small freshwaters often provide important refuges for pollution-sensitive freshwater plants and animals. Often, the easiest way to bring clean water back to the landscape is to create new small freshwaters, particularly ponds, that are located within small catchments protected from pollution. Taking this approach, rather than focusing efforts on attempts to reduce the pollution of existing habitats, can bring about rapid recovery at a landscape scale.

New ponds can be made almost anywhere that there are impermeable substrates (e.g. clay-rich geology) or permeable substrates with high groundwater levels. Small freshwaters are relatively cheap, quick and easy to create, restore and manage. If situated in catchments that produce clean water, they will be rapidly colonised by aquatic plants and animals, including rare and sensitive species that cannot persist in polluted habitats.

You can find more detail on the condition of water bodies in Shropshire in Appendix 3.

Wooded landscapes

Shropshire's woodlands are diverse and include significant tracts of natural and semi-natural broadleaved woodland, broadleaved plantation, oak, yew and ash woodlands, ancient semi-natural woodlands and conifer plantation on ancient woodland sites.

Woodland is found in most landscape areas across the county and across most of the LNRS landscape areas. Small patches of woodland are present in agricultural landscapes and associated with hills on and around the northern plain. Some landscape areas are dominated by woodland, particularly associated with the arc from Wyre Forest up Wenlock Edge and south again associated with the Severn Gorge. This, almost continuous, 80-kilometre woodland contains significant tracts of ancient woodland and shelters, on the associated slopes, former quarries, high quality grasslands and agricultural land.

You can find more detail on the condition of woodland in Shropshire in Appendix 3.

Wyre Forest

Managed by Forestry England in partnership with Natural England, Wyre Forest is the largest National Nature Reserve in England and sits on the Shropshire–Worcestershire border. Wyre Forest has been wooded since at least 900 AD and was historically used for hunting, producing timber for ship building, oak bark for tanning and, as a coppice woodland, charcoal for iron working, and fruit growing. What remains is a remnant of woodland that once covered much of South Shropshire, North Worcestershire and South Staffordshire. At over 300 hectares, it is a site of high wildlife value and one of the largest areas of ancient woodland – and one of the largest ancient lowland oak woods – in England. Extending to the woodlands of

the Severn Valley, the forest is part of semi-continuous woodland habitat that links to the Severn Gorge woodlands.

In the early 20th century, many oak woodlands were cleared and turned to conifer plantation, resulting in reduced biodiversity and increased timber production. Modern forest management is focusing on increasing coverage of broadleaved tree species, though some areas are still used for timber production and areas of conifer remain.

Beyond its large size Wyre Forest is ecologically significant due to its mosaic of habitats including ancient woodland, conifer forest, open grassland, remnant orchards and steep-sided valleys. Home to almost half of England's macro-moth species, 33 species of butterfly (including both species of Pearl-Bordered Fritillary) and the Wood Ant, it is considered one of the country's most important sites for invertebrates. Plants include Wood Cranesbill, Lily of the Valley, Marsh Fragrant Orchid and Green-winged Orchid.[19] Streams in the forest support dragonfly and Demoiselle and the endangered White-clawed Crayfish. The American Signal Crayfish is also present in nearby streams and represents a significant threat to native crayfish.[20]

Wenlock Edge

Wenlock Edge is a narrow limestone escarpment feature, running from Craven Arms to Much Wenlock. Continuously wooded along its length, much of the woodland on Wenlock Edge is ancient woodland, with intervening areas of conifers. The landscape shows historical use, including evidence of quarrying, remnants of lime production, and ancient yew and lime trees marking ages-old holloways (sunken tracks) that criss-cross the Edge. Ancient and veteran trees are frequent on Wenlock Edge, a number of which are located within areas of plantation on ancient woodland sites (PAWS). These areas have many ancient woodland remnants and have huge potential for restoration. The ancient woodlands are floristically rich and include the Wild Service Tree, Herb-paris and Broad-leaved Helleborine. Frequent mature hazel coppice supports dormouse.

Fragments of calcareous grassland are present in the scallops formed by the sharp Edge. Near the village of Rushbury is Marked Ash Meadows SSSI, the largest and most species-diverse neutral grassland in the Shropshire Hills.[21] Much of Wenlock Edge is characterised by mixed ash woodland and, like other ash woodlands, ash dieback is taking its toll on habitat and landscape quality.

Severn Gorge

At the end of the last Ice Age, the River Severn carved its way through the landscape to create the steep-sided slopes of the Severn Gorge. Along significant parts of the Gorge, rising from the riverbanks, are ancient woodland slopes which support rare tree species, including the Wild Service Tree and Large-leaved Lime. Veteran and ancient trees are found throughout the area. These woodlands have persisted in part due to topography of the Gorge and were worked over centuries to provide timber, charcoal and wood fuel for industry as evidenced by

numerous ancient coppice stools and charcoal hearths within the woodland. Until 1709, Abraham Darby's first furnace at Coalbrookdale was fuelled by charcoal. The demise of industry led to large areas of coppice being abandoned.

The Gorge's wooded character is further enhanced by connecting areas of priority deciduous woodland. Moving south, the woodlands are closely associated with the river valley, particularly on its eastern bank, and vary in size depending on local typography and land use.

Upland oak woodlands

Upland oak woodlands in Shropshire are a vital part of the county's ecological fabric – particularly within the upland landscapes of the Shropshire Hills. Upland oakwoods are typically dominated by Sessile Oak and are a type of semi-natural broadleaved woodland found primarily in the hillier, western parts of Shropshire, especially the Clun Valley. They support a wide range of species, including lichens, bryophytes, fungi, invertebrates and woodland birds. The upland oak woodlands are particularly valuable due to their structural complexity and continuity and their role in carbon storage and water regulation. These woodlands are often remnants of historic land use and are integral to the character of the Shropshire Hills National Landscape.

Nature Recovery Network maps

The LNRS includes Nature Recovery Network maps, which should be used alongside this written document to guide action for nature.

The county-wide Nature Recovery Network maps have been put together to assist decision making for those who know the land best. They are not a replacement for site surveys or individual project planning but have been produced to steer and guide action at a county level.

The Nature Recovery Network is made up of three areas:

1. Areas that are currently being protected for nature
2. Areas which are already providing good quality habitats but are not protected
3. Areas that have the best potential to provide greater benefits for nature.

See Appendix 6 for the mapping methodology.

Existing Nature Network

Shropshire and Telford & Wrekin is home to a range of high-quality habitats recognised through international, national and local designations. Along with ancient woodland, peat bogs and veteran trees, these designated sites form the LNRS for Shropshire's Existing Nature Network (known "areas of particular importance for biodiversity") and are an important part of the LNRS baseline. Many of these sites are already considered in the planning system through existing legislation and policies.

One function of the LNRS is to recognise the vital role these sites play in nature recovery. The landowners and land managers of these important sites need access to professional support and sustainable funding to guarantee future wildlife benefit. The Existing Nature Network needs active protection, active management to enhance sites and in some cases significant restoration to reach a more favourable condition. Within these areas, many sites will be subject to environmental designations, which means any activity within them must adhere to existing national and/or local policies and legislation.

Those sites that already have statutory mechanisms in place to protect and enhance the nature value (Ramsar sites, SAC, SSSI, NNR) are not the focus of the LNRS, and we are not generally permitted to map LNRS actions in these locations. The primary function of the LNRS is to identify opportunities for creating and restoring habitats beyond these existing hotspots and look at how the county can best be connected for nature.

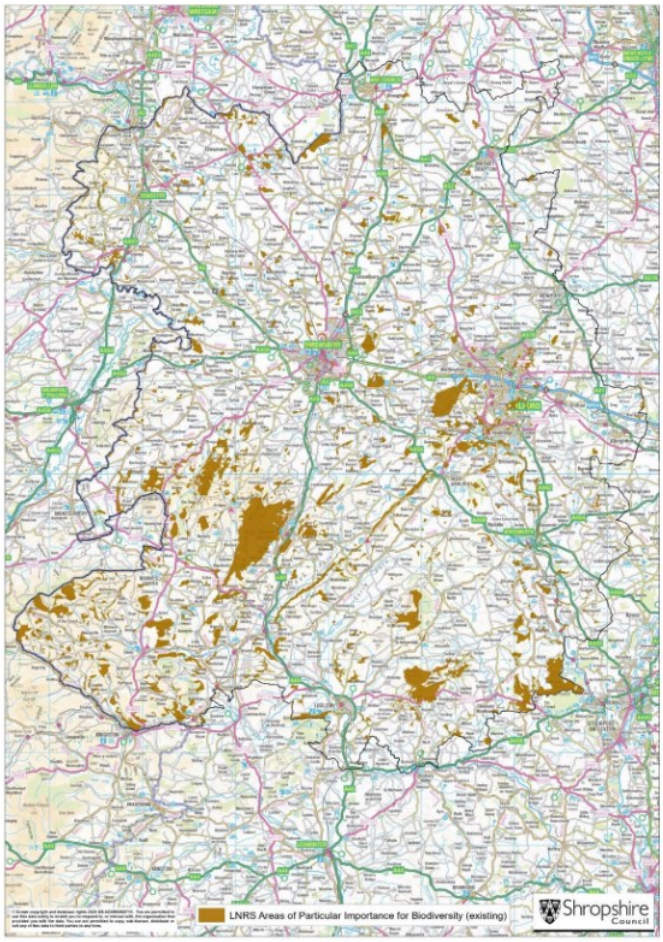


Figure 6 shows Shropshire's Existing Nature Network – "areas of particular importance for biodiversity".

Mapping the Existing Nature Network

The local nature recovery strategy statutory guidance specifies what land should be included in the Existing Nature Network.[22] These are:

- Ramsar sites (internationally important wetlands)
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- National Nature Reserves (NNR)
- Local Nature Reserves (LNR)
- Local Wildlife Sites and Local Geological Sites
- Irreplaceable habitat – in Shropshire and Telford & Wrekin, this includes ancient woodland, plantation on ancient woodland sites (PAWS), veteran trees and peatland

Appendix 5 provides an overview of these nature areas.

Opportunity Network

The Opportunity Network is intended as a guide for where best to take action for nature. It is not a prescription, and it does not replace good site surveys, landowner and farmer input, or project planning.

The Opportunity Network is made up of:

- Priority habitats,[23] which are not currently designated and should be retained and restored as part of any project or development
- Areas of existing habitat which can be restored and enhanced to provide greater benefits to wildlife
- Areas which could be suitable for new habitat creation

It is worth noting that, during LNRS engagement workshops, farmers and landowners were keen that the LNRS recognise the work that many had been carrying out for years through agri-environment schemes. The Opportunity Network therefore also includes Higher-Level Stewardship, Organic Higher-Level Stewardship and some of the more "permanent", habitat-focused countryside stewardship options.

See Appendix 4 for land coverage of priority habitats in Shropshire and Appendix 6 for the mapping methodology.

The Opportunity Network mapping drew on significant amount of data, and while the data used was the best available, it is important to acknowledge that all datasets contain flaws.

- **54%** of the county is covered by the LNRS mapping
- **8%** is Zone 1: the Existing Nature Network, which is "area of particular importance for biodiversity"
- **46%** is Zone 2: the Opportunity Network, which is "area that could be of particular importance for biodiversity"

The LNRS identifies suggested actions for specific locations within the Opportunity Network and areas within the Existing Nature Network where actions are appropriate and are permitted (that is, ancient woodland and Local Wildlife Sites). These actions are habitat-based – for example, restore species rich grassland or establish riparian buffers. Not all actions under the LNRS priorities can be mapped, as they are less place-specific (for example, restoring hedgerows or enabling access to nature-rich sites). It is therefore important to also refer to the priorities and actions section in this document.

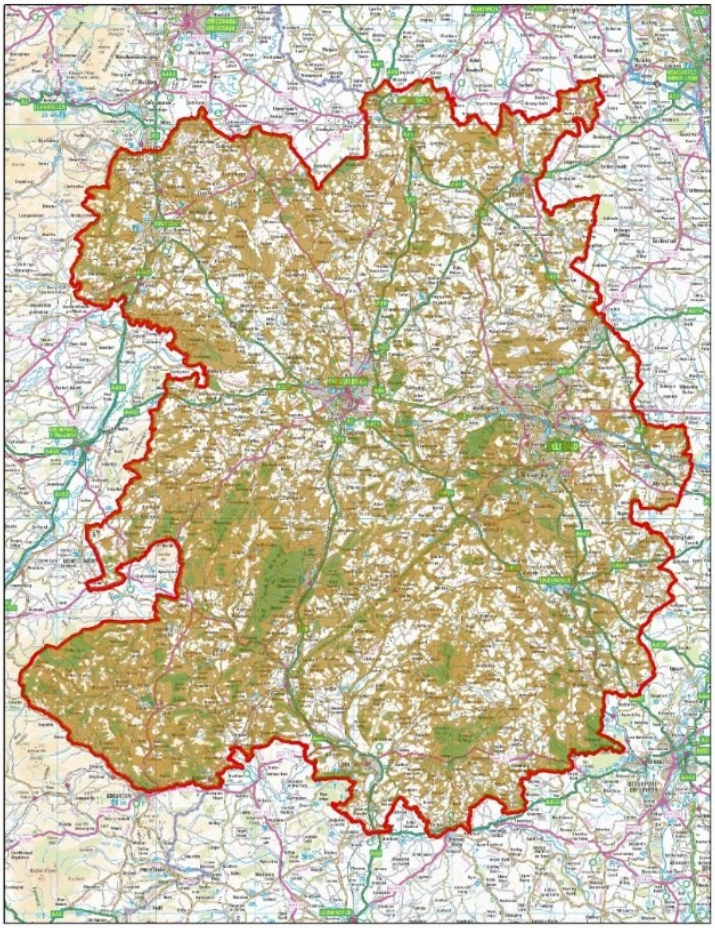


Figure 7 shows Shropshire's Opportunity Network – "areas that could become of particular importance for biodiversity" in the county.

Links across borders

The government intends that the 48 strategies join up at administrative boundaries, with no overlap and no gaps. Maps should relate well to each other at those boundaries, ensuring that where a particular habitat, designated site or land use type continues either side of the border it should generally be recognised as the same level of priority, or that the same, or similar, actions are desirable.

Shropshire Council is engaged with neighbouring authorities in Herefordshire, Worcestershire, Staffordshire and Stoke-on-Trent, and Cheshire. Conversations with neighbouring Welsh authorities are also ongoing, particularly with the upper tributaries of the Severn, as activities outside of the county can have significant impact in Shropshire.

Stakeholders in the county have a long history of working across borders and administrative boundaries, especially where our designated sites and valued landscapes are large scale or are widely dispersed. This cross-border approach is particularly valuable in the meres and mosses (which spread across three counties), at Wyre Forest between Shropshire and Worcestershire, and relating to the Wrekin SSSI (which straddles the border between Shropshire and Telford & Wrekin Council administrative areas).

Key opportunities

Headline nature opportunities for Shropshire

Safeguarding insects as a food source: Arguably the biggest impact that we can have is to reduce the pesticides in the environment, which would result in more insects benefitting everything that relies on them for food.

Making connections: Creating corridors in the landscape through existing linear connections such as establishing a network of tall and wide hedgerows and adapting the management of road verges to create more species rich grassland.

Managing water: There are problems with both flooding and drought in the county. Nature-based solutions can help reduce these issues and have benefits for nature.

Working together: There are well established networks of organisations, individuals and groups coming together to take action for nature. Collaborative working combines knowledge, skills and resources to the benefit of all. See page 44.

Approaches to nature recovery must take account of existing land uses and functional ecological networks. The approach should always be to target the right habitat, or action, in the best location, where soil conditions and management regimes are suitable and where existing habitats are taken into account. For example, the creation of woodland, even where this is a priority, should avoid high-quality grasslands and other existing habitats, which are providing considerable biodiversity value and ecosystem services in their own right.

Fundamentally, opportunities to take action for nature exist only where this action aligns with the interest of the landowner or land manager. Local nature recovery strategies must reflect local priorities while also contributing to national environmental targets. This section outlines some of the key opportunities for Shropshire.

Natural flood management and water quality improvements

There are problems with both flooding and drought in the county. Nature-based solutions can help reduce the issue and have benefits for nature. The Severn Valley Water Management Scheme is already established and is investigating options for nature-based solutions upstream of Shrewsbury, with the intention of holding back flood waters and reducing flooding in the town. There are also ongoing cross-industry catchment partnerships and catchment-sensitive farming schemes, which are supporting actions to address both flooding and drought issues throughout the county.

Many actions for nature also have potential to deliver either natural flood management or water quality improvements, or both. The evidence is clear: the condition of water bodies and catchments is generally poor and this impacts the biodiversity they support. While the causes of water quality issues are complex and involve different regulatory regimes, there are natural approaches supported by evidence that can certainly form part of the potential solution. New innovations such as biochar could play a role in removal of contaminants in Shropshire's water. It will also be important to engage with and further educate the public on their role in maintaining and improving water quality – raising awareness about misconnections, proper management of septic tanks and cesspits, and everyday habits that can make a difference.

Actions including reinstatement of hedgerows and creation of riparian buffer strips on farmland close to watercourses would perform multiple functions including limiting soil erosion and nutrient run off during heavy rain. Creating areas of wet woodland or other natural habitat close to watercourses would, again, deliver multiple benefits: storing flood water and intercepting pollution and sediments.

Action to build on

- River Severn Partnership brings together local authorities, environmental agencies, water companies, academic institutions and community organisations across England and Wales to address shared challenges and opportunities related to water, nature and climate resilience across the whole Severn River basin, to transform the Severn Catchment into the UK's most vibrant and resilient river network.
- The Severn Valley Water Management Scheme is a River Severn Partnership scheme looking at a climate resilient approach for the upper reaches of the Severn, including exploring how nature-based solutions can help water management and flooding issues.
- Cross-industry catchment-based partnerships
- Catchment-sensitive farming schemes

Habitat connectivity and resilience

The need for nature recovery across large, connected areas (rather than isolated sites) has long been recognised across Shropshire. Habitat fragmentation, including the shrinking size of habitat, and increasing distance between patches are a collective challenge for species. As the space between fragments grows, with hard-to-cross land uses in between, species populations become isolated, increasing the potential for inbreeding and the risk that each patch eventually becomes so small it cannot support viable population clusters at all.

Area fragmentation affects species differently depending upon ecological needs. Some species favour interiors, and so as woodlands become fragmented, the area of habitat providing the correct ecological niche for these species shrinks even further. Other species that favour edge habitats and interfaces between habitat types and structures may benefit locally from some fragmentation – as long as blocks remain reasonably close to one another.

The solution to fragmentation, then, is not simply that large homogenous blocks of one particular habitat type or another should always be created. A better approach for biodiversity might be the creation of mosaics of habitat patches, each of sufficient size to support viable species populations, relatively close together and well connected within the landscape by hedgerows, lines of trees, vegetated ditches, grassland margins and stretches of scrub. By adopting this method, nature recovery can sit comfortably within landscapes used for food or timber production and urban development.

Hedgerow creation, in particular, offers an excellent opportunity to connect the landscape and is relatively easy to incorporate into current land uses.

Action to build on

- Restoring Shropshire's Verges Project is working with communities and the highways department to create long linear meadows along roadside verges.
- Middle Marches Community Land Trust is acquiring land with public donations to create stepping stones for nature and working with landowners and communities to create connectivity and habitats.
- CPRE's Hedgerow Heroes is a project that brings together volunteers and landowners to plant new hedgerows.
- Farmer groups are looking across shared landholdings at opportunities to connect areas for nature.

Restoration of plantation on ancient woodland sites

Plantation on ancient woodland sites (PAWS) are ancient woodlands that were historically cleared and planted with non-native conifers but retain complex soils, seed banks and microhabitats developed over centuries. These characteristics make them ideal candidates for restoration to semi-natural woodland. Restoring PAWS is a high-impact, cost-effective and

policy-aligned action that can significantly advance local nature recovery objectives. Alongside benefits for nature, restoring PAWS can also have the practical benefit of income generation from the sale of timber.

Action to build on

- Forestry England is meeting its long-term commitment to keep restoring plantations on ancient woodland sites.
- Shropshire Hills Ancient Woodland Restoration Project is a partnership with Woodland Trust and Forestry Commission providing landowner advice to improve the condition of PAWS in the Shropshire Hills.

Ecosystem services and natural capital

Nature recovery through the LNRS is focused on habitats, but each form of habitat creation, restoration or management has the potential to provide ecosystem services or natural capital (financial value from these services). Habitats are generally multifunctional, meaning nature recovery delivers multiple benefits.

Raising the water table within areas of peat soil, for example, provides new bog and fen habitat and supports the species that rely on them. Restored peat also provides significant carbon sequestration and stores water, which may contribute to local flood management and could secure future production by building more soil or provide new income-generation opportunities for landowners, such as wetter farming. Quality grassland creation provides a nectar source for invertebrates, which in turn provide food sources for small birds and foraging bats; permanent grassland sequesters carbon, especially where there is high diversity of plant species and, if created on formerly bare or ploughed land, will reduce soil erosion. Planting trees and scrub will increase carbon storage and can also support passive cooling, water retention and improvements in air quality.

Action to build on

Marches Environmental Investment Platform (MIEP) is a pioneering green finance initiative that aims to attract private sector investment into environmental projects that can deliver measurable ecosystem services (such as water quality and climate resilience) across the Marches region. The platform is being developed under the Marches Forward Partnership, in conjunction with projects such as the Severn Valley Water Management Scheme, to test the concept through delivery. It aims to provide a structured, place-based green finance model that could be used to scale up environmental investment across the region.

Tree planting

Trees are an important part of the UK Government's Environmental Improvement Plan, and woodland creation targets have been set out by Natural England and the Forestry Commission.[24] To achieve these targets, England needs to increase tree cover to 16.5% by

2050,[25] which includes both woodland creation and planting trees in the wider countryside. If Shropshire is to proportionately meet tree cover targets, it could need to provide between 4882 and 11,510 hectares of additional tree cover based on the estimates outlined earlier in the document. This is a significant area and would mean creating between 195 and 460 hectares of woodland every year between 2025 and 2050. Each scenario is dependent on the progression of ash dieback, and these targets will need adjusting to consider the ongoing loss of trees in ash-dominated woodlands, such as those on Wenlock Edge and Ironbridge Gorge.

Open land of low biodiversity value presents the best opportunity for increases in canopy cover. This need not be closed canopy cover, and other tree planting options may be possible alongside food production. Most recent estimates, published in 2017, suggest that of the 72% of UK land area used for agriculture, just 3.3% can be categorised as agroforestry (this excludes hedgerows).[26] Tree canopy cover in the Shropshire strategy area is estimated between 13% and 15%, slightly above the national average of 13%. Telford & Wrekin has a borough-wide average of 15%, with some wards reaching 22%, positioning it well to exceed the UK Government's aspiration of 19% tree cover by 2050. Shropshire Council's Trees Outside Woodlands programme is developing innovative ways to increase tree cover beyond traditional woodland settings, such as field boundaries and road verges.

There is significant potential to increase canopy cover by integrating more trees into farmed landscapes. There are numerous agroforestry options within the Environmental Land Management Scheme, which could present opportunities for businesses to incorporate more trees into their grazed or cropped land areas – providing income and increased resilience to climate changes. There are also grants for natural regeneration of woodland, whereby woodland is established simply by installing fencing to exclude grazing near adjacent sources of tree seed; this can work well in less productive areas.

Urban areas are prioritised for increased canopy cover to address heat stress, air pollution, and health inequalities. The concept of tree equity – ensuring fair access to the benefits of trees regardless of postcode – is being explored through mapping tools and canopy audits.

There are also opportunities to use planting strategically to improve the air quality near sensitive habitats such as ancient woodlands. Pollutants arising from agriculture and transport can be reduced helping populations of nitrogen-sensitive plant, lichen and bryophyte species.

Agroforestry is a land management approach that integrates trees and shrubs into farming systems and rural landscapes. It blends agriculture and forestry in a way that supports both productive land use and nature recovery. Common types of agroforestry include silvopasture, whereby trees are planted in grazing areas to provide shade, shelter and fodder for livestock, and silvoarable – trees grown alongside arable crops, improving microclimates and reducing wind erosion. Riparian buffers, hedgerows and field trees are other aspects often included within the agroforestry term.

Action to build on

England Woodland Creation Offer is a government grant encouraging investment in the creation and long-term management of woodland, on areas as small as one hectare.

Planning for land use change

use change and, if thoughtfully implemented, can result in a diverse mosaic of habitats to benefit people and nature. Long-term restoration plans for minerals extraction present particular opportunities, and there are many examples across the country of rich wildlife being created and long-term agreements being set up to fund the ongoing management of sites.

Development to mitigate and manage the risks we face from climate change – like the installation of solar panels and wind turbines – can be implemented alongside nature enhancements. Renewable energy sources are an important aspect of addressing our reliance on fossil fuels and can provide an opportunity for communities to become more self-sufficient with their energy production.

For nature benefits to be realised, long-term outcomes need to be agreed and planned for from the outset of any development project or change in land use. Thinking about nature as an afterthought will not mean decisions are any quicker or easier and won't maximise benefits for nature or communities.

The section 'Delivering local nature recovery' (page 45) explains what the LNRS means for planning.

Working together

coming together to take action for nature. There are huge potential benefits from partnership working and collaboration – particularly when exploring different concepts and trialling approaches to test what works.

Shropshire's rich and varied natural landscape reflects the care and commitment of its people. Farmers who have invaluable local knowledge and work with nature in mind, community groups who give their time to local green spaces, ecological recorders who track vital trends, strategic partners who collaborate on large-scale landscape projects, and individuals who spark action and inspire others.

We all have a part to play. And if we work together, we can make a lasting difference.

Delivering the LNRS

The LNRS isn't, by itself, a mechanism for changing land management – but the strategy is designed with delivery in mind, so that it can be a useful tool for those wanting to undertake nature recovery activities and in securing funding to do so. This section provides an overview of how the LNRS can be delivered, including key delivery partners.

Funding

It is critical that there is funding for carrying out the identified actions as well as for data gathering to monitor our impact. Important resources include agri-environment schemes, biodiversity net gain (BNG), lottery funding, green finance and developer contributions. Funding for action needs to be incentivised and sustained, and long-term, reliable funding to support all aspects of delivery will be crucial. Small amounts of seed corn funding spent with communities can lead to significant outcomes.

Farmers, landowners and land managers are indispensable to any effort to restore local nature and are particularly important stakeholders in this LNRS for Shropshire. But while many are interested and willing to take action for nature, the vast majority also have businesses to run. If the objectives of this strategy are to be realised, it is therefore essential that there is sustained funding to support the implementation of the identified actions.

Political support

Embedding LNRS in local plans and policies helps to align nature recovery with broader agendas such as climate adaptation, flood resilience and public health. Local politicians are instrumental in achieving this integration and unlocking funding. Cross-party political support is also needed, alongside individual champions, to help scale successful pilots, sustain momentum across election cycles and ensure nature recovery remains a priority amid competing demands.

Marches Forward Partnership is a strategic cross-border collaboration between the local authorities of Herefordshire, Shropshire, Powys, and Monmouthshire. Launched in November 2023, its purpose is to unlock new investment, and one key area of focus is on harnessing the region's rural assets to drive a programme of green growth, thereby helping to tackle environmental resilience, biodiversity and climate adaptation.

Policy and planning

Local nature recovery strategies must be considered in the preparation of Local Plans, Neighbourhood Plans, and other spatial policies. In particular, the Environment Act 2021 introduced two mechanisms for planning to support the delivery of LNRS:

- Strengthened Biodiversity Duty on public authorities
- Mandatory biodiversity net gain (BNG) for developments

Building housing and infrastructure offers an opportunity to enhance nature – but this means making choices early on about where, what and how to build. The LNRS is not a planning designation but does influence planning system processes and policies, and it can guide developers and decision-makers in making better spaces for nature and for people.

The LNRS is not a planning designation. The LNRS opportunity mapping does not exclude development but incentivises nature-friendly design. In many locations, it will be development that brings about positive change.

Existing planning policy requires development to build with nature in mind, which includes integrating biodiverse green infrastructure, sustainable urban drainage systems (SuDS), water efficiency measures, habitat connectivity and low-light zones for nocturnal wildlife. These design principles are not just ecological – they also support health, wellbeing and climate resilience and can be integrated into local and neighbourhood plans and design codes.

The LNRS interacts with the planning process in three important ways:

- Public authorities must use LNRS maps and priorities to inform site allocations and planning decisions.
- Planning policies can require LNRS-aligned outcomes in landscape planning.
- Developers may qualify for a 15% 'strategic significance' uplift in biodiversity net gain units if they create or enhance habitat in line with LNRS priorities, within LNRS priority areas (referred to as 'Opportunity Areas' in the LNRS for Shropshire and Telford & Wrekin). See Biodiversity net gain (page 47) for more detail on developers' statutory BNG duties and biodiversity units, or visit www.gov.uk/guidance/biodiversity-net-gain.

Case studies exploring how the LNRS might be used:

- When a landowner wants to build a grain store (PDF)
- To help landscape design at master planning stage (PDF)

Nature recovery through development planning delivers multiple benefits, such as increased property values near green space and reduced NHS costs through improved mental and physical health. It will also help with broader environmental services such as flood management and help towns from getting too hot in our rapidly changing climate – a major

public health risk. (One recent 4-day heatwave in June 2025 was predicted to cause 570 deaths due to heat-related effects in England and Wales.[27])

These benefits make a strong case for integrating LNRS into planning viability assessments and infrastructure funding strategies. The LNRS mapping tools can guide site-specific plans and be used in local plans and neighbourhood plans, including parish nature recovery plans.

The future direction of the planning system supports the approach of development actively contributing to nature recovery, not just offsetting harm. Key proposals in the UK Government's 2025 Planning Reform Working Paper include:

- Pooling developer contributions to fund strategic nature recovery
- Streamlining environmental obligations to accelerate housing delivery
- Using the Planning and Infrastructure Bill to embed these reforms

Green infrastructure must be included in all new developments. And because of the biodiversity net gain requirement (see box), the green infrastructure being proposed by developers is increasingly biodiverse. Within urban areas, green infrastructure planning and high-quality development design should prioritise on-site delivery of biodiversity net gain, as close as possible to biodiversity losses, and integrate nature into developed areas at every opportunity. Natural England's Green Infrastructure Framework provides helpful guidance.

Biodiversity net gain

Biodiversity net gain (BNG) refers to the statutory framework, introduced into Schedule 7A of the Town and Country Planning Act 1990 by the Environment Act 2021, that requires developments in England to have a positive, measurable impact ('net gain') on biodiversity.

Under BNG, and subject to certain conditions, developers must deliver at least a 10% increase in biodiversity value compared relative to the pre-development value of the on-site habitat. Specialist expertise is normally required to ensure compliance with the rules before embarking on any proposed scheme.

BNG is calculated using a statutory biodiversity metric, which uses habitat information (including size, type, distinctiveness, condition and location) to quantify 'biodiversity units' – a proxy measure for biodiversity value. Developers can deliver biodiversity units in three ways. They can combine more than one approach but must go through the options in order:

1. **On-site:** Deliver BNG on the development site.
2. **Off-site:** Where developers cannot achieve BNG on-site, they can do this off-site either by creating biodiversity units on land they own elsewhere or by purchasing off-site biodiversity units on the market.
3. **Biodiversity credits:** As a last resort, where developers cannot achieve on-site or off-site BNG, they can buy statutory biodiversity credits from the government.

Local nature recovery strategies – like this one for Shropshire – play a key role in BNG as they determine a 'strategic significance' multiplier within the biodiversity metric. This can help incentivise the right actions in the right places; by delivering proposed actions set out in the LNRS within the Nature Recovery Network area, landowners would benefit from a 15% uplift in biodiversity units. This will benefit both individual developments and land managers looking to diversify their incomes.

Building on current action

Taking coordinated and strategic action for biodiversity in Shropshire is not a new concept, and the LNRS aims to build on the past projects and initiatives and to complement the array of ongoing activities taking place across the county.

Examples include:

- **The Shropshire Hills National Landscape Management Plan.**[28]
- **Marches Meadow Group**, which is leading on meadow creation across the county.
- **Catchment-based partnerships** working to achieve vibrant, healthy and resilient river systems.
- **Partnership efforts such as Sandscapes, Stepping Stones and Back to Purple,** which are working to restore, create and reconnect areas of heathland and grassland habitat within the wider landscape.
- **Biodiversity hotspot mapping**, a method of recognising where biodiversity and/or species recording is focused. Maps for a range of species groups can be found on the Shropshire Council website.[29]
- **Buglife's B-lines project,** a national scheme that maps and runs nature recovery projects along the 'insect pathways' that run through our countryside and towns.

Appendix 2 provides a summary of ongoing work, much of which is also referenced throughout the strategy along with links to case studies.

It is hoped that the LNRS provides some additional data, insight and collaborative working to help focus efforts where they will result in the greatest benefit.

Key delivery partners

Delivery of the LNRS will involve many different groups of stakeholders, including farmers, local residents, communities and volunteers. Collaboration between these stakeholder groups – our 'delivery partners' – can help individual efforts deliver more than the sum of their parts.

Farmers, landowners and land managers

84% of Shropshire is farmland,[30] making farmers, landowners and land managers the most important stakeholders in this strategy. Farmers and landowners are experienced land managers, and many have been taking action for nature for decades. The LNRS – which is designed to align environmental goals with practical land use – offers a supportive framework to guide coordinated action towards nature recovery.

Until recently, policies and rural payments encouraged intensification, as the focus after the end of the Second World War was on producing as much food as possible. Government policy has shifted, and payments are now being made to landowners for carrying out land management actions that benefit nature and wider society. From a nature perspective, this change is welcome. But for these policies to work, farmers need a period of stability to have confidence in the new system and be able to adapt their businesses accordingly. Farm advisors and representative bodies provide crucial advice, guidance and support, particularly in the current context of rapidly changing policy and funding.

Landowners are eligible for several funding streams, including Environmental Land Management (ELM) schemes and biodiversity net gain (BNG). These financing mechanisms reward landowners for biodiversity-positive actions, to help make participation in local nature recovery both environmentally beneficial and economically viable.

Development in line with the actions proposed by the LNRS, taken within the Nature Recovery Network area, could give landowners a 15% uplift in biodiversity net gain units.

Planting hedgerows can benefit livestock and arable production, while not taking up significant amounts of productive land.

Public authorities

By law, all public authorities – including **local authorities and town and parish councils** – have a duty to conserve and enhance biodiversity in exercising their functions. They must "have regard to any relevant local nature recovery strategy".[31] With the exception of parish councils, public authorities must also "report on actions taken to meet this duty".[32]

Local authorities

Local authorities are uniquely positioned to coordinate activities and at scale. And, by integrating LNRS priorities in local plans and development agendas (e.g. housing and transport) and in all parts of local governance (from planning and procurement to community engagement), they can help realise the wider environmental and social benefits of nature recovery. Nature recovery needs to be embedded in contract changes within the local authorities.

Some local authority functions, such as planning and land management, have more obvious links to, or a more direct impact on, nature recovery. But it's possible to mainstream biodiversity within a range of council functions. For example:

- Flood resilience, drought management and water quality
- Mental health, physical health and wellbeing, and green social prescribing
- Green infrastructure and energy efficiency
- Healthy soil for sustainable production of nutritious foods
- Wildlife across the council estate
- Attracting people to the county
- A healthy local economy and local livelihoods
- Place-making in partnership with town and parish councils
- Climate adaptation strategies
- Monitoring and managing invasive species
- School curriculums and outdoor learning

Town and parish councils

Government guidance published in May 2023 outlines three key responsibilities for town and parish councils:

1. Consider biodiversity in their area
2. Agree policies and objectives to support it
3. Act to deliver those objectives

embedded in their communities and understand land use and community priorities. This means they are ideally placed to identify local biodiversity opportunities and threats, mobilise community action, and act as trusted intermediaries between residents and higher-tier authorities. Where town and parish councils don't have ecological expertise, they can partner with local wildlife groups.

The LNRS team is working with Shropshire Association of Local Councils (SALC), Middle Marches Community Land Trust and other partners to encourage and support town and parish councils to develop their own tailored nature recovery plans and work together in local clusters. The SALC network provides a ready-made infrastructure for town and parish councils throughout the county to share knowledge and coordinate action on local nature recovery.

Many town and parish councils are already taking practical action for biodiversity – such as planting trees and hedgerows, creating ponds and wildflower meadows, protecting watercourses and redesigning parks and recreational spaces. These actions align directly with LNRS priorities.

Shropshire's town and parish councils are also increasingly involved in shaping LNRS policy, including at the national scale.

Case study: How Oswestry Town Council has been making its area more nature rich **(PDF)**

Community wildlife groups and local recorders

Community groups and local recorders are passionate nature enthusiasts, with exceptional ecological knowledge of their area. Biological recorders often have decades of experience observing local ecosystems; they know their patch well, and their long-term monitoring of species and habitats provides the evidence base for identifying priorities for species recovery, mapping locally important sites and tracking change over time.

Community wildlife groups are embedded in their communities and are trusted voices for nature. They play a vital role in raising awareness of biodiversity issues and mobilising volunteers for habitat restoration. Many also volunteer their time to engage in practical action to enhance nature in their area – for example planting out Marsh Violets on the Stiperstones or scrub bashing with the Friends of Rough Park. Community wildlife groups often have established volunteer networks, local credibility and the agility to implement small-scale, high-impact projects. By partnering with community groups, other organisations can extend their reach and build delivery capacity.

Local recorders and species experts have been invaluable in developing the LNRS, helping to make sure that it reflects real-world conditions rather than abstract models. They have played an especially important role in identifying species that need targeted action for their recovery – beyond more, bigger, better and/or better-connected habitat.

Conservation and other environmental organisations

Conservation organisations bring a breadth of ecological expertise and long-standing experience in habitat restoration, species monitoring, and biodiversity planning. Their input is critical in designing interventions that are ecologically sound and locally appropriate. These organisations are often directly involved in implementing nature recovery projects and have well-developed partnerships and established track records of delivering positive change for nature. Their ability to mobilise volunteers, secure funding and deliver practical outcomes makes them essential to the delivery of the LNRS. Conservation organisations often have strong local roots and trusted relationships with communities making them effective at engaging residents, landowners, and local groups in nature recovery efforts.

Government agencies

Natural England, Environment Agency and Forestry Commission provide statutory guidance and technical support to the LNRS process to ensure consistency with broader environmental

policy frameworks. These agencies also facilitate data, knowledge and resource sharing between responsible authorities, which helps to build local capacity, and enable integration with national datasets and mapping tools. Endorsement from government agencies reassures stakeholders that the LNRS is robust, fair, and aligned with national priorities. This is particularly important when seeking funding and/or political support.

Research institutions

The involvement of research institutes, which contribute analytical approach and tools to delivery and monitoring methodologies, ensures that the LNRS benefits from scientific and academic insight as well as reflecting practical land management realities. Research institutes are well-positioned to lead or support funding bids for nature recovery projects, and their involvement can strengthen applications. Universities often spear-head cross sector-engagement, acting as a bridge between academia, local authorities, landowners and conservation groups. They are also particularly important in raising awareness among young people, who are the future of action for nature.

Children and schools

Developing a nature-literate generation is important for achieving long-term, sustainable change. Early exposure to nature recovery principles helps young people understand biodiversity, climate resilience and sustainable land use. And integrating nature into the school day improves academic achievement, attendance and wellbeing.[33] This aligns with the Environmental Improvement Plan's goal to ensure learning in and about nature at every level of education. Children often act as conduits between schools and families.

Practical actions schools can take:

- **Nature recovery in the curriculum:** Integrate LNRS themes – such as mapping local habitats, studying pollinators or designing wildlife corridors – into lesson plans.
- **School grounds as habitats:** Create wildflower meadows, ponds or hedgerows in line with LNRS habitat priorities.
- **Student-led monitoring:** Engage students in tracking local species or habitat changes, contributing to LNRS monitoring goals.
- **Community partnerships:** Collaborate with families, conservation charities, youth groups and farmers to co-deliver workshops and field trips.

Non-agricultural businesses

Businesses bring resources, technical expertise and delivery capacity that can accelerate implementation. Partnering with business can enhance communication, credibility, and delivery readiness. Many businesses are already aligning with environmental, social and

governance (ESG) frameworks and biodiversity net gain (BNG) requirements. The LNRS provides a spatial and strategic framework that helps businesses identify where their investments in nature recovery will have the greatest impact and regulatory alignment.

Along with enhancing nature, local nature recovery strategies are also about creating resilient, attractive places to live and work. The LNRS has potential to positively impact businesses by guiding decisions on land use that support both biodiversity and economic sustainability, such as sustainable tourism. Engaged businesses can act as ambassadors, helping to build public trust and momentum and integrating LNRS into broader economic and spatial strategies.

Health sector partners

Local nature recovery strategies are not just about biodiversity: they are also about improving the wider environment, including public health. The LNRS includes actions that can help to improve health and wellbeing through increased connection and access to nature.

There is growing evidence that access to green space reduces stress, improves mental health and supports physical activity.

The health sector is already developing its own environmental strategies, such as NHS Green Plans. There is a shared recognition that nature-based solutions like tree planting, wetland creation and green corridors can contribute to both ecological and health outcomes.

Nature recovery contributes to climate adaptation by mitigating flood risk, improving air and water quality and reducing urban heat. These benefits are especially important for vulnerable populations, making local nature recovery strategies an important tool for addressing health inequalities.

Health sector partners such as Integrated Care Systems, NHS Trusts and public health teams are well-positioned to engage communities and support place-based delivery of LNRS actions. Their involvement in delivery would ensure that local nature recovery is integrated into wider wellbeing strategies.

Residents and local communities

Local people are not just passive beneficiaries of nature recovery; they are active agents of change. This includes everything from planting trees and restoring ponds to managing community gardens and monitoring wildlife.

Local people are our greatest asset in turning this strategy into a secure future nature. People protect what they feel connected to, and many draw a deep sense of pride, identity and responsibility from making a difference to their land, their community or their local green space.

Across the county there is a wealth of good will, knowledge and expertise that communities – if effectively encouraged, supported and acknowledged – can bring to nature recovery work. Residents have invaluable insight into the condition of local habitats, the pressures they face, and the opportunities for improvement. And nature recovery can help build healthier, happier, more resilient communities.

Unlike short-term projects, LNRSs are designed to guide action over decades. Residents provide the continuity and local commitment needed to sustain momentum. Their involvement helps ensure that nature recovery is embedded in the fabric of everyday life – from school playgrounds and allotments to neighbourhood parks and verges.

Children, in particular, bring clarity and enthusiasm. Their energy often ripples outward, encouraging parents, schools and communities to engage with local nature recovery.

Case study: How Elsie and her friends have been taking action for nature **(PDF)**

Monitoring progress

The LNRS aims to guide and inspire action, and it is hoped that funds can be secured through various mechanisms to deliver the proposed actions in the priority areas. All local nature recovery strategies must be reviewed and republished every 3–10 years as determined by the Secretary of State. At that point, we will need to take stock of what progress has been made.

Data

To better understand how more of our species are doing, we need better-structured monitoring and well-supported monitoring schemes across Shropshire and Telford & Wrekin. The Shropshire and Telford Environmental Records Centre is currently being established. This will replace the data functions currently carried out by the Shropshire Environmental Data Network. The Association of Environmental Record Centres is providing independent advice and expertise to help guide the establishment of this new Record Centre, which it is hoped will provide a broad range of functions to benefit nature across the county.

Indicators of success

LNRS will be underpinned by a set of key performance indicators (KPIs) that can be monitored and evidenced. These KPIs are being developed and will be in place when the Strategy is adopted.

Currently 8% of the county is included in the Existing Nature Network. Areas that could be included in this network were determined by Defra (see page 35). The aim of the LNRS is to expand the existing area for nature, but coming up with an appropriate methodology do so is complex and would ideally be standardised across England.

National indicators

Measurement of national indicators (which are integral to the Environment Act 2021 and the associated UK Government's 25-year Environmental Improvement Plan) are a significant part of monitoring LNRS success. The Environmental Improvement Plan sets out 10 goals, which include: increasing tree canopy and woodland cover to 16.5% in England by 2050; and having 50% of SSSIs on track for favourable condition by 2028.

In the Shropshire Hills National Landscape, a designated Area of Outstanding Natural Beauty (AONB), the Protected Landscapes Targets and Outcomes Framework will apply and will drive nature recovery in this part of the county.

Local indicators

A full set of local KPIs is being developed, and will include measures such as:

- Recording hectares of land secured for delivery of biodiversity net gain
- Measuring changes in % tree cover per ward
- Monitoring numbers and area (hectares, ha) of locally designated land in favourable condition or appropriate management
- Recording hectares of new land managed for nature through environmental grant funding
- Species data where consistency of data is reliable to inform trends

30 by 30 monitoring

The UK has committed to protecting and conserving 30% of land and sea for nature by 2030 as part of the global 30 by 30 target agreed in 2022 at the 15th Conference of the Parties to the United Nations Convention on Biological Diversity (COP15). National delivery of 30 by 30 is embedded within the UK Government's Environmental Improvement Plan.

The 30 by 30 methodology for the UK is still in development and is due to be set nationally during 2025. Initially for the purposes of 30 by 30, land in Shropshire considered to be protected includes:

- Sites of Special Scientific Interest
- National Nature Reserves
- Ramsar sites
- Special Areas of Conservation
- Special Protection Areas
- National Landscapes

The lack of a standardised methodology has led to considerable variation in the baselines developed across the country up to this point. In Shropshire, setting out, evidencing and publishing a 30 by 30 baseline report will be an early priority for LNRS delivery. This is to ensure the national methodology can be followed, and that the methodology is repeatable over years to allow meaningful measurement of local progress towards the 30 by 30 target.

Local priorities and actions

We've identified 16 priorities and 51 actions for Shropshire and Telford & Wrekin, as well as important species and species assemblages. The LNRS priorities and actions aim to align local needs with national environmental and biodiversity targets.

The priorities and actions are organised by theme. You can explore these using the list below:

- Farmed land
- Hedgerows
- Water and wetlands
- Trees, woodlands and woody habitats
- Grasslands
- Open habitats
- Built environment
- Invasive non-native species
- Public access, health and wellbeing

Priorities

These are the results we want to achieve. There are 16 priorities in this strategy, which refer to either habitat creation, management or restoration and will support species recovery. For each priority, we outline what success would look like.

Actions

These set out how we can achieve each priority. There are 51 actions in this strategy, each of which is broken down into suggested activities. Every action has a unique identifying code.

Some actions are '**mapped**', meaning they correspond to specific locations in Shropshire and Telford & Wrekin. You can look at these on the interactive map, using the action code. Other actions are '**unmapped**', meaning they are relevant to or can happen in lots of different places across the county.

Using the interactive map

The interactive Shropshire and Telford & Wrekin LNRS Map allows you to zoom in to your local area and explore mapped actions there.

Explore the map online >

Species

Alongside broader habitat improvement, the strategy identifies opportunities and potential actions for the recovery and enhancement of particular species and habitat-based assemblages in Shropshire.

The species and assemblages prioritised in the LNRS are those that are important to the county **and** need additional specific actions to halt and reverse their decline, beyond what is covered by the 51 habitat-focused actions.

There are 25 individually named species and 9 species assemblages.

See Appendix 9 for the species shortlisting methodology.

Activities

These offer practical suggestions of changes or next steps under each action. Different activities will contribute in different ways, shown by the following icons:

Supports change, rather than delivering it directly

Delivers **better quality** habitat

Delivers **more** habitat

Delivers better **connected** habitats

Delivers **ecosystem services** – the benefits we get from nature, like crop pollination and flood control.

Contributes to **water management**

Targets **species** recovery directly – all activities should help species recovery

Provides **health and wellbeing or access-to-nature** benefits

National environmental and biodiversity commitments and targets

The UK has reaffirmed its commitment to halting and reversing biodiversity loss by 2030 with the publication of its National Biodiversity Strategy and Action Plan (NBSAP), which aligns with the agreements made at the 15th Conference of the Parties to the United Nations Convention on Biological Diversity. The NBSAP outlines 23 global targets, including expanding protected areas to cover at least 30% of land and seas, reducing pollution to non-harmful levels, enhancing biodiversity in agriculture and forestry, and ensuring sustainable trade of wild species. These commitments are included in the Environment Act 2021 and the Environmental Improvement Plan, which set statutory targets such as restoring over 500,000 hectares of wildlife-rich habitat by 2042 and halting the decline in species abundance by 2030.

A summary of legislation, policy and government guidance relating to LNRS can be found in Appendix 1.

Farmed land

Shropshire is a rural county, with farmland making up 84% of its land area.[34]

The county has a traditional rural economy and is home to many different types of farming and sizes of holding.

In the north Shropshire plain, lowland farmed landscapes are relatively free from woodland and agricultural activity is characterised by mixed farming including livestock, dairy, combinable crops and potatoes. Salad production and the growing of other tender crops is widespread. More intensive land uses – including the covering of crops with plastic sheeting or temporary polytunnels and diversification into intensive poultry production – have emerged in recent years.

Wetter grasslands, like those on the Weald Moors, support extensive grazing with heritage breeds well suited to local conditions. In the Shropshire Hills, livestock farms are most common, often in small fields. Here, small-scale cropping and management of grassland for haylage is balanced with upland grazing of sheep and cattle.

Larger woodlands, including those associated with the Wrekin and Wenlock Edge, produce commercial timber crops.

Case studies on farming

Two farmers in Shropshire explain how changing systems and reducing inputs is bringing benefits for both nature and business.

- Read the case study by Chris in Long Mynd (PDF)
- Read the case study by Duncan in the Shropshire Hills National Landscape (PDF)

Key species

- Farmland birds, including Tree Sparrow, Yellow Hammer, Blackcap and Whitethroat
- Ground-nesting birds, including Skylark, Curlew, Lapwing and Snipe
- Brown Hare
- Hazel Dormouse
- Plants of arable field margins
- A range of notable terrestrial invertebrates
- Mosses

Challenges

- Maximising crop growth and return on investment for farmers while reducing environmental impact.
- Enabling wildlife to pass through farmed landscapes and increasing connectivity.

- Retaining valuable land for food production.
- Protecting sensitive environmental assets, including rivers and streams, from pollution.
- Using land to hold back water during flood events and as a source of water for irrigation during dry periods.

Threats

- Intensification of agricultural practices.
- Loss of field ponds, field margins, and field and hedgerow trees.
- Removal of hedgerows.
- Over, or poorly timed, fertilisation.
- Soil erosion during rainfall events.
- Soil compaction.
- Lack of cover crops.
- A monoculture approach to food production driven by food prices and previous government policies.

Opportunities

- Farmers have invaluable local knowledge and a track record of innovation.
- Small changes can have a big impact if widely adopted. For example, if all land managers reduced wormer use, this would be a massive win for wildlife.
- Changes in management can benefit wildlife and be cost-neutral – or even cost-positive.
- Creating a network of thick hedgerows would connect the landscape for nature to thrive.
- Agri-environment grant schemes are increasingly tailored to environmental outcomes.

There's growing appetite among land managers for habitat banking, natural flood management and other natural capital approaches; provided there is flexible funding alongside other land uses and income streams, these can help farm businesses to be viable, flourishing and sustainable in the long term.

Ecosystem services are the direct and indirect benefits provided by habitats – like the pollination of crops or shelter and cooling.

Natural capital refers specifically to the financial value of these services.

Priority 1: Enhance nature alongside food production

Code: P1 Actions: A1.1 – A1.4

What would success look like

There is a network of active farmer groups across the county providing peer support and guidance, including on local nature recovery and sustainable farming practices. More farms

are adopting nature-friendly and organic farming practices that are boosting biodiversity; improving food quality, soil health and water attenuation; increasing carbon sequestration; reducing the need for pesticides and synthetic fertilisers; and mitigating flood risk. Farmland is nature-rich and incorporates resilient wildlife connections across our landscapes. Traditional and diverse farm habitats, such as hedgerows, ponds, orchards, arable field margins, wood pasture and scrub, have been created, extended and restored.

What is organic farming?

Organic farming is a method of agriculture that works with nature. It avoids the use of synthetic fertilisers, pesticides and genetically modified organisms (GMOs), relying instead on natural processes and materials to maintain soil health, control pests and support biodiversity. Organic farming aims to produce food in a way that is better for people, animals and the planet. There is on average 30% more wildlife on organic farms. It is governed by a set of standards that are legally defined and independently inspected and verified. Visit the Soil Association website to learn more.

Actions

A1.1 Establish farmer groups – unmapped

Farmer-led groups are established and supported where there is local demand.

Encourage and support the development of farming groups, linking these together to enable members to share knowledge and resources, to connect land managers with available funding and to create corridors for wildlife

A1.2 Enhance soil health and nature on arable land – unmapped

Monitor soil health to establish soil characteristics and health and inform management practices.

Encourage best practice, including reduced inputs, reduced cultivation, no/minimum tillage, deeper rooting/stronger rooted swards, over wintering stubble, cover crops, minimising compaction and integrating livestock with crop production where appropriate. Support will be needed in areas where there is no longer any livestock infrastructure.

Create and expand headlands, margins and buffers around arable fields, particularly against watercourses and ditches, and incorporate scrub, ponds, trees etc. in appropriate areas that work for businesses. Providing unharvested, fertiliser-free conservation headlands, focused on well-connected areas, will support a broad range of species and is particularly important for the Necklace Ground Beetle.

Use pesticides and herbicides as part of an integrated pest management approach (already underway on many farms), using alternatives wherever possible.

Use environmental options – such as cover crops and other non-permanent habitats – on longer rotations and strategically within the landscape and on a whole-farm basis. This boosts biodiversity, improves the quality of food produced, improves soil structure and reduces reliance on pesticides and artificial fertilisers, mitigates flooding and muddy run-off, and increases carbon sequestration and water attenuation.

Build up organic matter in soils through the addition of organic manures and rotational grazing on arable land.

Minimise soil disturbance, especially near watercourses.

Identify risks of increased runoff due to changes in crops and put in place mitigation measures.

Support overwintering birds by establishing winter bird mixes and retaining wildflower seedheads and winter stubble on arable fields or farmland birds such as Tree Sparrows, Yellow Hammers and finches and for arable bryophytes.

Establish and maintain field margins around arable fields leaving areas of longer tussocky grass and wildflowers, managed on rotation, to benefit small mammals and pollinators.

Helpful guides

Nature Friendly Farming Network: A practical guide to integrated pest management

A1.3 Enhance soil health and nature on pastures – unmapped

Monitor soil health to establish soil characteristics and health and inform management practices.

Encourage best practice including reduced inputs, deeper rooting/stronger rooted swards, minimising compaction and the incorporation of more trees into the farmed landscape. Links to: A9.5.

Manage livestock through regenerative grazing techniques such as establishing herbal leys, riparian buffer strips, rotational grazing and adaptive multi-paddock grazing with long rests to restore soil health. Incorporate a range of deep-rooted plants to enhance drought resilience.

Manage stock that have high worm egg counts through rotation and monitoring of worm status to reduce the need for routine worming. This encourages greater diversity of dung flora and fauna, including Dung Beetles and other insects that bird populations rely on.

Reduce the use of artificial fertilisers and herbicides.

Create more hay meadows by converting silage production fields, where feasible, to encourage flowers to complete their annual cycle, which benefits small mammals and pollinators.

Minimise soil disturbance, especially near watercourses and exclude livestock from watercourses wherever possible.

Establish and maintain field margins around silage fields leaving areas of longer tussocky grass and wildflowers, managed on rotation, to benefit small mammals and pollinators.

Where appropriate, adapt grazing and mowing regimes, stock numbers and timings help to create conditions that support ground-nesting birds such as Curlew and Lapwing.

Actions to create hedgerows, diversify field margins, reduce pesticide and herbicide use and reduce stocking rates support recovery of an assemblage of farmland bird species.

Helpful guides

Farmers Weekly: 8 steps to get started with regenerative grassland management

A1.4 Create, restore and manage nature-rich farmland mosaics – unmapped

Manage existing areas of high quality semi-natural habitat within farmland, such as species rich grasslands, scrub, wetlands and veteran trees.

Create a mosaic of habitats by extending and buffering existing habitats. Focus on areas adjoining existing habitats and on unproductive areas of land such as steep slopes for natural regeneration or tree planting, wet areas for wetland and pond creation, and floodplains for riparian buffers and wetlands.

Where feasible, reinstate smaller fields with hedgerows, grass margin buffers, scrub, cover crops, arable weeds and/or wildflowers, and ponds.

Create scrub with diverse age structure to provide connectivity between woodland habitat blocks, to buffer hedgerows, to minimise silt, nutrient and soil runoff into ditches and watercourses.

Reduce inputs and chemicals to help invertebrates thrive, providing food for a range of bird species.

Hedgerows

Human activity in Shropshire over thousands of years has resulted in an extensive network of hedgerows that can provide important links between ecosystems.

Hedgerows and lines of trees are a quintessential feature of the Shropshire countryside. Originally planted to enclose land, control livestock and mark property boundaries, these features can serve as bastions of plants and wildlife, enabling connectivity between species population clusters.

Like the rest of the UK, Shropshire has suffered notable declines in the condition and quantity of hedgerows. Despite this, these features remain abundant in the county, covering 14,479 km.[35] Ancient hedgerows, which support a wide range of plant species (e.g. hawthorn, hazel, beech, elderflower) and incorporate fully mature and ancient trees, remain in some locations.[36]

Linear blocks of trees and tall standing shrubs can help reduce soil erosion by acting as windbreaks, provide carbon sequestration and storage in soil and woody material, and filter nearby noise and air pollution via leaf material in canopies.

Key species

- Alder Buckthorn
- Bluebell
- Buckthorn
- Primrose
- Midland Hawthorn
- Violets
- White Bryony
- Wild Strawberry
- Wood Sorrel
- Wood Anemone
- Meadow Foxtail
- Orchid species
- Bee species
- White Letter Hairstreak
- Holly Blue
- Comma
- Orange Tip
- Linnet
- Tree Sparrow
- Yellowhammer
- Hedgehog
- Hazel Dormouse
- Bat species

- Shrews
- Mice

Challenges

- Recreating diverse age and species structure within hedgerow resources locally.
- Securing coherent management of networks of linear features often in multiple ownerships and abutting a variety of land uses.
- Reconstructing connectivity lost to physical development and preventing further connectivity loss.

Threats

- Loss of hedgerows and hedgerow sections, structure and function. Ash dieback is major threat, given that ash makes up more than a third of hedgerow trees in the UK.[37] Uniform management of hedgerows and traditional management techniques being abandoned.
- Repeated mowing of road verges.
- New infrastructure severing of connectivity.

Opportunities

- Significant biodiversity value can be achieved through re-integrating hedgerows into agricultural systems both as habitats in their own right and as a means of providing connectivity between other habitat patches.
- Planting hedgerows can have benefits for livestock and arable production while not taking up significant amounts of productive land.
- Planting hedgerows within and around new developments can have significant connectivity benefits
- Generous grants are available to encourage hedgerow planting.
- Managing road verges and railway embankments for biodiversity has the potential to create a significant resource of well-connected habitats with considerable value for wildlife.

Case study: Hedgerow Heroes **(PDF)**

How CPRE's Hedgerow Heroes project has planted over 18 km of new hedgerow by bringing together volunteers and landowners.

Priority 2: Restore, enhance, expand and appropriately manage the hedgerow network

Code: P2 Actions: A2.1 – A1.2

What would success look like

Hedgerows are tall, wide, well buffered and alive with wildlife, providing food, shelter and commuting opportunities for many different species. Planting along historic boundaries and

well-planned new hedgerows, using a range of plants and trees, is increasing connectivity within the landscape, and hedgerows are well managed and climate resilient.

Actions

A2.1 Restore and manage the existing hedgerow network – unmapped

Maintain hedgerows that are tall and wide. Retain mature hedge trees.

Manage hedgerows to encourage an annual cycle of flowering and fruiting by varying trimming cycles – alternating hedge sides and faces annually – and leaving berries over winter for birds. Protect standard trees and consider hedgelaying. Retain dead plant stems as habitats for overwintering invertebrates including solitary bees and crop pest predators.

Use fencing and other measures to prevent over-browsing and protect from cultivation.

Safeguard, buffer and connect older, well-established hedgerows, particularly those linked to other priority habitats (e.g. at the edge of an ancient woodland).

Enhance existing gappy hedges by hedgelaying, coppicing and planting.

Helpful guides

Nature Friendly Farming Network: Hedgerow masterclass webinar

A2.2 Create more connectivity in the landscape by establishing new hedgerows – unmapped

Create new species-rich hedgerows with tree standards to support healthy soil systems and reduce erosion, buffer watercourses, and slow the flow of water, nutrient and soil over land (e.g. cross-slope planting). By linking areas of woodland, for example, this will provide connectivity for wildlife and benefit a range of farmland bird species. Target action to address functional gaps in ecological network.

Establish hedgerows to include at least five different species and include a mixture of trees, shrubs, creepers and ramblers that flower between early spring to late autumn to support pollinators.

Establish buffer strips so hedgerows are wide and are associated with grassland and other buffering habitats.

Encourage the use of hedgerows to border new developments, particularly where they are at the edge of settlements or offer connectivity opportunities.

Water and wetlands

Water bodies and their margins are biodiversity hotspots. Shropshire supports a wide variety of water body habitats – from freshwater streams, rivers, lakes and ponds to peatlands, flushes and fens. Some of these habitats, like the meres, are designated sites while others receive little protection.

Water and wetlands are intrinsically linked to each other. Water bodies – and the condition of freshwater and wetland habitats – depend on the catchments in the surrounding land, which determine the quality and quantity of water they receive. Wetland and headwaters for rivers and streams are fed by rainfall on hills and mountains, groundwater springs and/or seepage from saturated soils; rivers and streams flow down into seas and lakes. Except for a small number of streams in the north-west of the county, all Shropshire's rivers eventually flow into the River Severn, the UK's longest river.

Clean water is fundamental to the health of aquatic and semi-aquatic ecosystems. Rivers, wetlands, ponds, and ditches are home to a wide range of species and poor water quality, often caused by nutrient runoff, sedimentation, or pollutants like forever chemicals (PFAS), degrades these habitats and reduces biodiversity.

Rivers, streams and lakes in the strategy area are generally not in good ecological condition, and threats include declining water quality, changing flows and sedimentation. Nature-based solutions such as reedbeds and wetlands act as natural filters, capturing sediments, nutrients and some PFAS compounds. Biochar can also help filter out nutrients, microplastics and some PFAS chemicals.

Ponds, which are generally small and sit across farmed, semi-natural and urban landscapes have been lost in high numbers over the past 40 years or more due to changes in agricultural practices and development. Meres, which were originally formed in ice age kettle holes are particularly vulnerable to surrounding land uses since their hydrological catchments are largely farmed and they have limited outflow in many cases.

By area, rivers and other freshwaters (ponds and lakes) are a tiny part of Shropshire's natural environment, but they are vital in terms of the wildlife they support and for the connectivity they provide. Most of the land in the strategy area is no more than 1 km from freshwater.

Shropshire's wetlands are influenced by the great diversity of its landscape. In North Shropshire, with origins in shallow glacial lakes and wet hollows, are the extensive wetlands of Fenn's, Whixall, Bettisfield, Cadney and Wem Mosses. Collectively these sites are the third-largest area of lowland raised peatbog in the UK and are recognised as an irreplaceable habitat which has undergone significant degradation.

Less extensive and highly fragmented are areas of lowland fen, such as the paleochannel of the Old Riverbed SSSI in Shrewsbury. This area of sedge fen was cut off from the River Severn at the last glaciation. Differing in origin but related, are the fens of North Shropshire the most notable of which can be found fringing the meres including Oss Mere and Crose Mere.

Occurring throughout the uplands are numerous springs, flushes and fens – small wetlands that can be surface or groundwater fed or fed by rainfall. Often occurring as valley mires at the headwaters, soils may be peaty and achieve some depth. Often located in grazed moorland or heathland these wetlands can be far more species-rich than the habitats in which they occur.

Forever chemicals in our water

PFAS are key pollutant. In the UK, PFAS have been detected in rivers, estuaries and groundwater.

Key features and habitats

Rivers and streams are bodies of water that flow. Streams are narrower than rivers (usually less than 8.25 metres wide) and may occasionally dry out.

The source or uppermost part of a river or stream, where the water begins to flow, is the **headwater**. Headwaters typically form in upland areas, fed by springs, rainfall or seepage. They act like a sponge – holding water in vegetation and soils, slowing runoff and allowing groundwater recharge – which is especially important in upland areas, where steep slopes and artificial drainage can otherwise accelerate water loss.

Headwater areas also support unique habitats like mires (broad, shallow lakes or wetlands), spring-fed wetlands and wet flushes. They are home to species such as Dipper, Sandpiper and rare plants like Marsh Violet.

Canals are man-made waterways that are used for transportation and recreation.

Lakes are large bodies of standing water, natural or man-made, usually at least 2 hectares in size, which can be fed by rivers or rainfall. Meres are lakes that are shallow relative to their breadth.

Ponds are small bodies of standing water usually between 1 square metre and 2 hectares. Ponds should contain water for at least four months of the year.

Springs, **flushes** and **fens** are small wetlands.

A **spring** is a point at which groundwater naturally reaches the surface, often at the base of slopes or where impermeable rock layers force water upwards. They are typically localised, often forming the headwaters of streams.

A **flush** is a diffuse, downslope flow of water from a spring or seepage point. It spreads laterally across the land surface, creating saturated soils that support sedges, rushes and mosses.

A **fen** is a peat-forming wetland that is fed by groundwater or surface water, making it nutrient-rich. Peat is partially decomposed organic matter that is fundamentally important for supporting nature and for water quality and management.

Fens often have peaty soils more than 0.5 metres deep, a high water table (often at or just below the surface) and rich plant communities. In Shropshire, fens are found in both lowland areas and uplands, often as part of a mosaic with springs and flushes.

Peatland is a general term for any ecosystem in which peat accumulates over time in waterlogged conditions. Peatlands include several types of wetlands, such as bogs, fens, mires and peat-forming swamps and marshes (if they accumulate peat). Peatlands are defined by their peat-forming processes, not their vegetation or location. They can be active (still forming peat) or degraded (no longer accumulating peat but still ecologically valuable).

One hectare of peat only 30 cm deep holds as much carbon as 1 hectare of primary rainforest.[38]

Key species

- Atlantic Salmon
- European Eel
- White-clawed Crayfish
- Freshwater Pearl Mussel
- Mayfly
- Beautiful Demoiselle
- Native Black Poplar
- Snake's-head Fritillary
- Floating Water Plantain
- Water Vole
- Grass Snake
- Marsh Flapwort

Challenges

- Addressing agricultural intensification.
- Ensuring sustained and appropriate management, including management of water levels.
- Ensuring species movement between isolated wetland patches.
- Educating public and anglers to reduce release of non-native fish.
- Educating public and anglers using the 'Check Clean Dry' initiative to prevent accidental introduction of invasive non-native plants, animals and diseases.

Threats

- Nutrient enrichment.
- Extreme flood events and depleted flows.
- Loss of riverbank shade.
- Spread of invasive non-native species and the introduction of pathogens.
- Channel modification – dredging, culverting etc.
- Changing water levels.
- Heat stress and drying.
- Succession to scrub and woodland in the long term.
- Some sites not legally protected.

Opportunities

- Environmental incentives to increase wetland areas.
- Engaging land managers to raise water tables in appropriate locations.
- Maintaining wetlands as effective carbon sinks.
- Implement innovative solutions to improve habitat resilience and address climate change.
- Financial and social benefits of taking positive action to reduce flooding, drought and improve water quality.

Priority 3: Re-naturalise rivers and stabilise flows

Code: P3 Actions: A3.1 – A3.5

What would success look like

Rivers are reconnected to floodplains and mosaics of wetland habitat, banks are re-naturalised, and watercourses encouraged to meander wherever possible, buffered by climate-resilient wet grassland and wet woodland. Slow the flow measures and land use changes are preferred over engineered solutions and barriers have been removed (or circumvented) to allow wildlife to pass. Flows are more stable, communities are experiencing less flooding, and reservoirs and water storage lakes are in place or being planned to manage dry spells. More rivers achieve good ecological status and good chemical status under the Water Framework Directive, stretches of priority river habitat are expanding, and wildlife is thriving. Farmers and land managers are empowered to manage water well on a whole-farm basis and support each other through established farmer groups.

Case study: How landowners and organisations have been working together to slow the flow in the Corvedale (PDF)

Actions

A3.1 Improve water quality – unmapped

Work with farmers and farm advisors (e.g. the Catchment Sensitive Farming project) to address water on a whole-farm basis and in the context of the catchment.

Engage with the public and make them aware of how everyday activities affect water quality and explain how changing habits can benefit water quality and biodiversity.

Use pesticides and herbicides as part of an integrated pest management approach, using alternatives wherever possible, and reduce inputs to help invertebrates to thrive, which in turn provides food for a range of bird species.

Create reedbeds to slow water flow, improve water quality, and/or to act as an additional filter system for effluent from sewage treatment plants and integrate them with the wider landscape to connect sites.

Create seasonal ponds, scrapes, swales and silt traps on farms to help capture nutrients before they enter wider wetland systems.

Create wide buffers and margins adjacent to ditches, streams and rivers to reduce run off from neighbouring land to hold and clean water.

Implement sustainable drainage systems in locations where they can reduce the impact of road runoff on rivers and streams and provide clean groundwater recharge.

Manage banks of streams and rivers rotationally, where necessary, and leave unmanaged sections retaining healthy riverside trees, submerged roots and submerged timber for the benefit of fish and aquatic invertebrate species.

How everyday activities can affect water quality

Everyday activities with the potential to negatively impact water quality include the improper disposal of household waste, including chemicals, oils, and non-biodegradable materials; the use of veterinary flea and worm treatments on domestic pets, which can affect aquatic invertebrates if washed into water bodies; overuse of fertilisers and pesticides on lawns can lead to runoff that contaminates local water sources; poor maintenance of septic systems can result in leaks or overflows, releasing harmful bacteria and nutrients into groundwater and surface water; inappropriate disposal of medications; misconnections within waste water treatment systems; and disposal of inappropriate liquids via highways drains.

Helpful guides

Nature Friendly Farming Network: A practical guide to integrated pest management

A3.2 Reduce both flood risk and low flows – unmapped

★★★

Use vegetation to slow surface water flow through increased vegetation diversity and height.

Retain more water in upper catchment enabling groundwater recharge and regulating flow. Links to: A4.3.

Install leaky dams and debris to slow the flow of water and re-wet riparian habitats.

Manage ditches by following natural cycles and dredging sensitively.

+

Design permanent lakes and ponds to have additional capacity to hold extra water during storm events, and with sediment management in mind to minimise the need for desilting. This will increase resilience to drought and reduce the need for abstraction providing flood risk benefits, water resources benefits and biodiversity opportunities.

Employ land use changes and natural flood management upstream of communities at risk of flooding including tree and woodland planting, water attenuation features, large woody debris dams,

passive/offline floodplain storage, grip blocking and gully stuffing.

Such actions will mitigate flood risk, climate change impacts and drought.

De-pave the built environment in settlements to increase natural infiltration of rainwater.

Reintroduce beavers where appropriate to create wetland mosaics of high structural diversity. Beavers are effective at creating and enhancing varied and dynamic habitats for a wide range of wildlife, increasing water storage and drought resilience, slowing flows and helping flood prevention. Sectors to work together to effectively manage local impact and direct activities where necessary.

Use slow the flow measures to provide varied flow conditions within watercourses suitable for a range of fish and aquatic invertebrate species.

Provide coarse, wet deadwood in watercourses and water bodies to benefit a range of species.

Natural flood management uses natural processes to reduce the risk of flooding. These processes protect, restore, and mimic the natural function of catchments, floodplains and the coast to store water and **slow the flow**.

A3.3 Remove physical barriers – mapped

Map artificial modifications and barriers across catchments to allow prioritisation of action to maximise benefit.

★★★

Remove physical barriers wherever possible to allow free movement of fish between areas of good quality habitat. Provide technical fish passes and other wildlife-friendly features. Note that barrier removal should be considered carefully, as it could be preventing American Signal Crayfish mixing with native White-clawed Crayfish.

Restore and connect high-quality rivers, streams, ditches and other water bodies, together and with other wetland habitats.

Avoid putting watercourses underground and de-culvert existing watercourses to maximise wildlife benefits and make access for management easier.

A3.4 Restore streams and rivers to a more natural state – mapped

★★★

Where possible, re-naturalise streams and ditches by introducing meanders, oxbows, backwaters and ponds and reconnecting paleochannels.

Enhance wetlands for a range of wildlife including plant diversity, breeding waders and invertebrates. This can be achieved by maintaining water levels, creating mosaics of wet and dry areas as well as additional beneficial habitats like reedbeds, ponds, scrub, wet grasslands, wet woodland and woodland edges. Low-intensity grazing can be used where appropriate. Remove invasive species.

Introduce gravels and riparian trees for spawning and shading. Maintain suitable spawning sites providing shallow gravelly areas adjacent to deep pools.

Provide coarse, wet deadwood in watercourses and water bodies to benefit a range of species.

A3.5 Create, enhance and appropriately manage riparian buffers – mapped

★★★

Manage bankside trees through coppicing and pollarding. Manage for structural diversity to increase invertebrate levels for the benefit of an assemblage of woodland birds.

Limit livestock access to watercourses to prevent issues such as riverbank erosion or eutrophication (excessive amounts of plant and algae in waterways which reduces light and can harm other wildlife). However, limited flash grazing (short periods of intense grazing by livestock) can be used to help manage the mosaic of open habitats in riparian zones as well as to manage invasive species.

Adopt an integrated pest management approach if cropped areas are located close to waterways.

Remove drainage features in traditionally wet woodlands to restore wet woodland function and appropriately manage for the benefit of an assemblage of woodland birds.

Create wide riparian buffers next to rivers and streams through planting and natural regeneration of woodland, grassland and wetland to provide shade, reduce silt, sediment and nutrient run off, hold back water and provide habitat for a range of species. Any woodland establishment and management should follow principles laid out in the UK Forestry Standard for creating and managing riparian woodland.

Use riparian buffer creation as part of programmes to reconnect rivers to their historic floodplains, to improve resilience to climate change, provide water storage and to intercept nutrient and sediment run-off from adjacent land. Target grazing marsh restoration to areas that most benefit wading birds.

Priority 4: Restore peatland and wetland mosaics

Code: P4 Actions: A4.1 – A4.4

What would success look like

Large wetland sites are in improved condition as a result of actions both within and beyond their boundaries. Peat remnants are being restored, complemented by paludiculture and other regenerative agricultural techniques where appropriate. Upland headwaters hold water well, maximising opportunities for groundwater aquifer recharge. Headwater watercourses have more stable flows and are less prone to flooding and drought. Targeted management actions are well underway to expand and restore flush habitats and previously wet riverside fields now incorporate wetland habitats and floodplain grassland for a diverse range of wildlife. Mosaics of wetland habitats outside the floodplain are increasing in size and resilience, connected via natural watercourses and ditches, and providing habitat for a range of species. The landscape is providing nature-based solutions – including stepping stones for wildlife, on-farm water management, healthy soil retention, and protection for watercourses from runoff of nutrients, silt and sediment. Actions are integrated into viable whole-farm businesses – and are benefitting both farmers and nature.

Actions

A4.1 Restore existing areas of high-quality peat, fen and bog habitat – mapped

Restore existing areas of peat, bogs and fens, which are nature-rich habitats and provide important water management, water quality and carbon capture services.

Enhance semi-natural habitats surrounding remaining lowland raised bogs, peat, fens and wetlands to improve resilience and reduce nutrient inputs.

Reduce land drainage on adjacent land to support habitat restoration. Block, break and reverse artificial drainage in appropriate locations. Ensure re-wetting measures consider surrounding land uses and avoid negative impacts on neighbouring land.

Establish sustained management to periodic cutting of fen vegetation and scrub removal and appropriate levels of grazing to enhance the biodiversity of these important sites.

Maintain natural variability in water levels in fen habitat, with some permanently wet areas and some occasionally wet areas to support transitional vegetation and specialist invertebrate species.

Address sources of pollution, silt and sedimentation and air pollution impacting upon pools and meres and associated buffer habitats.

Implement low-input farming systems in peatland catchments to reduce eutrophication. Incorporate wetter farming practices such as **paludiculture** into farm businesses as appropriate.

Provide coarse, wet deadwood in watercourses and water bodies to benefit a range of species.

Case study: Learn more about wetter farming and paludiculture **(PDF)**

A4.2 Restore, connect and expand areas of wetland mosaic habitat – mapped

Create and restore wetland habitat at appropriate sites by raising water levels, creating ponds and incorporating scrapes to provide foraging areas for breeding birds. Block, break and reverse artificial drainage in appropriate locations.

Reintroduce beavers where appropriate to create wetland mosaics of high structural diversity. Beavers are effective at creating and enhancing varied and dynamic habitats for a wide range of wildlife, increasing water storage and drought resilience, slowing flows and helping flood prevention. Sectors should work together to effectively manage local impact and direct activities where necessary.

A4.3 Restore ability of catchment headwaters to act as a sponge – mapped

Identify and take action to safeguard peaty soils and associated vegetation, and re-wet where appropriate.

Reduce the impacts of intensive grazing, eutrophication and poaching by livestock on wet-flush features and headwater streams by reducing livestock stocking rates in sensitive areas and using exclusion fencing where appropriate. Manage scrub encroachment into wet flushes to prevent loss of ground flora.

Re-engineer drainage to provide wetland opportunities and support vibrant farm businesses. Actions could include installing leaky woody dams, creating scrapes and pools, planting cross-slope hedges and ditch blocking.

Restore and establish wet woodland (including in steep valleys) and wet grassland habitats with associated ponds in headwater areas and around natural springs.

Restore and establish wet and dry heathland habitats in headwater areas. The diversity of vegetation in these habitats slow runoff down and hold water in their structures, helping headwaters to act like a sponge.

Block artificial drainage channels associated with conifer plantations and particularly at the edge of blocks to slow the flow of water.

Prevent agricultural pollution and road runoff entering headwater streams by altering land management practices, creating buffer strips and/or installing interception features.

Reduce the impacts of abstraction (which impact headwaters disproportionately) by installing water storage infrastructure on farm where possible.

Reintroduce beavers where appropriate to create wetland mosaics of high structural diversity. Beavers are effective at creating and enhancing varied and dynamic habitats for a wide range of wildlife, increasing water storage and drought resilience, slowing flows and helping flood prevention. Sectors should work together to effectively manage local impact and direct activities where necessary.

Reduce flash flows by managing upland headwaters to act as natural sponges for the benefit of a number of bird species including Dipper, Sandpiper and Kingfisher.

Plant Marsh Violets and other key plant species as part of restoring wet flush habitats.

Target the removal of Himalayan Balsam, beginning at headwaters and moving down through catchments.

A4.4 Target regularly flooded land for wetland creation and grazing marsh – mapped

Empower farmers to deliver well-designed projects in areas that are subject to regular flooding as part of viable whole-farm businesses that work for the land and the landowner. Incorporate features such as ponds, buffer strips, hedgerows, rough and species-rich grassland, swales and bunds on farms, which provide benefits for biodiversity, water management, soil management and climate change adaptation.

Priority 5: Create, restore and manage ponds, glacial pools and meres

Code: P5 Actions: A5.1 – A5.2

What would success look like

Existing ponds, pools and meres have been identified and are being managed to prevent loss and to improve condition. Networks of new ponds have been created across rural and built environments and appropriate pond management is well understood. Water quality and ecological condition of water bodies is improving. Issues such as nutrient runoff, sedimentation, drying through artificial drainage and invasive non-native species (INNS) are well understood and being actively addressed. The presence of more, better quality ponds – which are hotspots for uncommon species – is increasing the populations of many Red-listed species, with the potential to substantially reduce the extinction risk for many freshwater species.

Actions

A5.1 Enhance existing ponds, pools and meres – mapped

Provide education on pond management, to protect ponds from a range of issues including access by dogs, wildfowl feeding, invasive non-native species and species release. Educate the public on the importance of keeping wildlife ponds fish-free, refraining from releasing fish or moving fish from one pool to another.

Identify, map and manage existing ponds, pools and meres to prevent loss and improve condition. Manage vegetation by mechanical operations or livestock trampling.

Create buffers of low-intensity land use to help eliminate or minimise fertiliser and pesticide use within pond, pool and mere catchments.

Provide coarse, wet deadwood in watercourses and water bodies to benefit a range of species.

A5.2 Create new ponds – mapped

Create and restore ponds (including reinstatement of ghost ponds and glacial ponds), focusing on areas of low-intensity land use that provide a clean water source and are ideally close to existing ponds.

Encourage creation within 250 metres of known populations based on Natural England's Great Crested Newts modelling for district-level licensing.

Create and restore ponds in the habitat matrix of new habitat creation schemes ideally where minimal intervention will be required (e.g. for small field ponds, ensure livestock are present to control vegetation succession).

Encourage wildlife gardening and the creation of small, fish-free, wildlife ponds in gardens, school grounds and forest school areas, and businesses.

Connect ponds through associated habitats and ensure connectivity in the landscape as part of a mosaic, and reduce distance between water bodies.

Helpful guides

Freshwater Habitats Trust: Pond Creation Toolkit

The Wildlife Trusts: How to build a pond and How to grow a wild patch or mini meadow

Priority 6: Enhance canals to benefit nature and people

Code: P6 Actions: A6.1

What would success look like

Canals are wildlife rich, provide strong linear connectivity through a range of landscapes and are excellent for recreation and active travel. Action is being taken to remove hard canal edges in favour of natural banks and to create quiet, dark areas and buffers of vegetation to allow species to flourish. Barriers are removed enabling the free movement of species.

Actions

A6.1 Enhance canals for wildlife and people – mapped

Install fish passes within the canal network and other wildlife-friendly features.

Remove hard edges in favour of natural banks where possible.

Manage bankside vegetation on a rotational basis, balancing the needs of canal users with biodiversity benefits.

Minimise light and noise disturbance along canals through careful design both within the canal corridor and on adjacent developments.

Reduce boat speed in areas where species sensitive to wash, noise or disturbance are present.

Integrate habitats associated with canals with wider networks of habitat and green space.

Trees, woodlands and woody habitats

Woodland of all types can be found in Shropshire – from the planted woodlands around Telford New Town to the ancient woodlands of Wenlock Edge and Wyre Forest, from conifer plantations to small patches of broadleaved woodland in farmed landscapes. The county is also home to thousands of veteran and ancient trees, hedgerow trees, field trees and scattered trees.

Broad woodland habitat accounts for more than 9% of Shropshire's land area. Source: National Forest Inventory

By broad habitat, woodlands comprise the largest area of semi-natural habitats in the county. The National Forest Inventory records 33,026 hectares of woodland in Shropshire, which includes wood pasture and parkland, ancient, dingle, riparian and wet woodland. Some 19,087 hectares of the county's woodland is priority deciduous woodland habitat.

Woodland size can vary from small copses to large forests. Larger woodlands are often a mosaic of habitats, with areas of high forest, regenerating coppice and new planting, woodland rides and glades, heathland, grassland, streams and wetlands. When managed well, they are extremely rich in wildlife.

In Shropshire, native woodlands with varied age structure, biodiverse understory and a range of edge, ride and glade features have high value for biodiversity. Large blocks of continuous woodland, such as Wenlock Edge, provide critical connectivity for wildlife, so they can move through the landscape. Smaller patches – like those within urban areas and farmed landscapes – provide valuable stepping stones.

No county data is available for the ecological condition of priority woodland; however, according to national data from 2020, just 7% of native woodland was in good ecological condition overall.[39]

Ancient woodland is an area that has been wooded continuously since at least the start of the 17th century. Wyre Forest has been wooded since at least 900 AD.

Plantations on ancient woodland sites (PAWS) are areas where former ancient semi-natural woodlands have been cleared and replanted with either native or non-native tree species.

Broadleaved woodland is characterised by trees with broad, flat leaves (not needles) that are usually deciduous, meaning they shed in the autumn. Common examples of broadleaf trees include oak, beech, ash and birch.

Coniferous woodland is composed of cone-bearing trees, often with needle-like leaves. These trees – like spruce, pine and fir – are typically evergreen, meaning they keep their leaves

year-round. Shropshire's conifer plantations are often located in the uplands and are sometimes contiguous with areas of broadleaf woodland, especially PAWS. Their primary purpose is to produce timber. And although their wildlife value is much lower than that of broadleaf woodland, they provide habitat for species including Crossbill and Goshawk.

Mixed woodland refers to forest or woodland in which there are both coniferous and broadleaved trees growing alongside one another.

Wet woodland is characterised by trees that thrive in poorly drained or seasonally waterlogged soils. Wet woodland is typically found in areas like floodplains, along rivers and streams, and around the edges of lakes, fens, bogs and mires. Key tree species include willow, alder and birch.

Shropshire is also home to 2246 **veteran and ancient trees** – which are of biological, cultural or aesthetic interest because of their age size or condition – as well as other hedgerow trees, field trees and scattered trees. Often these trees are the last vestiges of long-since removed hedgerows surrounding historically smaller field parcels or wood pasture, which act as stepping stones between semi-natural habitats. Some trees are instantly recognisable as veterans, but many are less obvious.

Despite providing many ecosystem services (such as carbon storage and biodiversity support for rare species) many ancient trees in Shropshire remain unprotected. Ash dieback represents a major threat to many remaining ancient specimens of this species.

Many examples of ancient trees can be found within churchyards – including one ancient yew in Norbury that's estimated to be more than 1000 years old.

Other woody habitats in Shropshire include scrub, orchards and orchard remnants, parkland and woody pasture.

Where woodland starts or ends, or in places where woodland might develop (like abandoned fields), there are often areas of **scrub** – a valuable habitat that many species depend on for survival. Scrub mostly comprises bushes and woody shrubs, such as hawthorn and gorse, and small trees. Scrub can reach a height of between 12 and 15 feet.

Wood pasture is a traditional land management system that combines trees with grazing animals on the same land. It's a type of agroforestry that has been practised in the UK for centuries and is valued for its rich biodiversity and cultural heritage.

Wooded parkland is a distinctive type of habitat found within designed landscapes that were originally created for aesthetic, recreational, or cultural purposes – often surrounding country houses or estates. While these landscapes were shaped by human design, they have developed significant ecological value over time. They are important for veteran and ancient trees and are traditionally grazed with livestock. Many parklands have been managed for centuries, allowing complex ecosystems to develop.

Orchards are areas of land in which fruit or nut trees are grown for commercial purposes or conservation. They can vary in size from small traditional plots with widely spaced trees and grassland beneath, to intensive modern systems with closely planted rows and minimal undergrowth. Orchards not only provide food but also valuable habitats for wildlife – especially when managed with biodiversity in mind, such as through traditional practices like grazing, wildflower margins and minimal pesticide use. Once much more numerous and widespread, many orchards have been lost from the landscape.

Right tree, right place

Planting the right tree in the right place is critical. Use the following principles as a guide:

1. Check existing environmental interest and for non-woodland habitat restoration potential.
2. Use as diverse a range of native tree and shrub species as possible. Use varied planting densities, allowing plenty of open space, to maximise horizontal variation in structure. Use intimate mixes of high canopy, understorey and shrub species to maximise vertical variation.
3. Connect areas of existing woodland cover where possible.
4. Go large: make new woodlands as big as possible.
5. Get edgy: maximise the edge to area ratio of new woodlands.
6. Restore natural processes, blocking drains and ditches to restore natural hydrology of wet woodland and using natural colonisation instead of planting where seed sources are available.

To learn more about planting trees and woodland, see the UK Forestry Standard guidance.

Key species

- Ash
- Beech
- Bluebell
- Herb-Paris
- Large-Leaved Lime
- Oak sp.
- Ramsons
- Wild Service Tree
- Wood Anemone
- Pine Marten
- Hazel Dormouse
- Yellow-necked Mouse
- Wood White Butterfly
- Northern Yellow Splinter Cranefly
- Wood Ant

Challenges

- Most large ash trees are likely to be felled between now and 2050 due to ash dieback.
- Identifying woodland planting that could withstand even the low-end (1.5° C) global temperature rise scenario.
- Fragmentation.
- Lack of woodland infrastructure to access and manage woodlands, and future unmanaged woodlands.
- Lack of traditional skills to utilise coppice products.

Threats

- Water stress (wetter winters and drier summers) and temperature extremes.
- Trees more susceptible to disease.
- Ongoing ash dieback.
- Unsustainable grazing pressure from large herbivores, like deer.
- Undermanagement and neglect, sale of woodland, and the division of larger woodlands into smaller lots – leading to inconsistent management and fragmentation.

Opportunities

- Agroforestry – the integration of trees into the farming system – can deliver more trees on farms (e.g. nuts, fruit, etc.) while maintaining or enhancing the farm's main agricultural output. Trees can be incorporated into the farm at the density that works best with the business objectives.
- Wooded farm landscapes provide shade for livestock and safeguard vulnerable soils.
- Local markets for timber and coppice products could replace some plastic uses.
- Woodland creation using seed stock from southerly provenances could play a role in climate adaptation and woodland resilience.
- Designing trees into urban areas could offset heat-island effects and filter particulates.
- Attractive funding opportunities (e.g. England Woodland Creation Offer).
- Potential identification of disease resistant ash trees.

Priority 7: Safeguard and enhance veteran trees

Code: P7 Actions: A7.1 – A7.2

What would success look like

Veteran trees and mature, over-mature and aged trees – the veterans of the future – have been identified and are being protected from development, disturbance and exposure. Standing and lying deadwood, rot holes, cracks and other features are retained, providing high-value habitats for a range of species. In urban areas, potential veterans are managed to the highest standard in order to ensure their future while also keeping users of surrounding land safe.

Actions

A7.1 Identify, appropriately manage and safeguard the future of veteran trees – unmapped

Identify, record and safeguard veteran trees for both cultural and conservation interest, including through Tree Preservation Orders where appropriate.

Safeguard and appropriately manage veteran trees and mature trees that could become future veteran trees, protecting them from changes in land use, development and disturbance (e.g. from cable runs and lighting in urban areas).

Protect the root systems of future veteran trees (e.g. from soil compaction, browsing, close ploughing and hard standing in urban areas) through good land management practices like the use of root protection zones within farmed land and close to infrastructure.

Manage veteran trees within existing woodland by gradual halo thinning to protect from increased light and wind.

Where safe to do so, retain standing and lying deadwood and limbs with cracks, hollows and other features to provide ongoing deadwood resource for deadwood invertebrates, bat species, lichen and tree hollow-nesting bird species.

If ancient trees are to be affected by development, qualified specialists should carry out surveys of epiphyte communities so their importance can be taken into account in planning decisions. Visit GOV.UK for advice on planning decisions with respect to ancient woodland, ancient trees and veteran trees.

Avoid storing and spreading manure and fertiliser near to lichen-rich trees.

A7.2 Secure continuity of veteran trees in the landscape – unmapped

Ensure continuity of veteran trees and associated habitats through identifying notable mature trees within the landscape, developing individual management plans and undertaking veteranisation.

Establish new veteran trees within 250 metres of existing veteran trees to ensure connectivity within the landscape.

Priority 8: Restore and expand nature-rich woodlands

Code: P8 Actions: A8.1 – A8.4

What would success look like

More ancient woodland is under favourable management and restoration is taking place gradually, resulting in higher percentages of native and ancient woodland indicator species. The creation of well-balanced and climate-resilient woodland is increasing the percentage of canopy cover and helping to connect existing woodland. More broadleaved woodland than

mixed woodland is being created. All woodlands are well protected by habitats at their edges, are increasing in structural diversity, and are delivering high value to wildlife. Disease (including ash dieback) is being carefully monitored and managed using appropriate replanting and natural succession approaches. Pests and invasive non-native species are controlled and having less of an impact.

Actions

A8.1 Restore and expand nature rich ancient semi-natural woodland and long-established broadleaf woodland – mapped

Improve ecological condition of woodland through management practices such as thinning, coppicing, pollarding, open space, glade, ride and edge management to create structural habitat matrixes.

Recognise and protect remnants of ancient woodland, buffering small fragments with newer woodland planting.

Increase the volume of deadwood habitat in woodlands – both standing and fallen – as a resource for deadwood invertebrates, bat species and tree-nesting birds. Remove ash dieback trees only when there is a safety or perceived future safety risk.

Undertake landscape scale management of deer and Grey Squirrel populations to improve ecological condition and natural regeneration. Develop and implement deer management plans, working collaboratively across woodland complexes and the farmed environment.

Control invasive non-native species (INNS) such as Rhododendron, Cherry Laurel, Himalayan Balsam and Japanese Knotweed.

Connect and buffer woodlands – particularly small blocks and remnants of ancient woodland – through natural regeneration, new planting and active management of mixed habitats (e.g. wood pasture, silvopasture), transitional edges (e.g. **ffridd**, scrub, grassland) and habitat features (e.g. hedgerows, tree lines).

Any woodland establishment and management should follow the UK Forestry Standard principles for creating and managing woodland.

Reduce numbers of pheasants raised and released in ancient woodland to avoid detrimental impacts on woodland ecology following the Game and Wildlife Conservation Trust guidance.

Manage ancient woodland in a way that preserves dead wood, leaf litter and natural soil to support important fungi organisms.

Ffridd is an upland fringe habitat mosaic, mostly present on the England–Wales border. See also the 'Open habitats' theme for more information.

A8.2 Improve condition of deciduous, mixed and wet woodlands – mapped

★★★

Undertake landscape-scale management of deer and Grey Squirrel populations to improve ecological condition and natural regeneration. Develop and implement deer management plans, working collaboratively across woodland complexes and the farmed environment.

Increase the volume of standing and fallen deadwood habitat as resource for deadwood invertebrates, bat species and tree-nesting birds. Removing ash dieback trees only when there is a safety or perceived future safety risk.

A range of management techniques, including continuous cover forestry, are used in appropriate locations.

Control invasive non-native species (INNS) such as Rhododendron, Cherry Laurel, Himalayan Balsam and Japanese Knotweed.

Improve physical access to support the restoration and management of harder-to-reach sites.

Increase volume of standing deadwood in woodlands, diversify scrub on steep slopes and at woodland edges and leave lone trees at woodland edges for the benefit of an assemblage of woodland bird species.

A8.3 Restore plantation on ancient woodland sites – mapped

★★★

Restore plantation on ancient woodland sites (PAWS) through the gradual removal of non-native tree species, by forestry operations such as thinning and harvesting. Priority is given to restoring PAWS adjacent to ancient and long-established woodlands.

Improve physical access to support the restoration and management of harder-to-reach sites.

Retain veteran trees to act as seed source and to provide ecological value.

A8.4 Create new woodlands – mapped

Create a strategic vision for woodland creation. Increase partnership and cross-border cohesion in planning, planting and funding new woodlands. Invest in local community involvement in woodland creation to increase education and give people a sense of ownership.

Create new woodland to increase carbon capture, increase soil condition, increase water retention and benefit biodiversity. Prioritise the creation of

broadleaved woodland; where mixed woodland is proposed, prioritise high percentages of broadleaved species and high-quality,

location-appropriate design.

New planting should focus on buffering and connecting existing woodlands. Where possible, use natural regeneration to expand existing wooded areas.

Any woodland establishment and management should follow the UK Forestry Standard principles for creating and managing woodland – taking care to avoid adversely impacts on other biodiverse habitats (e.g. grasslands and heathlands), avoiding hotspots for ground nesting birds, and providing high-quality, well-integrated access for future management activities. Use a diverse mix of tree species that suit the soil type and conditions to create woodlands resilient to climate change.

Integrate opportunities for public access into new woodlands.

Priority 9: Restore and expand nature-rich woody habitats

Code: P9 Actions: A9.1 – A9.5

What would success look like

Trees, orchards and grassland associated with wood pasture and parkland are well managed, climate resilient and providing a range of ecosystem services including water storage, shade and soil retention. Ongoing tree planting is ensuring the next generations of specimen trees and – along with new wood pasture – is enhancing landscape connectivity and providing a range of species with habitat, foraging and commuting opportunities. Actively managed scrub bordering grassland habitat is providing basking opportunities for reptiles, refuge for bird species and sheltered flying opportunities for invertebrate species. Agroforestry, small copses and field trees are more common, and orchards are being restored, replanted and newly created to provide bountiful harvests and bring communities together. Disease (including ash dieback) is being carefully monitored and managed using appropriate replanting and natural succession approaches. Pests and invasive non-native species are controlled and having less of an impact.

Actions

A9.1 Restore and expand wood pasture – mapped

★★★ Manage existing wood pasture to increase resilience and ensure continued survival of mature and veteran trees. Allow natural regeneration and provide space for open crowns to develop. Retain and increase both standing and fallen deadwood to support invertebrates, bat species and tree nesting birds.

Enhance the open, dynamic, mosaic habitats under trees by flexible use of grazing animals. Monitor stocking density and prevent damage to bark and roots.

Manage stock that have high worm egg counts through rotation and monitoring of worm status to reduce the need for routine worming. This encourages greater diversity of dung flora and fauna.

Reduce the use of artificial fertilisers and herbicides.

Create new wood pasture on poorer quality grazing land, especially to buffer or link existing sites.

Diversify age and structure of scrub on steep slopes in woodland for the benefit of Wood Warbler.

A9.2 Restore parkland – mapped

Manage existing parkland to increase resilience and ensure continued survival of mature and veteran trees and the establishment and recruitment of trees to perpetuate specialised veteran tree habitats. Allow natural regeneration and provide space for open crowns to develop.

Create and deliver management plans for parkland to maintain niches and micro habitats (e.g. rot pockets, cavities, bark dysfunction, deadwood) and to enhance open and dynamic mosaic habitats under trees using appropriate species and density of herbivores. Prevent damage to bark, roots and soils.

Retain and increase both standing and fallen deadwood to provide ongoing resource for deadwood invertebrates, bat species and tree-nesting birds.

Manage stock that have high worm egg counts through rotation and monitoring of worm status to reduce the need for routine worming. This encourages greater diversity of dung flora and fauna.

Reduce the use of artificial fertilisers and herbicides.

A9.3 Plant and manage mosaics of scrub – mapped

Create scrub through natural regeneration or by planting to provide habitat connectivity between woodland habitat blocks, to buffer hedgerows, to minimise silt, nutrient and soil run-off and to protect ditches and watercourses.

Manage age structure within scrub to ensure diversity and create scallop edges to maximise shelter to benefit a wide range of species.

Balance the value of scrub to nesting birds, with the value of scrub edges and rides to reptiles and invertebrates and the value of open habitats to a range of species as part of habitat mosaics. Educate on the importance of scrub for a wide range of species.

A9.4 Establish new, and safeguard traditional, orchards – mapped

Identify and map traditional orchard remnants, and older, veteran and aged orchard trees.

Work with land managers and specialist arboriculturists to manage orchard habitats using traditional and specialised techniques with little or no chemical input.

Plant next-generation trees of appropriate local heritage varieties and varieties resilient to climate change at aging traditional orchards. Use shelter planting to protect trees from prevailing winds.

Manage grassland under orchard trees using low intensity grazing and traditional management techniques.

Create new orchards in locations where historical records indicate land previously supported orchard habitat and/or close to settlements, where they can become an important shared community space and resource.

A9.5 Plant more trees in the farmed landscape – unmapped

Establish agroforestry systems, as appropriate for the farm business. This can enhance productivity and landscape resilience and protect livestock and crops from the sun and wind.

Create field corner copses and small farm woodlands providing stepping stones for woodland species.

Create shelterbelts to help increase production, improve stock welfare and provide habitat for wildlife.

Grasslands

Species-rich grasslands are a threatened and declining habitat. They include traditionally managed hay meadows, old pastures and other undisturbed areas of grassland such as churchyards and roadside verges.

These grasslands occur on neutral, acid and calcareous soils and are most valuable when they have not been improved by re-seeding, ploughing or the application of fertilisers or herbicides.

Unimproved neutral grassland typically contains a range of grasses such as Crested Dog's Tail, Sweet Vernal Grass and Meadow Foxtail, often with a colourful array of wildflowers like Yellow Rattle, Oxeye Daisy, Betony, Devil's-bit Scabious and Black Knapweed. In Shropshire,

unimproved neutral grasslands are scattered and tend to be fragmented. There are some concentrations of these grasslands in areas around the Clee Hills, the Wyre Forest and along Wenlock Edge. Other examples persist on roadside verges, in churchyards or smallholdings, or in isolated, sometimes inaccessible fields where they have escaped agricultural improvement.

Calcareous grassland occurs over limestone or other base-rich rocks. While soils in these areas are typically thin and nutrient poor, calcareous grasslands can be extremely species rich. The sward typically comprises a wide range of grasses, including Quaking Grass, Glaucous Sedge, orchid species, Fairy Flax, Yellow-wort, Small Scabious and Rock-rose. Calcareous grasslands are particularly associated with the limestone areas around Oswestry and Wenlock Edge, and on former clay workings in the Telford area.

The county also supports a range of upland grasslands that have been subject to some degree of agricultural use and intensification. These include upland rough grasslands associated with hill tops – particularly in the Shropshire Hills. These rough grasslands are often wet and provide a key breeding resource for many different wading birds, such as Curlew, Snipe and Lapwing. While these upland grasslands are comparatively species-poor, their extent and the uneven sward height (achieved by extensive grazing) create valuable sites for upland-nesting birds.

The Long Mynd SSSI on the upland plateau to the west of Church Stretton supports extensive areas of **acid grassland** – including Mountain Pansy, a localised and declining species in Shropshire. Acid grasslands are often species poor due to acidic soils. Grasses include fescues, bents and Wavy Hair Grass; flora include Heath Bedstraw and Tormentil. They can often form mosaics with dry heathland.

Areas of species-rich grassland can be found on roadside verges, where the established mowing regime has supported the establishment of a varied mix of wildflowers. Creating and managing species-rich grassland can both improve the biodiversity value of road verges and reduce long-term management costs. As linear networks, they can provide important provide wildlife corridors.

Key species

- Specialist grassland plants including orchid species
- Yellow Rattle
- Grass Snake
- Common Lizard
- Slow Worm
- Meadow Pipit
- Skylark
- Lapwing
- Curlew
- Snipe

- Brown Hare
- Badger
- Dingy Skipper
- Green Hairstreak

Challenges

- Access to small remnant hay meadows can be difficult and sufficiently small groups of animals for grazing for short periods may not be locally available.
- Management of hay meadows – and the funding available for this – is determined by volume of hay rather than plant diversity, as it is driven by animal feed prices and current agricultural systems.

Threats

- Fertilisation reducing diversity by favouring coarse grasses over flowering plants.
- Inappropriate management including cutting hay before the seed has set, failure to remove cut hay, and failure to sufficiently graze (or harrow) at the right times of year in order to create and maintain areas of open ground.
- Under-grazing and over-grazing, which reduces grassland quality.
- Use of wormers and other veterinary drugs.
- Ploughing and planting to crops.
- Turning to scrub or planting with woodland.

Opportunities

- Appropriate management can be used to restore species-rich grasslands and hay meadows.
- Cessation of fertilisation inputs and strewing of arisings from established sites is a well-established and well-evidenced restoration practice.
- Permanent grasslands with complex below-ground root systems could contribute significantly to ongoing carbon sequestration efforts and plans.
- Deep-rooted species improve water uptake and maintain forage availability during dry periods.
- The varied growth patterns of species in herbal leys provide forage over a longer season, reducing the need for supplementary feeding.
- Certain species in herbal leys (e.g. Chicory, Plantain) have been shown to reduce worm burdens in livestock, lowering reliance on chemical wormers and supporting dung fauna diversity.
- Herbal leys can help address mineral deficiencies common in UK pastures (e.g. selenium, iodine, cobalt), reducing the need for costly mineral supplements.

Priority 10: Restore, connect and expand species-rich grasslands

Code: P10 Actions: A10.1 – A10.4

What would success look like

An active grazier network is providing grazing services to a range of sites around the county and there is a well-resourced green hay donor register to identify species-rich grassland for creating and restoring sites around the county. Existing good-quality grassland sites are providing a range of ecosystem services. Grasslands form a mosaic with other semi-natural habitats like scrub, ffridd and woodland, allowing diverse wildlife to thrive and move. Species-rich grassland in particular is better connected. Where possible, habitat expansion activities are taking place around historic remnants. Modified grasslands close to species-rich grasslands are increasing in diversity thanks to targeted enhancement and management efforts. Cutting, mowing and collecting regimes have been established for roadside verges, tracks and paths, which is improving plant diversity and providing considerable value to wildlife. The public are well informed about the value of species-rich verges.

Actions

A10.1 Set up infrastructure to support grassland restoration and creation – unmapped

Develop and support grazier networks to provide grazing services to a range of sites around the county. Encourage the use of native breeds of livestock.

Create a green hay doner site register, supported by the right resources, skills and equipment, to successfully restore and create species-rich grassland sites around the county.

A10.2 Safeguard and enhance traditional hay meadows and other existing species-rich grasslands – mapped

★★★

Actively manage and enhance remnant traditional hay meadows and species rich-neutral grasslands, which are particularly important for many wildflower plants, invertebrates and bird species.

Conserve and expand the current extent of species-rich grassland habitats through the prevention of succession into woodland, the management of scrub, use of appropriate mowing and grazing regimes, and the avoidance of artificial fertilisers. This will benefit a broad range of species including Frog Orchid.

Where managed by cutting, use appropriate mowing regimes to support plant seeding and invertebrate life cycles and manage the growth of coarse grasses and scrub. Where cutting is required before late summer, stagger cutting times and leave some areas in flower each year to create varied structural diversity. Leave field margins uncut and integrate bare patches or banks within grassland sites where possible.

Where managed by livestock, use appropriate grazing regimes to support plants setting seed and invertebrate life cycles, whilst managing the growth of coarse grasses and scrub. Make use of appropriate and flexible grazing and conservation-led stocking densities, avoiding poaching and under-grazing.

Manage stock that have high worm egg counts through rotation and monitoring of worm status to reduce the need for routine worming. This encourages greater diversity of dung flora and fauna.

Increase connectivity of, and provision for wildlife in, meadows by leaving field margins uncut, hedgerows well-connected and integrating bare patches or banks within grassland sites.

Helpful guides

Plantlife: How to manage a meadow and How to create a meadow

A10.3 Create and restore species-rich grassland – mapped

Create or restore species-rich grasslands, where they will expand or act as stepping stones or corridors between existing semi-natural grasslands. Ideal locations would be those near to existing good-quality sites. Follow guidance on establishment and future management (PDF).

species-rich grassland is used as appropriate to create new grassland sites, to help increase area of habitat and ensure local ecological integrity across sites. Locally collected seed or green hay can be sown directly or propagated as plugs to restore floral diversity of grassland.

Create more hay meadows by converting silage production fields where feasible to encourage flowers to complete their annual cycle for the benefit of small mammals and pollinators. Leave an uncut margin during cutting, to provide shelter and food sources for wildlife.

Increase resilience of grassland sites to climate change and include measures such as fire breaks in site design.

Create a combination of larger open areas and smaller mosaic glades in amongst gorse and thorn scrub to provide habitat for breeding birds.

A10.4 Restore grassland on roadside verges and alongside paths and tracks – mapped

Provide sustained support for volunteer groups, including Restoring Shropshire's Verges Project (see case study).

Use appropriate signage to discourage littering of these valued verges to reduce the plastic contamination in grass cuttings.

Create flower-rich long meadows associated with roadsides and railway verges. Target wide verges and aim to make them roadside verge nature reserves.

Delay mowing of wide verges until late summer and remove cuttings to increase species diversity. Retain visibility splays and consider mowing a 1-metre strip at the very edge. Include mown strips where appropriate to communicate to the public that the area is being managed not just left.

Overseed existing linear grasslands with Yellow Rattle and plant plugs of local provenance to increase species diversity.

Case study: How Restoring Shropshire's Verges Project is taking action and inspiring others across Shropshire **(PDF)**

Open habitats

Open habitats are generally unwooded, exposed areas of landscape. In this strategy, the 'Open habitats' theme focuses on Shropshire's lowland and upland heath, ffridd and open mosaic habitats where dense vegetation is interspersed with bare or sparsely vegetated ground.

Lowland heathland – generally found at altitudes below 250 metres – tends to be associated with nutrient-poor acidic soils and is characterised by dwarf shrubs such as Cross-leaved Heath and Bilberry. These plants are often found in association with Gorse, Broom and several grasses. Shropshire's lowland heaths are generally small, isolated fragments dispersed across the county. The heathlands of south Shropshire are especially notable for their transitional nature between southern lowland types and northern upland heather moorland, a fine example of this is the Stiperstones and the Hollies SAC. Here vegetation characterised by Bell Heather and Western Gorse grades into moorland vegetation dominated by Heather, and then into Cowberry on the upper slopes.

Upland heathland commonly occurs on mineral soils and thin peats less than 0.5 metres deep at altitudes of between 250 and 400 metres.[40] It is characterised by a cover of at least 25% of dwarf shrubs and may include bracken and wet flushes. Although much of the upland heathland throughout the Shropshire Hills is dry, there are small but significant areas of wet heath with characteristic species such as Cotton Grass, Cross-leaved Heath and Sphagnum Moss at sites including Rhos Fiddle and Lower Short Ditch in the Clun Forest.

Heathland – both upland and lowland – typically forms part of a mosaic of habitats including scrub, woodland, grassland, bog, open water and bare ground.

Ffridd is an upland fringe habitat mosaic, mostly present on the England–Wales border. It is made up of a collection of diverse habitats including scattered trees and small woodlands,

bracken, heather and bilberry heath, wet and dry unimproved grassland, bog, scree and rock. Ffridd might look different in different locations and is an incredibly diverse habitat, important to a wide range of wildlife.

Open mosaic habitat is characterised by a patchwork of dense vegetation interspersed with bare or sparsely vegetated substrate, on land that has undergone significant transformation from previous human activity – for example quarries, road and railway sidings, spoil heaps and demolished or disused buildings and infrastructure. Typically formed on nutrient-poor substrates where water retention is low, open mosaic habitat is home to early successional communities of stress-tolerant species (including annuals, mosses, liverworts, lichens and ruderals), open or flower-rich grassland, scrub and heathland. Sites with a strong assemblage of nectar-rich, stress-tolerant plants sustain a wide range for invertebrates, including valuable species of bees, wasps and butterflies. Bare ground is also important for species such as lizards to bask in the sun and provides hunting grounds for various predators.

Case study: Restoring heathland at Mose Farm **(PDF)**

How heathland is being restored at Mose Farm in east Shropshire, where the land was difficult to farm. Higher Tier Stewardship enabled a change in farming system – benefiting both the business and nature.

Key species

- Sandwort
- Common Toadflax
- Hypnum Moss
- Bilberry
- Water Foxtail
- Slow Worm
- Whinchat
- Red Grouse
- Nightjar
- Bog-bush Cricket
- Silver-studded Blue
- Dingy Skipper
- Grayling
- Common Tiger Beetle
- Adder
- Common Lizard

Challenges

- Maintaining open mosaics and preventing succession to scrub or woodland.
- Maintaining a diverse age structure in heather and gorse.
- Maintaining wet heath water levels.

- Maintaining bare ground element requires ongoing management.
- Managing access.
- Making sure different stakeholders understand the biodiversity value of open mosaic habitats.
- Certain additional issues at some sites (e.g. remediate contamination, monitor substrate degradation, control the spread of invasive species).

Threats

- Changing climate and drier summers, resulting in higher potential for heathland fires.
- Afforestation (particularly with conifer plantation).
- Fragmentation.
- Succession to scrub and wooded habitats.
- Destruction of open mosaics through the redevelopment of brownfield sites.
- Brownfield sites may also contain remnant toxic material and chemicals, which can spread due to degradation and pollute surrounding plant communities.

Opportunities

- Habitat such as ffridd and heathland can continue to be farmed while having significant benefits for a wide range of species.
- Restoration of former heathlands currently under different land use (e.g. conifer plantation).
- Using new technology including fenceless grazing effectively.
- Appropriate protection and management of existing biodiverse brownfield sites.

Priority 11: Restore, connect and expand heathland sites

Code: P11 Actions: A11.2 – A11.2

What would success look like

Wildflower-rich heathland and grasslands are managed by livestock to control bracken and scrub. Heathlands have diverse age profiles and structural diversity. Non-native species are well controlled and the adverse impact of visitor pressure at key sites is being addressed. Heathland blocks are larger, more connected and buffered within a mosaic of appropriate edge and connecting habitats (grassland, scrub and woodland). Heathland creation connects smaller fragments and restores lost sites.

Actions

A11.1 Establish effective management regimes for heathland sites – mapped

Manage heathland as mosaics of complementary habitats including acid grassland, bare ground, scrub, trees and dead wood, wet heath, pools and ditches.

Actively manage vegetation ideally through targeted grazing to achieve a complex and varied vegetation structure and to prevent the succession into woodland.

Increase resilience of heathland sites to climate change and include actions such as fire breaks in site design.

A11.2 Restore heathland where geology allows to increase habitat connectivity – mapped

Where appropriate, revert plantation woodland and farmland adjacent to existing heathland to dry acid grassland and heathland.

Use heather cutting and strewing to establish new heathlands using seeds of local provenance. Create a heathland brash/seed donor site inventory.

Restore heathland as part of post-quarrying restoration at sites where underlying geology is suitable.

Restore and buffer heathland remnants, integrating and creating heathland mosaics within other habitat, such as woodlands, and making use of woodland margins, corridors and open space. Reduce fragmentation of heathlands by restoring connectivity where it has been lost.

Priority 12: Increase the area of ffridd habitat

Code: P12 Actions: A12.1 – A12.2

What would success look like

Mosaics of ffridd features are well balanced and managed, with regular monitoring to ensure that no single feature becomes dominant and that grazing pressure is appropriate. New areas of well-balanced ffridd are created and managed sustainably. Trees are present and are protected from grazing impacts to maintain natural tree regeneration. The resulting habitat is benefitting a broad range of species.

Actions

A12.1 Enhance areas of ffridd habitat – mapped

Promote the importance of ffridd for a wide range of species.

★★★ Use low intensity grazing to keep some areas open and regularly review grazing density to ensure natural tree regeneration is taking place and that habitat mosaics are in balance. Fenceless grazing can help to focus grazing into, or away from, particular areas.

Control bracken, when it dominates, and manage scrub and tree encroachment to maintain balance to benefit Tree Pipit and Whinchat.

Manage wet and damp areas through targeted grazing and consider cutting rush by hand or strimming where necessary to prevent drying, as heavy machinery damages wet soils.

Create and actively manage diverse age structures and edges within scrub blocks through grazing, cutting and mowing.

Retain standing and lying deadwood within ffridd habitats to provide value for fungi, invertebrates and bird species. Leave dead trees or shrubs standing or retain small stacks of cut wood in shady areas.

A12.2 Create new areas of ffridd habitat to benefit a wide range of species – mapped

+ Create and restore areas of ffridd mosaic, a combination of larger open areas and smaller mosaic 'glades' in amongst gorse, thorn scrub, scattered trees and wet areas, alongside bare rock and scree, to provide habitat for breeding birds, invertebrate species and lichen.

Consider tree planting carefully. Planting may be appropriate where there are only a few trees and/or there is little or no tree regeneration. Use native species such as rowan, birch, hawthorn and other berry-bearing trees, scattered at a low density. Locations of any additional trees should be carefully considered to avoid increasing impacts of avian predators on ground-nesting birds.

Avoid artificial drainage of ffridd habitats, block existing drains to re-wet habitat and manage wetter areas through grazing.

Priority 13: Enhance the wildlife value of open mosaic habitats

Code: P13 Actions: A13.1 – A13.3

What would success look like

Natural regeneration leads to the establishment of open mosaic habitats on former industrial sites and brownfield sites. Open mosaic habits are allowed to establish on a range of sites where future brownfield development is likely and these are recognised through biodiversity net gain (BNG) at the point of redevelopment. Restoration plans for active extraction sites include provision of open mosaic habitats to be maintained for the long term. The cyclical nature of these habitats is well understood, and management works with natural cycles. Innovative methods of providing open mosaics are used including as part of green roofs and

other urban greening solutions. Scree habitats support strong lichen and bryophyte communities both on loose scree and in the crevices formed by larger rocks. Scrub and tall vascular plants are appropriately controlled to ensure the maintenance of open and bare ground and rock.

Actions

A13.1 Create, enhance and appropriately manage close mosaics of open habitats on former coal, mining and post-industrial sites – mapped

Engage with owners and/or operators of extraction sites on both the management of site areas not currently in production and on longer-term restoration proposals.

★★★ Enhance sites through creation and retention of open areas using rotational management including scrub clearance and scrape creation.

Identify and restore remnant heathland on former coal working sites.

A13.2 Enhance open mosaic habitats on brownfield sites – unmapped

Work with local planning authorities and developers to appropriately value open mosaic habitats within the planning process.

★★★ Enhance sites through creation and retention of open areas using rotational management including scrub clearance and scrape creation.

A13.3 Retain the wildlife value of scree – mapped

★★★ Employ rotating programme of scrub clearance at identified sites. Link to: Inland rock and open habitat species assemblage.

Built environment and amenity spaces

While Shropshire is mostly rural, there are built environments and urban habitats throughout the county, with large concentrations in and around Shrewsbury and Telford – the strategy area's largest settlements.

Built environments are areas of land that have been transformed into artificial surfaces, providing buildings, transport infrastructure and other hard-standing areas that support human activity. They include both rural settlements and dense clusters of urban habitats forming towns and areas for commerce and industry, connected by urban transport habitats.

Alongside the built environment are small areas of designed, natural and semi-natural green and blue space (like gardens, road and railway verges and ponds) as well as open habitats on

previously developed land. Urban habitats in villages and suburban areas are less densely developed and generally have more green and blue space than urban centres and concentrated commercial and industrial areas. Larger areas of a range of habitat types exist within nature reserves and parks. Features such as ponds, trees and shrubs in suitable conditions can provide some refuge for plant and wildlife and among developed features.

Urban biodiversity is increasingly recognised as vital for ecosystem resilience and human wellbeing. Natural England's Green Infrastructure Framework, launched in 2023, supports the creation of quality green spaces in England with the aim of improving the environment and people's lives.

Biodiverse, accessible green space for all

One of the standards set out in the Green Infrastructure Framework – and now a commitment in the UK Government's Environmental Improvement Plan – is that everyone in England should live within 15 minutes of biodiversity-rich, accessible green space.

Key species

Wildlife in urban habitats has often adapted to benefit from human activity. Natural shelter within designed green and blue infrastructure is important.

- Hedgehog
- Butterflies
- Swift
- House Sparrow
- Water Vole
- Frog
- Newts
- Veteran trees

Challenges

- Controlling the spread of built surfaces and infrastructure to minimise impacts on natural features and non-urban habitats.
- Small-scale developments – like driveways, some building extensions and tree removal – don't need planning permission and have an unquantified impact.
- As climate change progresses, the challenges of urban cooling and the creation of heat islands will continue to intensify.
- Continuing to meet housing need while avoiding adverse impacts on biodiversity.

'Urban heat islands'

Urban and built environments get much hotter than rural areas, becoming 'islands' of heat. Densely populated city areas can be up to 12° C warmer than the surrounding countryside.[41]

Threats

- Urban compaction and infill of open spaces – which can remove, damage and alter natural features.
- Paving over soil alters hydrological processes and increases surface runoff and stress on local drainage systems.
- Pollution significantly impacts air and water quality.
- Waste materials from industrial and transport activities (e.g. forever chemicals and heavy metals) can collect on built surfaces and wash into waterways.
- Growth in urban habitats replaces and fragments other habitats, reducing both overall space for nature and connectivity.

Opportunities

- Significant open space in urban areas could be conserved and enhanced, which could include planting trees and making grassland more diverse.
- Householders can make their garden more wildlife friendly by planting native flowering plants and making a pond.
- New developments can be well planned to create new wildlife-rich habitats that connect to the surrounding areas.
- Reducing vehicular traffic and emissions improves air quality.
- Recycling and managing industrial waste can ensure smaller land-take for landfill while reducing the infiltration of waste products into environment.

Priority 14: Bring nature into towns, villages and amenity spaces

Code: P14 Actions: A14.1 – A14.6

What would success look like

significant areas of well-connected green infrastructure following best-practice guidance and features carefully designed low-impact lighting, some darkness, and low or no-access areas. Private gardens offer safe havens for wildlife and nature within our towns and villages. Public access, safety and nature are well integrated in green spaces, and these contain diverse habitats and provide health and wellbeing benefits for people such as improved air quality and cooling. Sustainable urban drainage, rain gardens, ditches, ponds and watercourses are key components of the built environment. Water is well managed and flows slowly, helping to recharge groundwater aquifers, alleviate flooding and stabilise year-round flows. New tree planting follows the 'right tree, right place' principle and is in sustainable locations where watering and other elements of good tree management can be undertaken. Tree, herbaceous

and perennial planting is resilient and provides food sources and shelter for a range of species through the year. People better understand the value of wildlife and wildlife features, as well as their role in protecting nature and natural resources.

Actions

A14.1 Integrate nature recovery within new developments – unmapped

Work with developers to provide a 'How to create a wildlife garden' booklet to be provided to new homeowners.

Integrate permanent wildlife features and habitats in new development designs to connect existing wildlife-rich areas and provide a range of linear corridors and 'stepping stones' to enable movement. Consider this at an early stage of the design to deliver the best outcomes for nature.

Delivery of biodiversity net gain (BNG) on- and offsite should refer to the priorities and habitat opportunities set out in this local nature recovery strategy and LNRS maps. Provide and maintain harder-to-manage habitats – like open mosaics – through the use of innovative solutions (e.g. as part of green-roof provision).

Follow best practice for green infrastructure design and management, making reference to the Green Infrastructure Framework's Design Guide (PDF). Where necessary, depending on habitat and species sensitivity, reduce or prevent visitor access, making clear to site users where and why wildlife value is being provided in preference to access.

Follow the 'right tree, right place' principle. Choose species that are resilient to climate change, pest, drought and disease and which provide food (nectar, fruit, berries) and shelter sources for a range of species throughout the year.

New developments that generate emissions make use of all best available technology, including ammonia scrubbers, well-designed and well-oriented buildings, and buffer planting.

Ensure that landscaping around new developments increases connectivity, provides well-structured shelter for wildlife and is sustainable in the long term. Consider using native hedgerows and trees, in particular, which provide habitats and reduce light and noise pollution.

Reduce demand on water resources by implementing water efficiency measures in all new developments – for example, using alternative sources of water, such as grey water and rainwater harvesting, and using rain garden techniques to intercept water and help prevent surface water flooding during increasingly frequent storms.

Integrate growing areas into new developments including orchards, allotments and community gardens.

Provide adequate and accessible, biodiverse green space and dog exercise areas associated with new development ensuring direct access to green space on the doorstep and reducing visits to sensitive sites.

Install integrated bat boxes, soffit roosting features, bat lofts, raised roof tiles, swift boxes, bee bricks, hedgehog gates, fence gaps, shelters and hibernation features within new developments. Provide well-designed swallow nesting buildings on barn conversion schemes.

Avoid or minimise the use of exterior lighting, which disrupts roosting, foraging and commuting habitats for bat species.

A14.2 Create wildlife-friendly gardens at homes and businesses – unmapped

Educate the public on the wildlife they might find in their homes and gardens and encourage wildlife-friendly gardening.

Educate the public on the risk to aquatic invertebrates from veterinary flea and worm treatments used on domestic pets and on the risks associated with slug pellets, which affect soils and water. Also educate on using peat-free compost.

Create wildlife ponds, hibernacula, and green walls and roofs within gardens and leave messy corners.

Use planting that flowers throughout the year to support pollinators and use a range of nectar and fruit producing species. Avoid peat products.

Limit the use of chemicals (slug pellets, herbicides, insecticides), which are harmful to wildlife and can enter our waterways.

Avoid using artificial lawns, concreting and large areas of paving, which can lead to flooding and water pollution.

Reduce water use by adding connections to downspouts to redirect rainwater into rain gardens, soakaways, water butts and wildlife ponds, for example, and retrofit water-saving measures such as low-flow taps.

Engage with and educate the public on misconnections – what they are and how to spot them – and how to properly maintain private sewage treatment works such as septic tanks and cesspits.

Make people aware of how ‘everyday’ activities affect water quality and explain how changing those habits can benefit water quality and biodiversity.

Install bat boxes, soffit roosting features, bat lofts, raised roof tiles, swift boxes and bee bricks when carrying out renovations. Make gaps in fencing for

hedgehogs to move through the built environment and install shelters and hibernation features.

Avoid or minimise the use of exterior lighting, which disrupts roosting, foraging and commuting habitats for bat species.

Helpful guides

RHS: How to build a green roof

Chester Zoo: How to create hibernacula

The Wildlife Trusts: How to build a pond and Wildlife gardening

A14.3 Enhance wildlife value of multifunctional green space – mapped

Analyse green infrastructure provision and need on a local level and take targeted action to address deficiencies in type, provision or quality. This should be guided by the standard set out by the Green Infrastructure Framework – and the UK Government's commitment under its Environmental Improvement Plan – that everyone should live 15 minutes from biodiversity-rich accessible green spaces.

Manage existing sites more sensitively for nature to provide increasing wildlife benefits at community gardens, allotments, burial grounds, village greens, schools, golf courses, cricket grounds, sports pitches, railway embankments, car parks and hospitals.

Manage parks and green spaces for people and wildlife by reducing the number of cuts and leaving wild strips, buffers and corners of fields. Where possible, mow annually, using cut-and-collect techniques, and include mown strips where appropriate to communicate to the public that the area is being managed not just left.

Limit the use of chemicals that are harmful to wildlife and can enter our waterways.

Create new wildlife habitats to act as corridors and stepping stones across the built environment, expanding existing linear networks. Provide a range of habitats – including bare ground, heathland, grassland, scrub, wetlands and open mosaic habitats – and allow public access where possible. Consider the inclusion of wildlife ponds, hibernacula, green roofs and green walls.

Strategically plant trees to shade tarmac and buildings in areas where residents are at risk from high summer temperatures. Tree, herbaceous and perennial planting is resilient to climate change, drought, pest and disease using both non-native and native whilst increasing species diversity and providing sources of nectar, food and shelter for a range of species throughout the year.

Use rain garden techniques to intercept water and help prevent surface-water flooding during increasingly frequent storms.

On and around school grounds, use wildlife-friendly landscaping to benefit climate adaptation and curriculum delivery.

Create community areas at all scales including pocket parks, micro-forests, ponds and wild verges as 'stepping stones' for wildlife in the built environment. Incorporate community growing, seed sharing and community gardening initiatives.

Avoid or minimise the use of exterior lighting, which disrupts roosting, foraging and commuting habitats for bat species.

A14.4 Effective water management in the built environment – unmapped

Educate the public on their role in improving water quality, reducing demand and improving water management. In particular, promote the importance making front gardens permeable (by disconnecting downpipes and directing water into rain gardens or plants), which reduces flows of surface water into storm drains.

Retrofit silt traps on highways drainage in appropriate locations to decrease silt, sediment and pollution runoff into water courses.

Investigate localised flooding and reduce impact using a range of natural flood management solutions.

Use sustainable drainage systems (SuDS) to provide a range of benefits including water storage, water quality improvements, biodiversity and public access. SuDS should include deep sumps that are continually wet, of depths to manage vegetation growth, seeded with appropriate wet grassland mixes and include a permanent wildlife pond. Use surface features including swales, ditches and other semi-natural features to avoid domination of 'pipe-to-basin' style SuDS.

Create reedbeds in developed areas to slow the flow and improve water quality, particularly near sewage treatment plants.

De-pave the built environment in favour of permeable surfacing to increase infiltration and to decrease or slow surface water flows to combined sewers and local watercourses.

Create rain gardens in the built environment to increase infiltration and to decrease or slow surface water flows to combined sewers and local watercourses.

educe demand on water resources through implementation of water efficiency measures in all new developments and identify and use alternative sources of water such as grey water, rainwater harvesting.

Engage with and educate the public on misconnections – what they are and how to spot them – and how to properly maintain private sewage treatment works such as septic tanks and cesspits.

If your property has wastewater pipes discharging to a surface water sewer intended for rainwater only, it will cause pollution. This is known as a **misconnection**, and you need to put it right.

A14.5 Reduce the adverse impact of light pollution on wildlife – unmapped

Avoid or minimise the use of exterior lighting and street lighting, which disrupt roosting, foraging and commuting habitats for bat species.

Make use of best-available technologies to minimise adverse impacts upon wildlife while providing safe access for people – particularly in areas adjacent to natural vegetation or corridors of blue and green infrastructure. This could include using longer wavelength red light, passive infrared lighting (PIR), low-level bollards, in-surface lighting, shields, cowls, downlights and screening plants.

Establish and safeguard dark corridors within built environments, with particular reference to dark habitats associated with woodland blocks, pools, rivers and streams; linear features providing connectivity; and boundaries with the darker rural environment.

Consider any changes to existing lighting (e.g. to LED streetlighting) carefully, and make sure potential ecological impacts are a key factor in decision making.

A14.6 Increase canopy cover in the built environment – unmapped

Work with communities to identify opportunities for tree planting, to fund and deliver projects which belong to the community and are integrated well into the local environment.

Plan and deliver succession planting of trees in open spaces to diversify age profile and create resilient sites. Trees are resilient to climate change, drought, pest and disease using both non-native and native whilst increasing species diversity and providing sources of nectar, food and shelter for a range of species throughout the year.

Tree pits are well designed and sized and offer adequate support for trees during establishment, and then during periods of significant drought are provided with water.

Create nature-rich green pockets through tree and shrub planting, following the principles set out in local green infrastructure frameworks or policies.

Plant fruiting species to create 'pollen lines' and community orchards increasing pollination, enhancing plant diversity and providing food.

Plant more trees in gardens, allotments, parks, school grounds, hospital grounds, land surrounding community and commercial properties, street trees in residential and retail areas and any other public spaces where appropriate to increase biodiversity and reduce heat impacts.

Create woodlands at the edges of the built environment to link rural and urban landscapes.

Invasive non-native species

Priority 15: Reduce invasive non-native species (INNS) across whole catchments

Code: P15 Actions: A15.1 – A15.2

What would success look like

An invasive non-native species (INNS) strategy for the county has been developed and a range of suitable control actions for each identified species is available to landowners. Action is coordinated and, where appropriate, begins at headwaters and moves downstream. Control is sustained and sustainable to ensure effective control and eradication wherever possible. The public are well informed on the risks and challenges of INNS and follow basic precautions in appropriate circumstances.

Actions

A15.1 Prevent the spread of invasive non-native species – unmapped

Promote good biosecurity to prevent spread of invasive non-native species and diseases. Educate the public in how to identify INNS, who to report sightings to and, if they have them on their own land, how to control.

Map priority INNS to establish areas of concern and promote use of INNSMapper.

A15.2 Implement a targeted programme to reduce invasive non-native species – unmapped

Manage priority INNS throughout the county through coordinated, focused programmes of work using a range of available control methods including trials for eradication methods and development of fundable management plans.

Target the removal of Himalayan Balsam beginning at headwaters and moving down through catchments, and in other known hotspots where there is significant impact.

Public access, health and wellbeing

Priority 16: Enable more access to and connection with nature for health and wellbeing

Code: P16 Actions: A16.1 – A16.3

What would success look like

A range of welcoming, nature-rich spaces are available to the public. Where land is prioritised for value to wildlife over public access this is made clear and is well explained. Local communities feel a sense of ownership and are proud of the spaces available to them. Active travel is encouraged, and walking in the rural environment is increasingly easy. Landowners and land managers feel confident and supported in allowing wider public access. The broader benefit to our health and wellbeing is recognised and there are accessible opportunities to connect with nature.

Actions

A16.1 Enable access to nature-rich sites – unmapped

Encourage historic sites, stately homes, managed gardens, golf courses, cricket fields, sports pitches, school, church and NHS land to be made available for access wherever feasible.

A16.2 Create a more comprehensive network to enable active travel – unmapped

Create and manage an improved public rights of way network to provide access while directing people away from sensitive habitats.

Encourage new pathways and cycle ways that are widely accessible, with appropriate surfacing, good drainage infrastructure, wide gates or accessible kissing gates and effective signage. Provide wheelchair-friendly surfaces with benches to allow people to rest along routes wherever possible.

Encourage the creation of new permissive paths to create safe walking in areas with limited access to green space.

A16.3 Enhance peoples' connection with nature – unmapped

Use green social prescribing to connect people with local volunteer groups and local green spaces for the benefit of people and wildlife.

Educate the public by explaining land management or conservation works and to encourage them to respect, appreciate and follow rules when it comes to things such as responsible access, littering, sheep worrying, gate closing and wildlife disturbance.

Take action to engage young people in nature by working with schools and other partners to consider how they could use the LNRS to enhance biodiversity and increase their connection with nature.

Case study: The Shropshire Hills Young Rangers initiative **(PDF)**

Schemes like the Shropshire Hills Young Rangers initiative, a youth-focused conservation and engagement programme, show how focusing on conservation, outdoor learning and adventure can foster a long-term connection with nature.

Species

Alongside broader habitat improvement, the LNRS must describe opportunities, set priorities, and propose potential actions for the recovery and enhancement of species. This was carried out through a process of longlisting and then shortlisting species priorities, as set out in the guidance for responsible authorities.[42]

Appendix 8 lists all species that have been identified to be included on the longlist of important species for the county. Details of the shortlisting methodology can be found in the accompanying Appendix 9.

The species and assemblages prioritised in the LNRS are those that are important to the county **and** need additional specific actions, beyond what is covered by the 51 habitat-focused actions, or a specific combination of actions that might not otherwise be taken to ensure species recovery.

Some species that are valued and recognised by local stakeholders, or immediately recognisable to members of the public, are not specifically named in the LNRS. This is usually because actions identified for the habitats on which they rely will be sufficient to ensure species recovery, with no need for additional species-focused actions.

The LNRS Steering Group is very grateful to the input from the team of local taxonomic and species experts who have given their time to work through the process in line with the Department for Environment, Food & Rural Affairs (Defra) guidance.

There are 25 individually named species and 9 species assemblages:

- Deadwood species assemblage
- Woodland species assemblage
- Species reliant on arable land
- Inland rock and open habitat species assemblage
- River species assemblage
- Species reliant on bog and other wetland habitats
- Species reliant on heathland and grassland habitat mosaics including ffridd
- Plants requiring growing from seed for planting out
- Bat species assemblage

Many species actions have been incorporated throughout the habitat actions. Where additional actions are still required to halt and reverse the decline of particular species, or an assemblage of species, these are included in the following section.

Individually named species

Taxon	Species	Scientific name	Actions	Mapped
Mammal	Dormouse	*Muscardinus avellanarius*	• Manage suitable woodlands (deciduous and mixed) to create structural diversity and retain and enhance connectivity. • Ensure tree species mix includes hazel. • Create rides, glades and woodland edge with varied shrub edges. • Manage hazel coppice on rotation, cutting non-adjacent coups on 30-year rotations. • Create canopy gaps through targeted tree removal but do not remove understory. • Limit deer grazing. • Erect Dormouse boxes and/or tubes. • Connect suitable blocks of habitat within 2 kilometres through shelter belt, tree line and hedgerow planting and woodland creation. • Consider the provision of dormouse 'bridges' as a means for Dormouse to cross roads and other barriers in the landscape. • Consider reintroductions and translocations. Further guidance: Paul Bright, Pat Morris and Tony Mitchell-Jones (2006) The Dormouse Conservation Handbook, 2nd edition. English Nature, the Rural Development Service and the Countryside Agency.	Y
Mammal	Hedgehog	*Erinaceus europaeus*	• Avoid the use of slug pellets and other pesticides. • Create Hedgehog highways through provision of 12 cm by 13 cm holes in garden fences. • Provide Hedgehog houses.	N

			• Create places of refuge by collecting piles of leaves and grass and leave undisturbed. • Create habitat mosaics in parks and open space including grass of varying lengths, open soil and dense vegetation for sheltering. Further guidance: People's Trust for Endanger Species – Hedgehogs.	
Mammal	Pine Marten	*Martes martes*	• Provide well-connected suitable woodland habitats with good provision of standing deadwood. • Provide den boxes for breeding where natural tree cavities are limited. • Create wildlife 'bridges' to allow Pine Marten to cross roads and other barriers in the landscape. Further guidance: The Vincent Wildlife Trust (2015) Managing forest and woodlands for pine martens.	Y
Mammal	Water Vole	*Arvicola amphibius*	• Manage alternate riverbanks in any year. • Remove barriers to dispersal (including culverts) where possible. • Create islands to provide refuges from predators. • Carry out effective control of American Mink at a landscape scale. • Reduce variability in water levels in small ditches and watercourses. Further guidance: People's Trust for Endangers Species (2019) Helping water voles on your land.	Y
Bird	Curlew	*Numenius arquata*	• Create and enhance grassland habitats and lowland floodplain meadow. • Establish nest monitoring and protection schemes. • Carry out effective control of predators at a landscape scale.	Y

			• Carefully consider tree planting in Curlew breeding areas (where trees can provide cover/perches for predators). • Provide advice to landowners in breeding areas. Further guidance: RSPB (2017) Land management for wildlife – Curlew.	
Bird	Dipper	*Cinclus cinclus*	• Provide Dipper nest boxes on bridges over fast flowing streams. • Improve water quality in rivers and streams. • Stabilise flow in watercourses that have flashy flows.	N
Bird	Nightjar	*Caprimulgus europaeus*	• Operate silvicultural systems in productive woodlands, such as clearfell/restock, especially adjacent to heathland. • Leave lone standing trees in heathland.	N
Bird	Pied Flycatcher	*Ficedula hypoleuca*	• Provide specialist next boxes for a period of at least 30 years until Alder regrow to sufficient frequency and support deadwood suitable for nesting.	N
Bird	Red Grouse	*Lagopus lagopus*	• Heathland management and restoration including heather management in small patches by cutting or burning.	N
Bird	Swift	*Apus apus*	• Provide specialist nesting bricks and boxes in built environment at least 5 metres high. • Reduce loss of nesting sites on buildings due to building restoration, repair, demolition and conversion.	N
Bird	Wheatear	*Oenanthe oenanthe*	• Maintain some well-grazed areas of grassland. • In quarry restoration, maintain some open ground.	N
Bird	Willow Tit	*Peocele montanus*	• Manage wet and damp woodlands for stands of dense scrub, maintaining standing deadwood for nesting.	N

			• Reconnect key habitats to aid dispersal, ensuring sufficient edge habitat is retained. • Install Willow Tit nest logs in suitable locations.	
Bird	Lesser Black-backed Gull	*Larus fuscus*	• Control and limit human disturbance at Ellesmere, particularly in autumn.	Y
Plant	Green-winged Orchid	*Anacamptis morio*	• Enhance small hay meadows using green hay from Minsterley Meadows, which has a good population for Green-winged Orchid, to promote the spread of the species.	Y
Invertebrate	A hoverfly	Cheilosia semifasciatus	• Retain trees shading *Umbilicus* (Navelwort plant) and encourage growth in the vicinity of stands of *Umbilicus*.	N
Invertebrate	Noble Chafer	*Gnorimus nobilis*	Manage established traditional orchards: • Minimise pruning, especially of thicker branches. • Retain veteran features including hollows and deadwood on fruit trees. • Retain all fallen deadwood on site. • Retain Umbellifer (and similar) flowers and refrain from making land neat and tidy. • Control scrub around the trees. • Avoid herbicides and pesticides. • Plant new trees to maintain orchard and provide diverse age structure.	Y
Invertebrate	Grayling Butterfly	*Hipparchia semele*	• Halt the spread of scrub and thick bracken which swamp food plants including Heather, Sheep's Fescue, Red Fescue, Bristle Bent and Early Hair-grass). • Maintain soils that are dry and well-drained, with sparse vegetation and plenty of bare ground in open positions.	N

			• Adults require basking areas and are attracted to muddy puddles and sap from tree trunks. Further guidance: Butterfly Conservation – Grayling factsheet.	
Invertebrate	Scarce Blue-tailed Damselfly	*Ischnura pumilio*	• Species uses small streams, flushes and ponds and even ephemeral sites such as wheel ruts. Manage vegetation by mechanical operations, livestock trampling or erosion at known sites. Further guidance: British Dragonfly Society – Scarce Blue-tailed Damselfly factsheet.	N
Invertebrate	Wall butterfly	Lasiommata megera	• Take care with grassland management to support foodplants – Sheep's Fescue and other fine grasses. • Favours a short sward; grassy, rocky slopes/gullies, flowery meadows; woodland clearings associated with open stony ground, path, brownfield sites, moorlands where its foodplants occur. • Adults require basking areas (e.g. large rock faces on Wenlock Edge). Overwinter as young larvae.	N
Invertebrate	Scarlet Malachite Beetle	*Malachius aeneus*	• Protect remaining flowery grassland at Colemere and survey for species as adults feed in nearby flower rich meadows. • As they are believed to breed in thatched roofs, provide conservation information to owners of thatched buildings. • Create beetle nurseries where appropriate. Further guidance: Buglife species management sheet – Scarlet Malachite Beetle.	Y
Invertebrate	Slender Mud Snail	*Omphiscola glabra*	• Ensure suitable ponds in open woods and commons have good water quality and fluctuating	N

			water table that includes a dry period. Further guidance: PondNet species dossier – Slender Mud Snail.	
Invertebrate	Grizzled Skipper	*Pyrgus malvae*	• Found in scrubby unimproved grassland especially limestone grasslands and woodland clearings. Also, in disused artificial habitats such as quarries, pits and railway lines. The Wyre Forest and Oswestry uplands are important areas. Food plant Wild Strawberry/Creeping Cinquefoil/Tormentil. Overwinters as pupae. Ensure supply of its favoured foodplants is maintained. Further guidance: Butterfly Conservation – Grizzled Skipper.	N
Invertebrate	Black Darter	*Sympetrum danae*	• Requires acidic shallow pools and flushes to remain wet. • Support the Species Action Plan that's in place for Stepping Stones Project, covering the Long Mynd and Stiperstones and areas in between.	N
Invertebrate	Lilljeborg's Whorl Snail	*Vertigo lilljeborgi*	• Glacial relic species, found in calcareous short sedge fen with high water table. Ensure water table maintained at appropriate level in suitable habitats.	N
Invertebrate	Desmoulin's Whorl Snail	*Vertigo moulinsiana*	• Found in tall sedge fen in open alder or willow carr, fringing two Shropshire meres. Ensure suitable habitat maintained.	N

Species assemblages

Deadwood species assemblage

Deadwood is a haven for many invertebrate species which in turn support birds, bats, and small mammals. It also hosts fungi, mosses, and lichens, all of which contribute to nutrient cycling and forest health. Standing dead trees and fallen logs provide nesting cavities for birds like woodpeckers and nuthatches, roosting opportunities for bats and shelter for amphibians and reptiles.

Taxon	Common name	Scientific name
Invertebrate	a Beetle	*Abdera quadrifasciata*
Invertebrate	a Beetle	*Ischnomera sanguinicollis*
invertebrate	a Beetle	*Trichius fasciatus*

Actions

- Retain standing and fallen deadwood wherever possible.
- Include submerged deadwood in rivers, streams and ponds.
- Retain old and decaying birch stumps.

Woodland species assemblage

Woods are a key habitat for many species. All types of animals have found a home in the canopy, beneath the trees, amongst the roots, within the bark itself, not mention countless species of fungi under the woodland floor.

Taxon	Common name	Scientific name
Invertebrate	Drab Looper	*Minoa murinata*
Invertebrate	Common Fan-foot	*Pechipogo strigilata*
Plant	Yellow Star of Bethlehem	*Gagea lutea*
Plant	Touch-me-not Balsam	*Impatiens noli-tangere*

Actions

- Reduce density of woodland understory particularly at woodland edge.
- Regular disturbance of woodland edges by clearance or coppicing.
- Use rotational coppicing of woodland on heavy soil to encourage low, bushy growth.
- Implement ongoing management to maintain scrubby birch habitats.
- Create areas of dappled shade and reduce density of ground flora in wet woodland.

Species reliant on arable land

A significant number of species live on arable land. It is a transient habitat subject to regular disturbance, for example from ploughing. Several adaptations have allowed these species to cope with disturbance, and many plant and bryophyte species can survive for years in the soil in a dormant state, triggered to germinate after disturbance.

Taxon	Common name	Scientific name
Bryophyte	a Bryophyte	*Bryum gemmilucens*
Bryophyte	a Bryophyte	*Didymodon tomaculosus*
Bryophyte	a Bryophyte	*Ditrichum pusillum*
Bryophyte	a Bryophyte	*Fossombronia caespitiformis*
Bryophyte	a Bryophyte	*Phaeoceros carolinianus*
Bryophyte	a Bryophyte	*Weissia squarrosa*
Bryophyte	a Bryophyte	*Weissia rostellata*
Invertebrate	Necklace Ground Beetle	*Carabus monilis*
Plant	Corn Chamomile	*Anthemis arvensis*
Plant	Stinking Chamomile	*Anthemis cotula*

Plant	Dwarf Spurge	*Euphorbia exigua*

Actions

- Support rare arable plants that require soil disturbance to complete their flowering cycle through considered ploughing and exclusion of herbicides. Further guidance: Centre for Ecology and Hydrology, Botanical Society of Britain and Ireland, Plantlife, Joint Nature Conservation Committee, Biological Records Centre and Natural England (2015) Conserving important arable plants: The challenge and opportunity for arable farmers.
- Reduce pesticide use and encourage appropriate stewardship options. Support Buglife, an ongoing national project. See the Buglife directory for species management sheets with relevant options.
- Maintain open ground and cultivate to keep more aggressive plants in check.
- Use spring-sown crops where possible and retain stubble over winter.
- Leave unharvested, fertiliser-free conservation headlands and cultivated fallow plots or margin strips.
- Use low input options, preceding rotational enhanced set-aside.
- Minimise inputs of pesticides and herbicides.
- Provide advice and incentives for management, particularly in key locations.

River species assemblage

Rivers can be among our richest freshwater habitats and support species that depend on permanent running water. Important species include salmon and other fish that need clean gravels to spawn on and mayflies that depend on constant high oxygen levels and cool water.

Taxon	Common name	Scientific name
Invertebrate	White-clawed crayfish	*Austropotamobius pallipes*
Invertebrate	a Caddisfly	*Leptocerus interruptus*
Invertebrate	Yellow Mayfly	*Potamanthus luteus*
Invertebrate	Depressed River Mussel	*Pseudanodonta complanata*
Invertebrate	a Riffle Beetle	*Riolus nitens*
Invertebrate	a Riffle Beetle	*Stenelmis canaliculata*
Invertebrate	a Caddisfly	*Oecetis notata*
Invertebrate	Freshwater Pearl Mussel	*Margaritifera margaritifera*
Invertebrate	Scarce Blue-tailed Damselfly	*Ischnura pumilio*
Invertebrate	Southern Yellow Splinter	*Lipsothrix nervosa*
Invertebrate	Scarce Yellow Splinter	*Lipsothrix nigristigma synonym of L. nobilis*
Fish	Allis Shad	*Alosa alosa*
Fish	Twaite Shad	*Alosa fallax*
Fish	European Eel	*Anguilla anguilla*
Fish	River Lamprey	*Lampetra fluviatilis*
Fish	Brook Lamprey	*Lampetra planeri*
Fish	Sea Lamprey	*Petromyzon marinus*
Fish	Atlantic Salmon	*Salmo salar*
Fish	Brown Trout	*Salmo trutta*
Fish	Greyling	*Thymallus thymallus*

Actions

- Improve water quality through buffer zones and management of cattle access to water, etc.
- Maintain clean gravels for spawning and silt habitats for young fish.
- Remove physical barriers within rivers and to adjacent wetland habitats.
- Enhance rivers with in-stream features to provide a range of flow conditions suitable for all stages of life cycle.
- Slow the flow of streams by placement of large boughs and other timber.
- Maintain healthy marginal trees and their submerged roots. Bank management only in one side in a year.
- Reduce silt and sediment. Avoid dredging.
- Put course woody debris in streams.
- Promote 'Check Clean Dry' protocol for control of invasive species spread and disease.
- Create refuge using boulders, bricks, breeze blocks, hessian etc.
- Consider translocations.
- Survey to identify remaining populations

Species reliant on bog and other wetland habitats

Springs and flushes are generally formed by changes in the underlying geology on slopes, which force water to the surface, often with different chemical properties to surface water in surrounding habitats. Otherwise-acidic, peaty habitats may be associated with more base-rich flushes, springs and stream sides, often of limited extent. These habitats support a range of plant species that are scarce or rare in Shropshire.

Taxon	Common name	Scientific name
Bryophyte	a Bryophyte	*Barbilophozia kunzeana*
Bryophyte	a Bryophyte	*Biantheridion undulifolium*
Bryophyte	a Bryophyte	*Bryum weigelia*
Bryophyte	a Bryophyte	*Scapania paludicola*
Bryophyte	a Bryophyte	*Sphagnum platyphyllum*
Bryophyte	a Bryophyte	*Sphagnum subsecundum s.s.*
Bryophyte	a Bryophyte	*Dicranum undulatum*
Bryophyte	a Bryophyte	*Cephalozia pleniceps*
Bryophyte	a Bryophyte	*Cephaloziella elachista*
Bryophyte	a Bryophyte	*Odontoschisma francisci*
Bird	Snipe	*Gallinago gallinago*
Invertebrate	Water Beetle	*Agabus uliginosus*
Invertebrate	a Micro Moth	*Ancylis tineana*
Invertebrate	a Spider	*Glyphesis cottonae*
Invertebrate	Argent and Sable	*Rheumaptera hastata*
Invertebrate	White-faced Darter	*Leucorrhinia dubia*
Invertebrate	Window-winged Sedge (a Caddisfly)	*Hagenella clathrata*

Actions

- Avoid mechanical or chemical damage to sphagnum bogs.

- Raise water tables where appropriate.
- Encroaching vegetation should be cut back as necessary to maintain appropriate light levels.
- Sustained management to maintain scrubby birch habitats within bog sites.
- Rush cutting to introduce diverse sward and prevent drying.
- Avoid excessive trampling by livestock or people by managing access.
- Seek to reduce nitrogen levels.
- Create more temporary pools within appropriate habitats.
- Maintain scrubby birch habitats within bog sites and coppice.
- Maintain open pools within bog habitat.

Plants requiring growing from seed for planting out

Many native plant species have declined, and reintroduction helps restore these species to areas where they once thrived but have since disappeared. Certain species have poor seed dispersal, low germination rates or face competition from invasive species. In such cases, growing from seed and planting out is necessary to re-establish viable populations.

Taxon	Common name	Scientific name
Plant	Spreading Bellflower	*Campanula patula*
Plant	Petty Whin	*Genista anglica*
Plant	Dyer's Greenweed	*Genista tinctoria*
Plant	Marsh St John's Wort	*Hypericum elodes*
Plant	Greater Butterfly-orchid	*Platanthera chlorantha*
Plant	Black Poplar	*Populus nigra*
Plant	Meadow Saxifrage	*Saxifraga granulata*
Plant	Devil's Bit Scabious	*Succisa pratensis*
Plant	Cowberry	*Vaccinium vitis-idaea*
Plant	Yellow Mountain Pansy	*Viola lutea*
Plant	Marsh Violet	*Viola palustris*

Actions

- Identify suitable seed sources, harvest and store seed appropriately for each species in the assemblage.
- Grow and plant out small plants in suitable heathland sites of petty whin and cowberry.
- Grow and plant out small plants in suitable wetland sites of Frogbit, Marsh St John's Wort, Marsh Violet and Tubular Water-dropwort.
- Grow and plant out small plants in suitable grassland habitats: meadows for Dyer's Greenweed, Greater Butterfly-orchid and Devil's Bit Scabious; acid grasslands for Yellow Mountain Pansy and Marsh Violet; floodplain grasslands for Meadow Saxifrage.
- Grow and plant out small plants in suitable woodland habitats. In disturbed woodland with coppicing activity for Spreading Bellflower. In ancient woodlands for Greater Butterfly-orchid.
- Grow and plant out young trees in riparian habitats and floodplains through propagation from long cuttings.

Inland rock and open habitat species assemblage

Shropshire has a wide range of rock types due to its varied geology, and this is mirrored by the range of species this habitat supports, including rare and threatened species. Inland rock covers natural outcrops, cliffs and scree, quarry faces and scree, mining spoil including contaminated material and even churchyards and buildings. Rock types range from acid to alkaline and igneous to sedimentary. Thin soil over rock, scree, quarry floors, on rock ledges and in crevices, where the underlying rock dominates the soil type, is also an important element of this habitat.

Taxon	Common name	Scientific name
Invertebrate	Devon Red-legged Robberfly	*Neomochtherus pallipes*
Plant	Red Hemp-nettle	*Galeopsis angustifolia*
Plant	Scarce Prickly-sedge	*Carex muricata muricata*
Lichen	a lichen	*Catillaria aphana*
Lichen	a lichen	*Cladonia novochlorophaea*
Lichen	a lichen	*Cladonia phyllophora*
Lichen	a lichen	*Lichenopeltella peltigericola*
Lichen	a lichen	*Phlyctis agelaea*
Lichen	a lichen	*Myriquidica atriseda*
Lichen	a lichen	*Umbilicaria cylindrica*
Lichen	a lichen	*Umbilicaria hirsuta*
Lichen	a lichen	*Umbilicaria polyrrhiza*
Bryophyte	a Bryophyte	*Cinclidotus riparius*
Bryophyte	a Bryophyte	*Orthodontium gracile*
Bryophyte	a Bryophyte	*Syntrichia princeps*
Bryophyte	a Bryophyte	*Targionia hypophylla*
Bryophyte	a Bryophyte	*Serpoleskia confervoides*
Bryophyte	a Bryophyte	*Bryum concinnatum*
Bryophyte	a Bryophyte	*Bryum canariense*
Bryophyte	a Bryophyte	*Bryum creberrimum*
Bryophyte	a Bryophyte	*Bryum kunzei*
Bryophyte	a Bryophyte	*Entosthodon muhlenbergii*
Bryophyte	a Bryophyte	*Grimmia incurva*
Bryophyte	a Bryophyte	*Grimmia laevigata*
Bryophyte	a Bryophyte	*Grimmia montana*
Bryophyte	a Bryophyte	*Grimmia orbicularis*
Bryophyte	a Bryophyte	*Hedwigia ciliata s.s.*
Bryophyte	a Bryophyte	*Plasteurhynchium striatulum*
Bryophyte	a Bryophyte	*Pottiopsis caespitosa*
Bryophyte	a Bryophyte	*Pterygoneurum ovatum*
Bryophyte	a Bryophyte	*Scapania cuspiduligera*
Bryophyte	a Bryophyte	*Seligeria donniana*
Bryophyte	a Bryophyte	*Seligeria pusilla*
Bryophyte	a Bryophyte	*Tortula freibergii*

Actions

- Reduce public use of rock in relevant locations to prevent abrasion.
- Monitor impact of non-invasive, shading vegetation, and remove when necessary.
- Encourage landowners not to change the microclimate for populations in shaded, humid locations (e.g. by felling canopy trees) in key places.
- Retain and possibly increase sparse scrubby tree cover on sunny slopes with scree and stone outcrops.
- Maintain open ground and prevent succession.
- Avoid damaging disturbance at contaminated mine sites supporting rare assemblages of lichens.
- Where appropriate, consider new rock and scree features in habitat creation schemes.

Species reliant on heathland and grassland mosaics, including ffridd

Active management removing dominant and mature vegetation to keep our heathland, grassland and ffridd habitats in favourable condition. Many of the species such as plants, fungi, invertebrate and birds associated with the plants and vegetation structure unique to these habitats, cannot survive in over vegetated and shaded habitats such as dense scrub and woodland.

Taxon	Common name	Scientific name
Invertebrate	Bilberry Bumblebee	*Bombus monticola*
Invertebrate	Dingy Skipper	*Erynnis tages*
Invertebrate	Glow Worm	*Lampyris noctiluca*
Invertebrate	Black Oil Beetle	*Meloe proscarabaeus*
Invertebrate	Violet Oil Beetle	*Meloe violaceus*
Invertebrate	a Micro Moth	*Sterrhopterix fusca*
Plant	Frog Orchid	*Coeloglossum viride*
Plant	Maiden Pink	*Dianthus deltoides*
Plant	Autumn Lady's-tresses	*Spiranthes spiralis*
Bird	Snipe	*Gallinago gallinago*
Bird	Tree Pipit	*Anthus trivialis*
Bird	Whinchat	*Saxicola rubetra*
Reptile	Adder	*Vipera berus*

Actions

- Connect mosaics of habitat including heath, grassland, open habitats and scrub.
- Manage ffridd with bracken control, scrub management and tree encroachment to maintain a balanced mosaic of habitats.
- Ascertain and implement the appropriate level of grazing to avoid both overgrazing and nutrient enrichment, and undergrazing and scrub encroachment.
- Maintain young birch scrub and other scrub. Manage with scalloped edges to create diverse habitat niches.
- Implement rush cutting to introduce diverse sward and prevent drying out.

- Maintain light-to-moderate grazing where bilberry is present to enable plant to flower on last year's growth.
- Rotational management to maintain and expand the supply of Bird's-foot Trefoil.
- Encourage growth of Sheep's Fescue and a few other fine grasses.
- Reduce moluscicide use.
- Reduce light pollution.
- Manage flower-rich grasslands appropriately for solitary bees.
- Reduce disturbance at key sites.

Bat species assemblage

Bats are important pollinators, and they also keep insects under control: one bat will eat thousands of insects in one night of foraging. Bats require fresh foods sources, water and good roosting areas. They are sensitive to environmental changes, making them excellent ecological indicators.

Taxon	Common name	Scientific name
Mammal	Barbastelle	*Barbastella barbastellus*
Mammal	Bechstein's Bat	*Myotis bechsteinii*
Mammal	Brandt's Bat	*Myotis brandtii*
Mammal	Brown Long-eared Bat	*Plecotus auritus*
Mammal	Common Pipistrelle	*Pipistrellus pipistrellus*
Mammal	Daubenton's Bat	*Myotis daubentonii*
Mammal	Greater Horseshoe Bat	*Rhinolophus ferrumequinum*
Mammal	Leisler's Bat	*Nyctalus leisleri*
Mammal	Lesser Horseshoe Bat	*Rhinolophus hipposideros*
Mammal	Nathusius's Pipistrelle	*Pipistrellus nathusii*
Mammal	Natterer's Bat	*Myotis nattereri*
Mammal	Noctule	*Nyctalus noctula*
Mammal	Serotine	*Eptesicus serotinus*
Mammal	Soprano Pipistrelle	*Pipistrellus pygmaeus*
Mammal	Whiskered Bat	*Myotis mystacinus*

Actions

- Identify bat roosting sites to enable their protection through planning policy.
- Educate homeowners around bats in buildings, preventing loss of roost sites during maintenance and re-roofing not requiring permission.
- Avoid modern roof linings and wood preservatives in buildings with potential for, or supporting, roosting bats.
- Avoid felling mature and veteran trees with bat-roosting potential.
- Retain deadwood in woodlands and trees with hollows, holes, loose bark and other roosting features.
- Minimise light pollution in the rural environment, at woodland edges and along watercourses and hedgerows etc., to minimise disturbance to bats.
- Minimise use of pesticides and provide unmanaged set-aside and field margins to support invertebrate food sources for bat species.

- Provide bat roosting boxes and features in a range of new build properties.
- Provide bat roosting boxes in woodlands and on trees.
- Connect woodlands supporting roosting bats across the landscape through planting trees, shelter belts and hedgerows.
- Increase species and structural diversity of scrub at woodland edges to provide good invertebrate food sources for bat species.
- Encourage freshwater invertebrates as food sources for bat species through river management and enhancing riparian corridors (e.g. by retaining bankside trees on both sides of watercourses).
- Maintain access to cellars, caves and mines. Prevent blocking-up of bat access to underground sites.

References

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